Japanese Civilization (Part 21)

How did England Succeed in Substituting Indian Cottons?

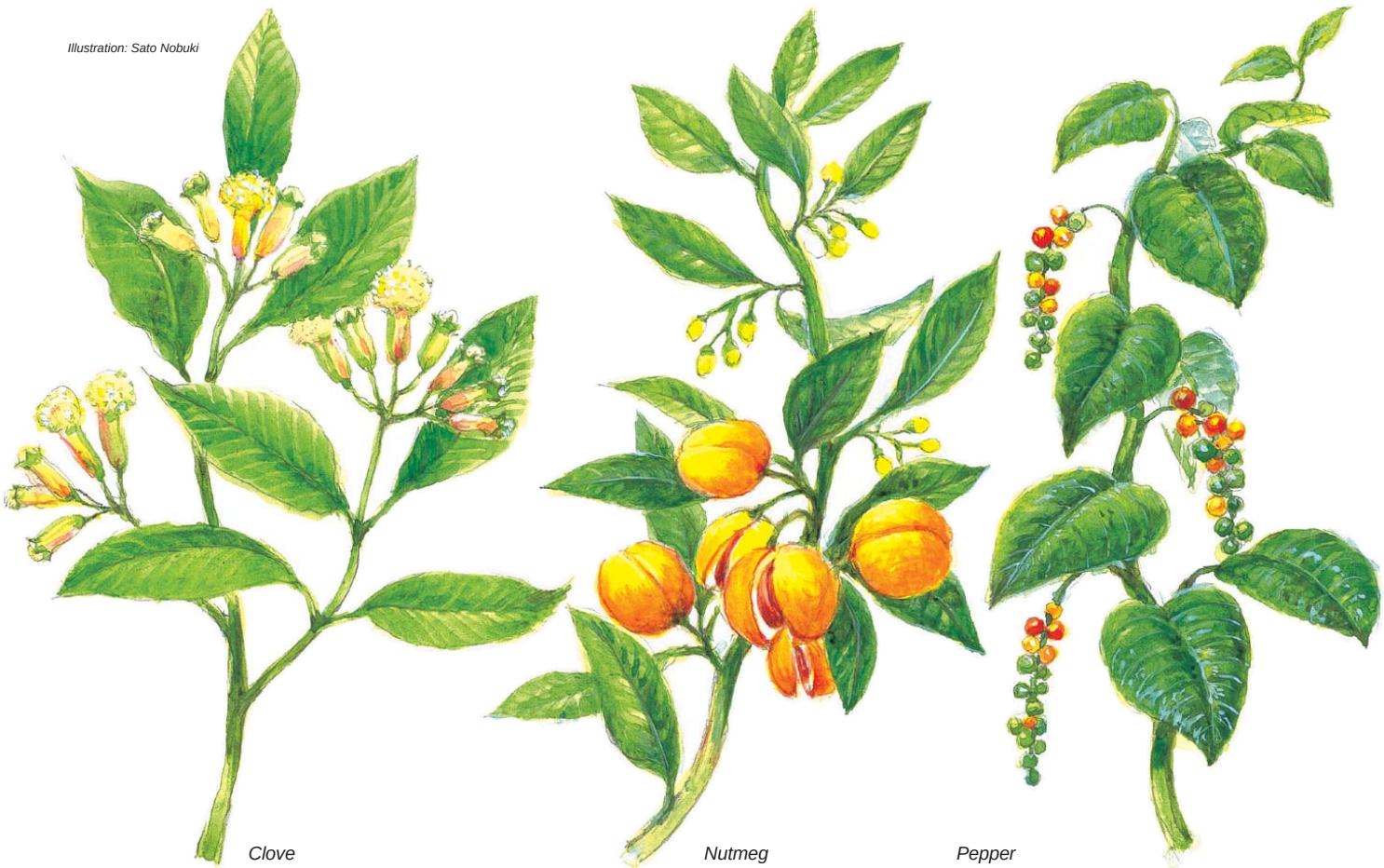
By Kawakatsu Heita

I would like to explain how England succeeded in substituting Indian cottons for home-made goods, a process which took over a century to complete. This implies that the First Industrial Revolution in England was not the result of an indigenous development, but was a response to the impact of the Orient. The Oriental impact was exemplified in the enormous imports of cotton goods into England.

Before continuing with this theme, I must stress that the West was under the strong cultural influence of the Orient. The desire for Oriental goods resulted in the outflow of Asian treasures, which eventually invited economic pressure. Its initial motivation was not cultural but medical, as Europe had suffered from the plague since the middle of the 14th century. In Medieval times, the Europeans believed spices were efficacious for diseases, and the spice trade had a strong connection with the plague.

