

COTTON TRADE AND CONSUMPTION. Having, in COTTON CULTIVATION AND SUPPLY, passed under review the chief circumstances connected with the growth of this important fibre, and its shipment to the busy marts of industry; and in the article COTTON MANUFACTURE, having described the principal processes whereby the fibre is spun for the use of the weaver—we shall be prepared, under the present heading, to trace the wonderful course of trade in the manufactured commodities.

And first, in relation to our own country, concerning which the available sources of information are abundant and trustworthy.

The unprecedentedly rapid increase in the consumption of cotton in Great Britain, soon after the year 1786, resulted almost entirely from the inventions of Arkwright, Hargreaves, and Crompton, followed, at later dates, by those of Cartwright, Ratchliffe, and Roberts, already adverted to. Had it not been for these inventions, British artisans could not have competed successfully with the spinners and weavers of India. The Hindoos possess so much skill in this kind of work, and are content with so low a rate of wages, that their muslins and calicoes would have continued to beat those of England out of the market, had not the latter been aided by machinery. Even when this difficulty was overcome, the peculiar monopoly of the East India Company retarded the opening of a market for British manufactures. It was not until the present century had considerably advanced that British cotton goods found their way to India in any notable quantity. Another circumstance deserving remark is, that the English weavers were slow in arriving at an equality with the Hindoos in the durability and general excellence of the product; it was the cheapness of price, rather than the improvement of quality, which brought about the revolution in the trade.

It will be convenient and instructive to trace the advance of this remarkable department of British commercial industry in successive epochs.

*Before 1800.* The statistics of the trade during the last century are not much to be relied upon; many of them were mere estimates rather than authenticated returns. So far as they go, however, they

may briefly be mentioned. In the year 1700 there were about 1,000,000 lbs. of cotton used in Great Britain, requiring the services of 25,000 persons to work it up—clearly indicating, by the large ratio of labour to material, a period of hand-spinning and hand-weaving. In 1720, the consumption was 2,200,000 lbs.; and in 1764, about 3,900,000. In 1775, before Arkwright's patent became established, the consumption was 4,800,000, which doubled by the year 1781. With 1786 began the new order of things. In the next following year the consumption was 23,000,000 lbs.; to work up which there were 143 cotton factories, 550 mule-jennies, 50,000 mule-spindles, 20,070 hand-jennies, 1,600,000 jenny-spindles, and 60,000 operatives. In 1790, the consumption was nearly 31,000,000 lbs.; and in 1800 upwards of 51,000,000 lbs. Before the year 1775, only low numbers, or coarse yarn, could be spun, and in a quantity insufficient for the wants of the weavers; but the great inventions of Arkwright, Hargreaves, and Crompton enabled the spinners to overtake the weavers—until Cartwright invented power-loom weaving, when the balance turned the other way. About the year 1790 the British manufacturers began to look out for an increased supply of foreign cotton; they felt that they could work up the raw material more rapidly than it was at that time obtainable. The East Indies effected a little, but only a little, towards augmenting the supply. The United States made an energetic response to the appeal. Eli Whitney's newly invented cotton-gin enabled the planters to clean their cotton for the market with a rapidity greatly exceeding that of the previous process; and thus, with an increased demand and an increased power of supply, the United States cotton trade spread in the way already indicated. During the last ten years of the century, the price of United States cotton varied from about 1s. 3d. to 1s. 6d. per lb. on an average of all the qualities.

1801 to 1810. The present century opened with every indication of a rapid extension of the cotton manufacture of Great Britain; and the result fully corresponded with the symptoms. The consumption was 54,000,000 lbs. in 1801, and 58,000,000 in 1806; a small portion was re-exported to other countries, in addition to the above, so that the total import was somewhat larger. The price of cotton gradually lowered; but the British manufacture had not yet extended to the degree which would leave any considerable surplus for exportation; nearly all the woven cotton goods were used at home.

1811 to 1820. The consumption rose from 90,000,000 lbs. to 150,000,000 lbs. per annum, during this period, after making allowance for a small re-export of raw cotton. Already had United States cotton attained such an ascendancy in the market, that towards the close of this decennial period, it constituted 53 per cent. of all the cotton used in Great Britain—the remainder being 31 per cent. from Brazil, 10 per cent. from the East Indies, and 6 per cent. from the West Indies. British manufacturers had by this time discovered the valuable fact, that, if the East India Company would afford trading facilities, India was quite willing to take in large quantities the produce of our looms. About 800,000 yards of British cotton goods were sent to India in 1814; in 1818 the quantity was 1,600,000 yards; and in 1820 no less than 9,000,000 yards. Altogether, it is supposed that, in 1820, our manufacturers found foreign purchasers for 248,000,000 yards of cotton piece-goods, and 23,000,000 lbs. of cotton-yarn, sold to be worked up in countries where they could weave more cheaply than spin.

1821 to 1830. There are conflicting accounts of the quantity of cotton used in Great Britain during these ten years. One authority sets down the quantity imported in 1821 at 157,000,000 lbs., and in 1830 at no less than 264,000,000 lbs.; in each year all except 5,000,000 or 6,000,000 lbs. were worked up in our own mills and workshops. Another authority gives higher figures. One cause of this discrepancy is, that many computers give their statistical entries in *bales*, and then guess at the probable number of pounds in an average bale of the period in question. The prices of cotton at Liverpool, during this decade, varied from 7d. to 12d. for average United States growths, 8d. to 15d. for Brazilian, and 5d. to 8d. for East Indian. It has been computed that in 1830 there were 223,000,000 lbs. of yarn and twist made in Great Britain, 64,000,000 lbs. of this quantity exported, and 442,000,000 yards of cotton piece goods exported—the value of these exports being about 19,000,000*l.*

1831 to 1840. We now arrive at a decennial period during which the workers in our cotton mills had become so numerous as to enlist the sympathies of the nation, in so far as regarded the unprotected or ill-protected women and children comprised among the number. What was the nature of the legislative interference, will be noticed under FACTORIES; a few particulars concerning actual numbers will suffice in the present case. The quantity of cotton imported increased with gigantic strides; it was 364,000,000 lbs. in 1835, and 592,000,000 lbs. in 1840. A steady increase took place at the same time in the quantity re-exported for manufacture in foreign countries; but this portion continued to bear a very small ratio to the whole weight. By the year 1840 the United States had acquired a greater ascendancy than at any former period in the supply of cotton to Great Britain; not only had their quota increased, but the increase had been more rapid than that in other countries. Of all the cotton purchased by Great Britain in that year, no less than 76 per cent. was from the United States—the other ratios being, 14 per cent. from the East Indies, 6 per cent. from Brazil, 2½ per cent. from Egypt,

and 1½ per cent. from the West Indies and miscellaneous countries. There had been an advance of ratio in quantities in East Indian and Egyptian, and a decline in Brazilian and West Indian. Prices, which in 1835, averaged 10½*d.* for United States cotton, 14½*d.* for Brazilian, and 7½*d.* for East Indian, fell in 1840 to 6*d.*, 9½*d.*, and 4¾*d.*, respectively. This was a highly flourishing state of things for the manufacturers; they obtained cotton cheaply and abundantly; they had the command of the best machinery, and an ample supply of labour; and a long continuance of peace maintained a wide field of foreign trade open to them. It was estimated that 281,000,000 lbs. of cotton yarn and twist were spun in Great Britain in 1835, and 407,000,000 in 1840; of these large quantities, 83,000,000 and 118,000,000 lbs. respectively, were exported. The exports also included 558,000,000 yards of cotton piece goods in 1835, and 791,000,000 in 1840. Piece goods and yarn together, the values were supposed to be 22,000,000*l.* in 1835, and 25,900,000*l.* in 1840—though some computers have made these figures much higher. As to the amount of fixed capital invested, Mr. McCulloch, Mr. Baines, and Mr. Kennedy, all endeavoured to make separate estimates about the year 1835; they proceeded on different bases, and their results were not in harmony; nevertheless, they did not depart very far from a medium estimate of 84,000,000*l.* Mr. Woodbury, an American authority, in comparing the cotton manufacturing operations of different countries for the year 1833, put down Great Britain at 9,500,000 spindles, and 1,500,000 persons directly or indirectly supported by the cotton manufacture. The last-named kind of estimate is one that must always be received with caution; for unless we know the limits which a computer assumes, we can never be sure of the meaning of his results. For instance, there are first the actual workers in the spinning and weaving mills; then there are the hand-loom weavers *out* of the mills; next come the bleachers, dressers, dyers, printers, and calenderers, who finish the woven goods for the market; another group comprises those who manufacture cotton into hosiery, lace, bobbin net, and various other articles; to these must (or may) be added the artisans employed in making the spinning and weaving machines and implements; and lastly, there are the wives and children or other dependents (themselves not engaged in earning money) of men employed in the above-named trades. Computers not only differ in the number of the groups which they include, but they do not always render it clear how far their estimates extend. In the instance of Mr. Woodbury, it is evident that he must have given a very wide extension to the meaning of the terms "supported by the cotton manufacture." The actual workers in cotton factories, in 1835, amounted to 220,134; and the number of power-looms in the mills was 109,626. The *obtainable* power of those looms, if all fully employed throughout the year upon a somewhat heavy class of goods, was estimated at 700,000,000 yards woven in a year; although the real produce was of course much below this. The number of hand-looms at that time could only be guessed at; it was roughly estimated from 200,000 to 250,000. It affords a curious illustration of the vastness of the manufacture, that the cotton weavers in that year used 650,000 bushels of flour, for the mere purpose of dressing the warp-threads before weaving. The factories were ascertained to be 1304 in number—that is, the spinning and weaving mills, in which the 220,134 operatives were engaged; the total number supported by the manufacture, in the wide acceptation above adverted to, was set down at 1,400,000, being less than Mr. Woodbury's estimate made two years before. The commissioners appointed to inquire into the circumstances connected with the employment of women and children in factories (preparatory to legislation on that subject), made a valuable analysis of the mode in which labour was distributed in the mills; from which the following table was prepared, showing the number employed and the wages earned in each department:—