Iris Origo mentions, for example, that various kind of spices such as saffron, pepper, ginger, cinnamon, cloves, nutmegs, cassia and even sugar were used more for medicinal purposes than to disguise the taste of imperfectly cured fish and meat, in *The Merchant of Prato* (revised ed., 1963, pp. 293-5). R. T. Gunter shows that in the early 14th century, the first apothecaries' shop in England which was then called the "*apothecaria et spiceria*" sold spices and was situated in the High Street between All Saints and St. Mary's Churches, which "belonged to St. John's Hospital." Similar types of apothecaries' shops stocked with remedial preparations from plants had already sprung up in Spain and Southern Italy in the 11th century and a little later in Germany (*Early Science in Oxford*, vol.1 Oxford, 1923, pp. 3-5). Hymen Saye mentions cloves,

Illustration: Sato Nobuki



Clove *Nutmeg* *Pepper*

saffron and cinnamon are recommended remedies for gout in "Translation of a Fourteenth Century French Manuscript dealing with Treatment of Gout," *Bulletin of the Institute of the History of Medicine*, vol. 2 1934. D. V. S. Reddy draws up a list of "the most important herbs and drugs" in 16th century India including cloves, ginger, nutmegs, pepper and other spices and suggests that these "drugs" were used in Europe in "Medicine in India in the Middle of the XVI Century," *Bulletin of the History of Medicine*, vol. 3 1940, p. 53.

Another point to be stressed was the fact that the triangular structure of intra-Asiatic trade already existed when Europeans arrived in the Indian Ocean.

The main islands of the Malay Archipelago were Molucca, Java, Sumatra and Borneo. Cloves were grown in the islands of the Molucca. The Independent kingdom of Banda yielded nutmegs and mace. Although small in quantity, Java produced all sorts of spices such as nutmegs, cloves, mace and pepper. The principal product in Sumatra was pepper. The Succadana area in Borneo grew pepper, cloves and nutmegs in great quantities. These spices of the Archipelago had the highest reputation. The pepper of Sumatra, for instance, was bigger and heavier than that of Malabar of India (Bal Krishna, *Commercial Relations between India and England*, London, 1924, pp. 29-33.), while the Indian Coromandel pepper was poor in quality but expensive in price.

Indian spices were also inferior to those of the Archipelago, which is not surprising as the English East India Company found little demand for Indian spices. Nor was India suitable for the cultivation of spices. In other words, merchants who wanted to acquire good quality spices at a low price had to sail to the Malay Archipelago, popularly known as the Spice Islands at that time. The Spice Islands in turn required abundant Indian fabrics. All these regions used cotton clothes. Ralph Fitch, an English traveller, observed in 1585 that famous Dacca muslin was sent "all over India, Pegu (Burma), Malacca, Sumatra." (S. A. Khan, *The East India Trade in the Seventeenth Century*, Oxford, 1923, pp. 237-8, 264).

Cambay, Bengal and Coromandel sent their textiles to these islands "to exchange them for cloves, maces and nutmegs." (J. N. Varma, "*History of the Cotton Industry from the Earliest Times to the Battle of Plassey*," 1921, p. 218); Indian cloth was practically the only commodity which was readily acceptable to the producers of spices. (S. Chaudhuri, "The Financing of Investment in Bengal: 1650-1720," *The Indian Economic and Social History Review*, vol. 8, 1971, p. 110)

England responded to the Oriental impact by changing the supply sources of raw cotton.

For approximately the first three quarters of the 18th century, the expansion of the English cotton industry was restricted because of the low productivity of hand-wheel spinners. Apart from calico printing, the competition was principally focused on quantity rather than quality. Three to five spinners were required to keep one weaver before the invention of John Kay's Flying Shuttle (1733).[1]

The cotton used in England in the same period came largely from two sources: the West Indies and the Levant. Imports varied from year to year, but it is clear that the share of Levant cotton diminished during the 18th century. (Table 1) The remainder came almost entirely from the West Indies.

The import of long-stapled cottons from the New World before around 1780, however, did not result in any improvement in the quality of cotton goods, because "no attention was paid to the quantity of the crop until late in the century,"[2]

The advent of Spinning Mules, invented by Samuel Crompton (1779), made fine spinning possible from good grades of raw cotton. In 1788, Coloquhoun wrote, "the improvements... in the culture of this article [raw cotton] in Barbadoes, added to the acquisition of the fine cotton of the growth of Surinam and the Brazil, has been the means of introducing and extending the muslin manufacture, during the last three years, to a height that is almost incredible: and this circumstance has incontestably proved, that nothing is wanted but a fine raw material, to fix in Great Britain, for ever, a decided pre-eminence in the manufacture of muslins."[3]

In the late 18th century, as more and more raw cotton was imported directly from Southern and North-Western Europe, it is difficult to discover the original supply sources. By the end of the century, however, the supremacy of Brazilian cotton had been recognized, which reflected the sudden increase in imports from Latin America. (Table 2)