	Number of hands.	Net Monthly earnings.
		£
Cleaning and spreading . . . . .	4,998	8,622
Carding . . . . .	40,484	75,276
Mule-spinning . . . . .	65,216	139,661
Throstle-spinning . . . . .	7,709	11,616
Reeling . . . . .	14,638	22,817
Weaving . . . . .	75,055	168,664
Roller-covering . . . . .	725	1,765
Engineers, &c. . . . .	3,975	15,987

The aggregate does not exactly correspond with the 220,134 for the year 1835; but the periods were perhaps not quite identical. Of the total number, 60,393 were men, 65,774 women, and the rest children. The average wages paid at that time to children and young persons, was from 2s. 9d. per week for boys nine years of age, to 8s. 2d. for young persons of eighteen; adult wages varied greatly, according to the degree of skill required in the several processes. The cotton yarns woven at that period varied in price between the wide limits of 1s. per lb. (for No. 12 water-twist) to 27s. per lb. (for No. 250 mule-twist).

1841 to 1850. The arrival of this period was marked by a notable manifestation of the influence possessed by the cotton manufacturers and merchants of England. The 'cotton interest' or 'Manchester interest' was now so great, that statesmen began to bend to it in a manner never before exhibited. The immense shipping arrangements

at Liverpool, connected with the importation of cotton; the vast monetary dealings between the Liverpool merchants and the Manchester manufacturers; the expenditure of capital in beginning to cover Lancashire with a network of railways, mostly for the accommodation of this particular trade; the mills, the machines, the work-people, employed in the trade—all had now advanced to such a degree of importance, as to render it impossible for statesmen to ignore the fact that a new power had arisen in the north, which must influence the legislation of the country. It was this power, more than any other which can be named, that brought about the systematic change of the import duties on foreign commodities, and especially on corn. The importation of cotton in 1845 was about 1,850,000 bales: equivalent, with the average weight of bales at that time, to about 722,000,000 of pounds; of which 43,000,000 were re-exported. Owing partly to a lessening of supply, and partly to the re-action after a period of excitement, the import of cotton in 1850 exhibited a falling off; it amounted to 1,750,000 bales, or 664,000,000 of pounds, of which 102,000,000 were re-exported. In reference to the total quantity of yarn and twist manufactured, the portion of this quantity which was exported to foreign countries, the length of woven piece goods exported, and the value of both kinds of exports, the two years in question exhibited the following figures:—

	Yarn and Twist manufactured.	Yarn and Twist exported.	Piece Goods exported.	Value of exports.
	lbs.	lbs.	Yards.	
1845	495,000,000	131,000,000	1,092,000,000	£26,000,000
1850	529,000,000	124,000,000	1,358,000,000	28,000,000

The price of cotton fell in 1845 to a level never before known, and this was one cause of the large importation in that year. Average United States cotton was at 4½d. per lb., Brazilian at 6½d., and East Indian at 3d. This was a year for large profits among the Lancashire manufacturers; they had an abundance of cotton at a low price, and sent out their manufactured goods to all accessible quarters. The intense desire to gain admission to additional foreign markets, for the sale of English manufactured cottons, was one reason for the vigorous agitation which led soon afterwards to the revision of Customs' duties; on the ground that if foreign countries were permitted to send their raw produce nearly or quite duty free to England, they might the more readily admit English manufactured goods on fair and moderate terms into their own ports. By the year 1850, the price of cotton had risen considerably; the three kinds above named exhibiting averages of 7¼d., 8d., and 5d., respectively. Concerning the operatives by whom the cotton was worked up, there was an estimate in 1846 that the cotton mills of the United Kingdom employed 316,327 persons; of whom 134,091 were males, and 182,236 females. A more detailed estimate, applicable to the year 1850, gave the following figures: cotton mills, 1932; moving-power therein, 83,000 horse-power; spindles, 21,000,000; power-looms, 247,000; children employed in cotton-mills, 14,993; young persons and adults, 315,931; total mill-hands, 330,924; of whom 189,423 were females.

1851 to 1859.—We now come to those recent years in the history of the British cotton manufacture which have been marked by great agitation and uneasiness; owing mainly to the extraordinary way in which England is dependent on the United States for a supply of cotton, and to the alarming degree in which any diminution in this supply augments the price of the raw material. It has just been shown that, in the year 1850, the quantity of raw cotton imported was about 664,000,000 lbs. Without touching upon the intermediate years, we will at once proceed to the three most recent years concerning which returns are yet obtainable—1856, 1857, and 1858:—

	1856.	1857.	1858.
	cwts.	cwts.	cwts.
From United States . . .	6,964,643	5,846,054	7,439,623
„ Brazil . . .	194,197	267,061	196,321
„ Egypt . . .	307,134	219,038	341,360
„ East Indies . . .	1,611,577	2,235,162	1,185,023
„ Other countries . . .	63,571	87,318	102,961
	9,141,122	8,654,633	9,265,288

Here we see that the Board of Trade returns introduce an additional complexity; we have not only to deal with *bales* and *pounds* of cotton, but in this instance with *hundredweights*. Without calculating the probable number of bales, it will suffice to convert these quantities into pounds, and then we find them to amount in round numbers to the following astounding totals: 1023,000,000 lbs. in 1856; 970,000,000 lbs. in 1857; 1034,000,000 lbs. in 1858. The relative falling off in East India cotton in 1858 may doubtless be attributed to the disturbance of industry and commerce occasioned by the mutiny. A portion of raw cotton, as we have before seen, is sold again by English dealers to foreign countries, chiefly in the north of Europe; this portion amounted, in the three years above-named, to about one-seventh of the total quantity imported. The ratios from different countries, in the first of these three years, were as follow: 71 per cent. of United States cotton, 19 per cent. of East Indian, 5 per cent. of Brazilian, 4½ per cent. of Egyptian, and ¼ per cent. from miscellaneous sources. The next table relates to the exports of manufactured cottons, in 1858, in which it

will be desirable to distinguish the chief countries to which the goods were sent:—

CALICOES, CAMBRICS, MUSLINS, FUSTIANS, AND MIXED STUFFS.	
Countries.	1858.
	£
Hanse Towns . . . . .	929,468
Holland . . . . .	540,450
Portugal . . . . .	718,662
Turkey . . . . .	2,779,227
Syria . . . . .	621,904
Egypt . . . . .	770,078
United States . . . . .	2,613,588
Foreign West Indies . . . . .	816,456
Brazil . . . . .	1,839,425
Buenos Ayres . . . . .	440,417
Chili . . . . .	414,156
Peru . . . . .	491,207
China . . . . .	1,821,570
Java . . . . .	532,863
Gibraltar . . . . .	416,466
British North America . . . . .	450,780
British West Indies . . . . .	562,428
East Indies . . . . .	9,299,359
Australia . . . . .	612,215
Other countries . . . . .	5,335,938
	32,006,715
Cotton yarn . . . . .	9,573,320
Cotton stockings, thread, lace net, and small wares . . . . .	1,387,519
	42,967,584

In 1856, the total amount had been 38,232,741l.; in 1857, it was 39,073,420l.

It will be seen that, according to this remarkable table (excluding the entry "Other countries," which is made up of many small items), the largest customers for British cotton manufactured goods are the East Indies, the United States, Turkey, Brazil, and China; these take rather more than half of the whole quantity. Yarn, on the other hand, as the spun material for weaving, is exported most largely to those European countries in which weaving is carried on to a considerable extent; thus, the Hanse Towns and Holland alone purchased cotton yarn from England to the average annual value of about 4,000,000l. during the years 1856-7-8. It is necessary to remark, however, that the Hanse Towns (Hamburg, Lübeck, Bremen, &c.) are not in themselves cotton manufacturing towns to any great extent; they are simply the ports at which cotton is landed, for distribution in Prussia and North Germany.

This will be a convenient place in which to advert to a source of confusion likely to lead to error, in comparing English and American cotton statistics. In England the commercial year ends on December 31; but in the United States the date August 31 is adopted—being that on which the total amount of the summer's crop is ascertained. The total crop for the twelve months ending August 31, 1859, was the largest on record, being more than 3,700,000 bales; and England, it is known, took a larger quantity than in any former period of equal extent, being more than 2,000,000 bales; but we cannot compare these numbers strictly with English estimates for 1857 and 1858, for the reasons just stated; and also because it is not certain that the bales present the same average weights as before.

Concerning the mill-industry of recent years, we have two computations, one for 1851 and one for 1856. In 1851, the cotton-mills of the United Kingdom are said to have employed 470,317 persons; of whom 222,612 were males, and 247,705 females. In 1856, the following figures were exhibited: cotton-mills, 2210; moving power therein, 97,000 horse-power; spindles, 28,000,000; power looms, 299,000; children employed, 24,684; young persons and adults, 354,565; total mill-hands, 379,249, of whom 222,027 were females. It is supposed, although there are no means of accurately determining this point, that the total quantity of yarn spun in 1857 was about 740,000,000 lbs.; of which about 24 per cent. was exported in the state of yarn, and the remaining 76 per cent. worked up in this country into woven and other goods.

There are features connected with these statistical returns, coupled with those of the preceding decennial period, which have excited anxious attention among the Lancashire manufacturers. From 1841 to 1848 there was, at the end of each year, an average stock of cotton on hand, at Liverpool (almost the only port of landing; Glasgow being the next in rank), equal to more than half a year's consumption for the whole of the United Kingdom; but from 1849 to 1857, the stock in hand barely reached eighteen weeks' consumption; and in 1856, it was as low as twelve weeks'. In 1845, which was a golden year for manufacturers, after paying 10,000,000l. for raw cotton, they received 45,000,000l. for yarn and manufactured cotton goods; leaving 35,000,000l. for machinery, fuel, dyeing, bleaching, printing, wages, interest of capital, and profit. Twelve years afterwards a contrast was exhibited, very unsatisfactory to the manufacturers. In 1857, they paid the enormous sum of 26,000,000l. for raw cotton, not so much on account of the increase of quantity as the increase of price; the money obtained