Imports of cotton from the United States remained insignificant throughout the 1780's and early 1790's. Eil Whitney's invention of the saw-gin in 1793 made it possible to "cleanse 300 weight of cotton in a day." Cotton exports from the United States rose from 0.5 to 1.6 million lbs in 1794 and reached 9.5 million lbs in 1799.[4]

The Sea Islands, which did not have the saw-gin, also increased cotton exports almost simultaneously. Exports of Sea Island cotton from South Carolina were 94,000 lbs in 1793, and rose to 159,000 lbs in the following year, rising to 2.8 million lbs, and reached 8.3 million lbs in 1801. The bulk of Sea Island cotton was exported to England. The crucial expansion of British imports of US cotton took place between 1799 and 1802, and by 1802 the United States become the largest cotton supplier.[5] American cotton formed more than 70% of total imports from the 1830's onward.

On the other hand, the Asiatic short-stapled cottons which constantly formed 1/3 to 1/4 of the imports for the first three quarters of the 18th century, had completely lost their importance by the end of the same century. In other words, the newly emerged British cotton industry abandoned the Old World as the raw cotton supply source, and tightened its relationship with the New World cottons by 1800.

Manufacture of Modern Cotton Goods

The Act of Parliament in 1774 allowed any British citizen to wear new manufactured cotton clothes. The move coincided with the advent of spinning machinery such as James Hargreaves' Spinning Jenny (patented in 1770), Richard Arkwright's water-frame (patented in 1769), and particularly Crompton's Spinning Mule (patented in 1779). The technical development of the cotton industry caused a spectacular increase in productivity, a continuous price reduction, and a fundamental improvement in yarn quality. Cotton manufacture had practically ceased require skilled worker and was fast becoming a science.

The quality of Indian yarns imported by the East India Company in the middle of the 18th century was characterized by their counts of 60s,[6] while the traditional one-thread hand wheel spun in England was at best finer than 16s to 20s, and moreover, its evenness depended on the skill of the spinner. The yarn spun by the Spinning Jenny reached 20s, while the water-frame, at its best, attained 60s.[7]

The Spinning Mule succeeded in spinning 40s, and a short time later it was able to spin 60s, and finally accomplished 80s.[8] The subsequent improvements made it possible to spin 350s by the 1810's.[9] By 1830, even 350s had become a standard article of commerce sold in substantial quantities.[10] A fine cotton spinning company, established around 1790, McConnel & Co., produced 60s up to 160s in 1795, and with 1,545 employees (about 200 more than any other spinner), their average counts reached 170s in 1833.[11] The average counts spun in England and Scotland were estimated at 50s in the early 1830's.[12]

The production costs of high spinning counts were drastically reduced. In the early 1780's, the cost of 1 lb of 100s was about £2; but this had fallen to only 3 shillings by 1830.[13] The reduction was partly attributable to the fall in the price of raw cotton, to the development of a steam-powered mule and to the price competition among cotton spinners. The number of mule spindles increased rapidly to 50,000 in 1788.[14]

In 1811 Crompton submitted evidence to Parliament that in the textile districts in England and Scotland, his

Table 1 Sources of Imports of Raw Cotton into England (Percentage Share)

(i)

Year	Long-stapled	Short-stapled			Total
	West Indies	Misc., Europe & Africa	Levant	Prize	
1701-1710	50.5	2.5	46.5	0.5	100
1711-1720	77.8	0.3	21.9	0.0	100
1721-1730	78.8	0.6	20.6	0.0	100
1731-1740	77.7	0.9	21.4	0.0	100
1741-1750	66.3	1.7	26.6	5.4	100
1751-1760	60.0	1.2	33.3	5.5	100
1761-1770	69.3	2.4	27.7	0.6	100
1771-1780	60.8	11.9	23.8	3.5	100

(ii)

Year	Long-stapled					Short-stapled		Total
	Latin America	West Indies	U.S.A.	Canada	Europe	Asia	Near East	
1784-86	0.0	49.0	0.2	0.1	39.7	0.1	10.9	100
1794-96	0.0	45.0	4.5	3.7	36.4	1.0	9.4	100
1804-06	10.4	34.1	37.3	0.1	16.5	1.5	0.1	100

(iii)

Year	Long-stapled				Short–stapled	Total
	U.S.A.	Brazil	West Indies & Co.	East Indies & Co.	Mediterranean	
1811-1820	38.6	31.6	12.6	16.8	0.4	100
1821-1830	59.1	25.9	3.5	7.3	4.2	100
1831-1840	72.3	11.3	0.0	11.6	2.8	100
1841-1850	75.3	7.1	0.8	13.5	3.3	100
1851-1860	72.6	5.1	0.4	17.6	4.3	100