for the yarn and manufactured goods was 56,000,000*l.*, leaving 30,000,000*l.* for machinery, fuel, dyeing, bleaching, printing, wages, interest, and profit. They had done much more business than in 1845, but under much less favourable circumstances; in 1845, the raw cotton had cost less than a quarter of the money for which the manufactured produce was sold; whereas, in 1857, the ratio amounted to nearly one-half. The gradual diminution of the stock on hand at Liverpool, and the immediate rise of prices in certain years, led to that movement at Manchester which was briefly adverted to in the first of these three articles. When Sir James Weir Hogg, on the part of the East India Company, offered facilities for the researches of any accredited person, who might go out to India to inquire into all the circumstances of cotton culture in that region, the Manchester manufacturers took the matter up, and deputed Mr. Mackay as their commissioner or agent. This gentleman went out in 1852, with an intention of examining the Bombay and Madras presidencies; but his health broke down when his work was only half completed. He died in India; and so much of his report as had been finished was published under the editorship of Mr. Robertson in 1853. The volume contains a large amount of valuable information; and it was fully expected that the Manchester manufacturers would apply it to some useful purpose. But here again was presented an example of narrowed attention to individual interests, and a neglect of the broader interests of the trade,—and it may be added, of the nation in general. There happened to be two years of good supply and moderate prices of cotton and high profits on manufactured goods; and while this state of things lasted, Mr. Mackay's report was forgotten. When, however, the year 1856 exhibited a rise in the prices of United States cotton, and 1857 a still greater rise, manufacturers again took the alarm; again felt it a duty to inquire whether an increased supply of cotton can be obtained from other countries, so as to lessen the dependence of Great Britain on the United States.

It was under these circumstances that the Cotton Supply Association was established in 1857. Many active Lancashire men sought to interest the trade generally in the importance, and even necessity, of fostering the cultivation of cotton in countries where it had hitherto been too much neglected, especially the East Indies. The Association held its first anniversary meeting in April, 1858. During the preceding twelve months, many meetings had been held in the large towns of the north, to elicit opinions by discussion and comparison of data. A general opinion prevailed that India was the chief source to look to. A project was drawn up, to propose to the government an expenditure of 20,000,000*l.* in that country during five years, in the construction of roads, bridges, railways, tramways, piers, landing slips, irrigation canals, and navigation facilities; the interest of the money, and possibly a redemption fund, to be provided for by tolls. Whether such a large demand would have been acceded to under any circumstances, is doubtful; but the whole movement was speedily checked by the formidable mutiny. Even a limited application of 300,000*l.* for some of these purposes could not be obtained. The enormous outlay consequent on the suppression of the mutiny placed the Indian exchequer in a position ill-fitted for the direct undertaking of expensive public works; and the new council for India, after the transfer of the company's powers to the crown, was obliged to direct its energies to the defraying of costs already incurred. The Cotton Supply Association, in the course of its labours, sent circulars to the British consuls in all the cotton-growing countries, inviting information concerning the possibilities of an increase of supply. The replies given comprised many valuable statements. The ruling authorities in nearly all those countries expressed great eagerness to aid the object in view; making applications for good seed and efficient working machinery. The association purchased a hundred tons of the best American cotton seed, and sent it in small quantities to the several countries. Nevertheless, the ruling men in the association, in this their first report, complained in strong terms of the want of sufficient support among the Lancashire capitalists. The cotton dealers of Liverpool and the cotton spinners of Manchester entered with no largeness of feeling into the scheme; they subscribed so slenderly, that the association had not funds for carrying out the intended plans. At the next annual meeting, however, held in May, 1859, the report showed that the second year's operations of the association had been marked by that energy which Lancashire men can (if they will) bring to bear on their proceedings. There was, it is true, a complaint that Liverpool and Glasgow were still listless; but Manchester was on the alert, and so were most of the spinning towns. During the second year the association received two thousand communications from the government departments, the new Indian council, the British consuls abroad, and societies and individuals in various parts of the world, relating to the encouragement of cotton-growing in places suitable for it. Grants of cotton-seed, varying from one bag to two hundred each, had been made and forwarded to Bombay, Madras, Calcutta, Ahmedabad, Hyderabad, Malabar, Ceylon, Singapore, Sydney, Savanilla and Baranguilla in South America, Honduras, Guatemala, Cuba, Jamaica, Hayti, Tunis, Lagos, Fernando Po, Sierra Leone, Cape Coast Castle, Natal, Monrovia, Macedonia, Aleppo, Jaffa, Sidon, Kaiffa, Broussa, Salonica, Constantinople, Messina, Attica, Argolis, Laconia, Arcadia, Achaia, Eubœa, and many other places. Cotton-gins were forwarded to several of the above-named towns and countries; and cotton-presses were sent to Cape Coast Castle. Medals and prizes