Sources: A.P. Wadsworth & J. de L. Mann, op.cit., pp.520-1 for (i); R. Davis, *The Industrial Revolution and British Overseas Trade*, (Leicester, 1979), pp.110, 113 & 115 for (ii); T. Ellison, *The Cotton Trade of Great Britain* (London, 1968), Table No.1 in Appendix for (iii)

Table 2

(i)Re-exports of Indian Calicoes from England 1784-1816 (£ Thousand)

Year	Europe	Africa	America	Others	Total
1784-1786	261	86	40	7	395
1794-1796	881	144	113	10	1,148
1804-1806	590	92	89	6	777
1814-1816	293	15	99	9	433

(ii)Exports of English Cottons 1784-1816 (£ Thousand)

1784-1786	341	164	292		797
1794-1796	823	198	2,432		3,454
1804-1806	5,342	603	7,949	74	13,968
1814-1816	9,207	89	7,005	228	16,529

Source: Ralph Davis, *The Industrial Revolution and British Overseas Trade*, op. cit., pp. 94-97, 102-5

mule provided about 4.5 million spindles, whereas Hargreaves' Jenny and Arkwright's water-frame provided less than 500,000 spindles. Before the invention of the Spinning Mule, fine muslins and all fine yarns suitable for weaving muslins were imported from India. But the availability of inexpensive home spun fine yarn of the highest quality greatly stimulated demand, and the Spinning Mule became known as the "Muslin Wheel."[15]

Muslin manufacture was permanently established by Thomas Ainsworth at Bolton in 1780.[16] Samuel Oldknow became a maker of muslins from the spring of 1783 in Stockport and Anderton and within three years he was recognized as the foremost muslin manufacturer in England. At that time muslins were made from yarns of counts between 50s and 70s, but in the early 1790's the general level of the counts rose to between 90s and 120s.[16] The new availability of long-stapled cottons only served to stimulate demand. England produced 500,000 pieces in 1787.[17]

The results were obvious. The trade trend between England and India was reversed. The exports of English-made cottons to the three continents of Europe, Africa and America greatly exceeded its re-exports of Indian calicoes to these regions in the 1780's. The share of cotton goods in total English exports by value was 6% in 1784-6, rose to 15.6% in 1794-6, and reached 42.3% in 1804-6. In other words, English-made cotton goods had virtually replaced Indian textiles and dominated the Atlantic commercial world by 1810. While its imports of Indian textiles declined rapidly, English-made cloth began to flow into the Indian subcontinent, and the quantities grew dramatically. (Table 3)

Table 3

Year	British Cloth Exports to India (million yards)	British Imports of Indian Textiles (million pieces)
1814	0. 8	1.3
1821	19.1	0.5
1828	42.8	0.4
1835	51.8	0.3

Source: J.G. Borpujarl, *The British Impact on the Indian Cotton Textile Industry 1757-1865*, op. cit., pp. 166 & 168

England's export of cotton cloth to India in 1853 was 65 times greater than in 1814. England's growing dependence on the Indian markets (and Asian markets as a whole) continued and intensified towards the end of the 19th century. JS

(Continued in Part 22)

Kawakatsu Heita is a professor of economic history at the International Research Center for Japanese Studies in Kyoto. His books and articles have been published in both English and Japanese. He also serves as an advisor for various governmental bodies such as the Ministry of Land, Infrastructure and Transport.

References

1. R. Patterson, *Spinning and Weaving*, 1957, op. cit., p. 161.
2. A. P. Wadsworth & J. De L. Mann, op. cit., p. 185.
3. Colquhoum, An Important Crisis in the Calico and Muslin Manufactory in Great Britain Explained (this pamphlet is deposited in the Manchester Central Library), 1788, pp. 8-9.
4. E. Baines, op. cit., pp.301-302.
5. M. M. Edwards, *The Growth of the British Cotton Trade 1780-1815,* (Manchester, 1967), pp. 89 & 252.
6. H. Catling, *The Spinning Mule* (Newton Abbot, 1970), p. 21.
7. S. D. Chapman, *The Cotton Industry in the Industrial Revolution* (London, 1972), p. 21.
8. H. Catling, op. cit., p. 37.
9. Cyclopaedia (1819), vol.10, "*Cotton,*" no page number printed.
10. H. Catling, op. cit., p. 115.
11. *A Century of Fine Cotton Spinning 1790-1906,* op. cit., pp. 11 & 35.
12. E. Baines, op. cit., p.376.
13. H. Catling, op. cit., p.115.
14. S. D. Chapman, op. cit., p.22.
15. H. Catling, op. cit., pp. 39-40.
16. G. Unwin, *Samuel Oldknow and the Arkwrights* (2nd ed., Manchester, 1968), p.6. pp. 4,6, 43 & 134.
17. S. D. Chapman, op. cit., p. 21.