were offered for the best samples of cotton grown in Liberia. A periodical called the 'Cotton Supply Reporter' was established, containing useful communications obtained from all parts of the world relating to the growth of cotton; it was regularly forwarded to all associations and individuals likely to be able to aid in the general object. Public trials of cotton-gins were held, with the view of concentrating the attention of machinists and inventors, in the hope of ultimately obtaining machines of a more efficient character than those at present in use. Acting on suggestions received from India, the association began experiments and invited assistance on the improvement of the simple Indian *churka*, or roller-gin,—appreciating the importance of having some easily managed contrivance which the Hindoos could use in their own cottages. If this were done, the Hindoos might be able to convey to the trading stations clean cotton instead of cotton in the seed, thereby reducing to one-third or one-fourth the weight to be carried. It was expected that the autumn of 1859 would witness the arrival at Liverpool of a large quantity of excellent cotton from places in which the cultivation had been mainly due to the exertions of the association.

We may now give a few figures concerning duty, prices, and capital, in relation to the British cotton manufacture.

The highest duty ever charged by the Customs' department on the raw material imported was between the years 1805 and 1809, when it amounted to 2*s.* 3*d.* per cwt. (about 3*d.* per lb.) for the produce of "non-favoured" countries. The lowest duty prevailed between 1833 and 1845, when it amounted to 4*d.* per cwt. on cotton from British provinces, and 2*s.* 11*d.* per cwt. on cotton from all other countries. The duty was altogether removed in the last-named year. The prices of the manufactured goods are subject to two remarkable disturbances: one due to the cheapening effects of improved machinery and processes; and the other due to the difference in the amount of labour on fabrics similar in weight, but not in fineness. It is a recorded fact that sixty years ago as much as 6*s.* per yard was paid for a calico wedding dress, which would now be manufactured at about 3*d.* The same kind of yarn which sold for 3*s.* per lb. in 1786 can now be sold with a profit at 2*s.* 6*d.* At the present time a pound of cotton-yarn is in some cases worth only 11*d.*; in others, 21*s.* 6*d.*; depending for the contrast almost wholly on the difference in the amount of labour bestowed: in the last-named case the cotton costs 3*s.* 6*d.*; the labour, 18*s.* Concerning the amount of capital now invested in this colossal manufacture, the materials for computation are doubtful. Mr. Ellison, in 1858, estimated that there were 2210 cotton-mills in the United Kingdom; that they contained 28,000,000 spindles; that if all the buildings and all the spinning materials were estimated in cost at so much per spindle, they might be taken at about 24*s.* per spindle; that wear and tear had probably brought down this value to 18*s.*; that there were 299,000 power-looms, which, having cost 24*l.* each, might be set down at 20*l.* He thence derived the following figures:—

Present value of mills and spinning machinery . . . . .	25,000,000
Present value of power looms . . . . .	6,000,000
Floating capital, stock in hand, wages advanced, &c. . . . .	14,500,000
Cash at bankers . . . . .	10,000,000
	55,500,000

In most of the foregoing details Ireland has been included with Great Britain. It has never occupied a distinguished rank in this department of industry. The manufacture was first introduced into Ireland in 1770, and it gradually extended; but the high price of fuel has always been a serious drawback. Many Glasgow firms send out spun yarn to Ireland to be woven into muslins and other cotton goods by hand-loom. It was supposed in 1855 that about 5000 persons were employed in the cotton manufacture in Ireland, chiefly in the province of Ulster.

Having thus traced the operations in the United Kingdom, we shall next take a rapid glance at the rise and present state of the cotton manufacture and the consumption of raw material in the chief foreign countries.

*France.*—The first import of cotton into France is said to have been in the year 1770. The first authentic record of quantities was in 1787, when the import amounted to about 10,000,000 lbs. From that time, during the long and dreadful war, little progress was made. In 1815 the quantity rose to 36,000,000 lbs.; in 1820, 45,000,000; in 1825, 55,000,000; in 1836, 57,000,000; and in 1846, 97,000,000: in 1850 it reached 375,000 bales; in 1856, 506,000 bales; and in 1857, 484,000. There is here the same complexity between *pounds* and *bales* as we have had occasion to notice in reference to Great Britain; and there is a further source of confusion in the adoption of the weight *kilogramme* in the French commercial tables. If, however, we assume the bale to be 400 lbs., the busiest year in the above list (1856) exhibits an import of about 200,000,000 lbs.—by far the largest ever known on the continent of Europe. The exports of French cotton goods, after the conclusion of the great war, rose in the following way: 29,000,000 francs in 1820, 43,000,000 in 1825, 55,000,000 in 1830, 57,000,000 in 1833. In 1850, the money paid for raw cotton was estimated (in English currency) at 10,000,000*l.*, and the value of the manufactures produced at 16,000,000*l.*—indicating, if the entry be correct, either a

very coarse quality of goods, or a very low rate of wages and profits. In the same year the French government tables gave the following figures: Cotton factories, 694; mule spinning-machines, 115,157; other spinning-machines, 15,362; spindles, 3,442,550; male adult operatives, 108,663, with average wages of 1s. 8d. per day; female adult operatives, 89,492, wages 10d.; children, 44,273, wages 5d.

*Switzerland.*—The Swiss do not wear many cotton garments; but they manufacture cotton for export to neighbouring countries. The first spinning machine was established at St. Gall in 1800. A considerable part of the Swiss manufacture consists in weaving by hand-loom the yarn which is imported ready spun from other countries; and in dyeing and printing piece-goods which have been woven abroad; in the latter department of the trade they have acquired a high reputation. A portion of the raw cotton imported by France is sold again to Switzerland. The republic worked up 22,000,000 lbs. of cotton in 1843, and 27,000,000 lbs. in 1851. The spinning capabilities have risen from 259,000 spindles in 1824, to about 1,350,000 spindles in 1858, in 270 factories.

*Holland and Belgium.*—These two countries are about on an equality in relation to the cotton manufacture. They produce fine, soft, and durable cotton goods. Much of their cotton is purchased from England. One of the curiosities of their trade is, that considerable quantities of yarn, when dyed red, are re-exported to England, for transmission to the East Indies; this seems to imply, that the quality of the dye is preferred to that of England. The cotton-trade of Holland is believed to be chiefly a transit one, the bales being sent onwards to the Rhenish districts. Taking the two countries together, Holland and Belgium imported 106,000 bales in 1850, and 170,000 bales in 1857. Belgium was supposed to have about 420,000 spindles in 1845, chiefly in the province of East Flanders.

*Germany and the Baltic Ports.*—Under the somewhat indefinite geographical designation, Germany, it is difficult to discover what is the amount of the cotton manufacture; for in some returns Prussia is included, but in others excluded; while the Baltic ports of landing might include many countries besides those belonging to the Germanic Confederation. It will probably include nearly the whole of the imports of northern and central Germany, Prussia, Russia, Sweden, and Denmark, if we combine the statistics of Germany and the Baltic Ports. In 1850 the importation amounted to 234,000 bales; in 1857 it had increased to 378,000 bales; and in 1856, it had reached 520,000 bales; the extraordinary activity being probably due to the renewed operations of peace after the Russian war of 1854-5. If the average of 400 lb. per bale may be taken (it was probably less than this), the imports of the year in question amounted to 200,000,000 lbs.

Although the imports of the respective German States cannot here be separated, the manufactures of several of them admit of being noticed. All the German States together were said to have 1,815,000 spindles in the year 1846, and 2,060,000 in 1857; but it is not clear whether Prussia was included in this group. Much of the cotton imported by Prussia in 1854-55 was merely in transit to Russia, whose ports were practically closed during the war. Prussia counted 5880 workers in cotton mills, and 172,000 spindles, in 1846; in 1858 there were supposed to be 425,000 spindles, in 26 cotton mills. Saxony is making a steady advance in the cotton manufacture, as shown by the following figures:—84 mills and 360,000 spindles in 1830; 116 mills and 475,000 spindles, in 1845; 134 mills and 605,000 spindles in 1858. The mills are mostly worked by water-power. The spindles vary from 120 to 21,000 in each factory, and mostly weave coarse yarns. In the year 1855 about 24,000,000 lbs. of cotton were worked up into 20,000,000 lbs. of yarn, worth 800,000*l.* The cotton was about in equal quantities from the United States and the East Indies. The fixed capital invested in the manufacture was estimated at the rate of about 30s. per spindle, and the working capital at 27s. There were 5979 men and boys employed, 5717 women and girls, or 11,696 altogether. The aggregate of wages paid was 136,000*l.*—about 11*l.* 11s. per head, or 4s. 5d. per week each operative on an average: a rate very much lower than that which prevails in England. It was computed that, of every 100*l.* received for the manufactured goods, 67*l.* went for raw cotton, 16*l.* 10s. for wages, and the remaining 16*l.* 10s. for working expenses, interest on capital, and profit; this affords another proof that both wages and profits must have been low. Of Bavaria we learn only a few facts; that in 1847 there were 11 mills, 56,000 spindles, and 1140 mill hands; and that by the year 1858 the mills had somewhat increased in number. The German States of Hanover, Wurtemberg, Baden, Oldenburg, and Nassau, were collectively entered in 1858 as possessing 32 cotton mills and 480,000 spindles.

*Russia.*—For the reasons already stated, the amount of import of cotton into Russia in recent years is uncertain; there are records, for instance, that 187,000 bales were landed at Baltic ports in 1857: but we do not know how many of these ports were Russian. Concerning the manufacture, there were 700,000 spindles in 1846. In 1853 the government returns told of 495 cotton mills, 2,000,000 spindles, 112,000 mill hands employed, and 41,000,000 lbs. of yarn produced. The import of raw cotton is steadily increasing, and that of English-spun yarn decreasing; showing that the Russians can now spin for themselves at a profit. There is good calico-printing conducted in the governments of Moscow and Vladimir.

*Norway and Sweden.*—The cotton trade and manufacture in these northern countries are small; but they are steadily increasing. It is computed that about 22,000,000 lbs. of cotton were imported in 1856, mostly at Gottenburg.

*Austria and Italy.*—It is not easy to separate the accounts of these two countries; for although most of the cotton landed at Trieste is forwarded north-eastward to Austria, Bohemia, &c., some of it is consigned to northern Italy. If we combine the imports at Trieste with those at all the Italian ports, we arrive at an average in eight years, 1850 to 1857, of about 160,000 bales; they exhibit a gradual diminution at Trieste, and a remarkable increase at the Italian ports—due, possibly, to a liberal policy on the part of the government of Piedmont. In Austria and Austrian Italy it is computed that, in 1846, there were 203 cotton mills, 1,270,000 spindles, and 28,000 mill hands: and that, in 1857, the mills had increased to 239, and the spindles to 1,740,000. The looms, in 1851, were 24,000 in number, mostly hand-loom. There is a probability that some of the cotton spun and woven in Bohemia and Moravia comes through France or Germany; and that thus the imports at Trieste are not a fair index to the totality of the Austrian manufacture.

*Spain.*—This fine but misgoverned country, in cotton manufactures as in most other things, is far behind the position which she ought to occupy. The spinning and weaving of cottons have slightly revived within the last few years; but they are far below the proper level for a country with fifteen millions of inhabitants. The cotton imported in 1857 was only 82,000 bales.

*United States.*—We now cross the Atlantic, and briefly trace a manufacture which is advancing with rapid strides. In the year 1789, the State of Massachusetts procured models of carding and spinning machines from England, and manufactured machinery to be put in operation by water-power; but the first cotton mill actually set to work in the United States was at Rhode Island in 1791. A second was built in 1792. Then a series of years occurred, during which the Americans made no advance whatever in the manufacture; the Southern States eagerly and successfully endeavoured to improve the culture and increase the sale of the raw material; but the Northern States took no steps to advance the spinning and weaving. It was not until the present century that anything noticeable was effected. In 1803 there were three cotton mills altogether, which were increased to four in 1804. In 1805 and the two following years there were ten mills built in Rhode Island and one in Connecticut. The war with England in 1812 induced the Americans to pay more attention to the home manufacture of cottons; and from that year this branch of industry has never flagged. The mills, which were only numerous enough to use up 1000 bales of cotton in 1805, and 10,000 bales in 1810, used 90,000 bales in 1815—employing (or perhaps supporting) in various ways 100,000 persons, and 40,000,000 dollars of capital. After this, power-loom factories were erected, and then the manufacture extended very rapidly. In 1830 the cotton worked up amounted to 127,000 bales; and in 1840 to 389,000; the value of the manufactured produce in these two years was about 4,700,000*l.* and 9,700,000*l.* respectively. America had too brisk a demand at home for these goods to induce her to export much; down to 1834 the export of cotton barely reached a value of half a million sterling annually. The cotton worked up in 1850 was about 640,000 bales; the mill hands were about 92,000; and the gross value of the manufactured produce 12,900,000*l.* In 1855 the cotton consumed was set down at 689,000 bales; and the value of the manufactured cotton goods at 14,900,000*l.* There can thus be no question that the cotton manufacture has spread widely and rapidly in the United States. Some English manufacturers fear that the Americans will by-and-by spoil our market for spun and woven cotton goods in that country, and will even undersell us in other countries. They point to the fact that while our total exports of cotton were higher in 1857 than in 1856, and higher in 1858 than in 1857, that portion of the exports which went to the United States receded—being (in woven goods, excluding yarn, hosiery, and lace) 3,800,000*l.* in 1856, 3,100,000*l.* in 1857, and 2,600,000*l.* in 1858. On the other hand, as England is the great source for highly effective machinery; as coal and iron are abundant and cheap; and as wages are somewhat lower than in the United States,—it would appear that our country ought not to lose much in the race, in the long run.

A few words concerning the total consumption of cotton in all countries. In 1835, Mr. Woodbury, Secretary of the United States' Treasury, compiled, by order of the American Congress, and presented to the House of Representatives, a Collection of tables and notes on the cultivation, manufacture, and foreign trade of cotton. These were apparently prepared from all the authentic data at that time obtainable. Leaving out those Asiatic and African countries of whose industrial concerns we know so little, he estimated the consumption of cotton, in all the countries where commercial statistics are of any avail, at 490,000,000 lbs. in 1791; 630,000,000 lbs. in 1821; and 900,000,000 lbs. in 1834. Mr. Bazley, Chairman of the Manchester Chamber of Commerce, has made an estimate that in 1853 there were 1,500,000,000 lbs. worked up in Europe and America; of which, about one-half was wrought in England, and one-sixth in the United States. He further estimated, that if all this cotton were spun into the yarn known as No. 40, it would have required 47,000,000 spindles

for this work. Another estimate, made in 1857, was to the effect that all the cotton worked up in Europe and America, excluding Asia and Africa, would in 1856 have amounted to 1,795,000,000 lbs. The probable *European* consumption for 1859 is about 1,300,000,000 lbs.

The most trustworthy authorities on the subject of this article are the same as those enumerated at the end of COTTON, CULTIVATION AND SUPPLY.