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THE COTTON MILL INDUSTRY OF EASTERN INDIA IN THE
LATE NINETEENTH CENTURY : CONSTRAINTS ON FOREIGN
INVESTMENT AND EXPANSION

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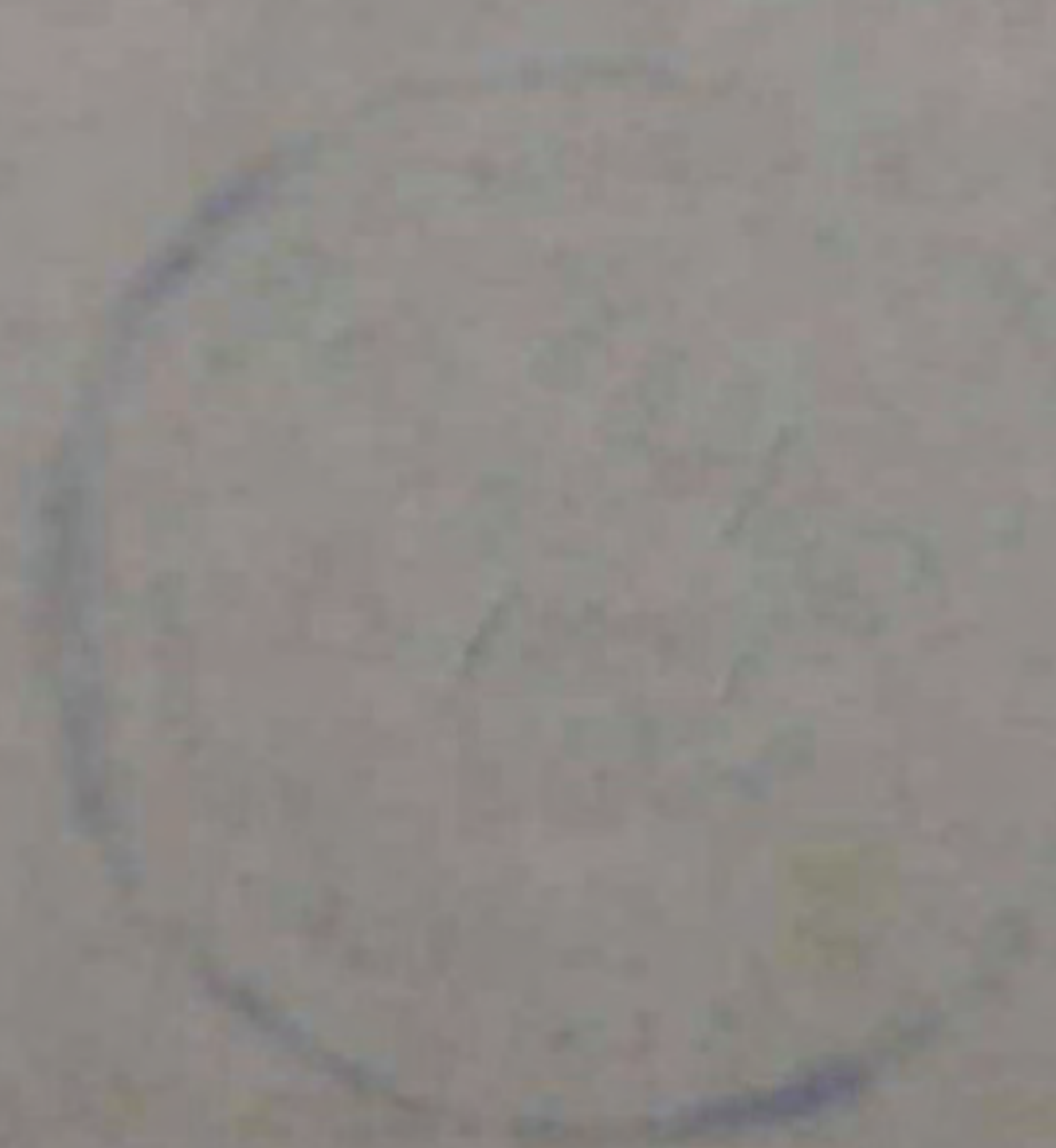
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A c k n o w l e d g m e n t s

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Cotton Industry

1. Introduction

In order to understand the factors governing foreign investment in the cotton industry of eastern India in the mid nineteenth century it is necessary to say something about the state of hand-spinning and handloom weaving industry in eastern India during this period. It has been documented in numerous official monographs and secondary works that the hand spinning industry in most parts of India was practically decimated by the advent of machine-made yarn from Britain.¹ The handloom exports from India also practically vanished in the 1820's and 1830's, and then British mill-made cloth made increasing inroads into the Indian market. However, due to availability of cheap machine-made yarn some of the handloom productions survived. It is not necessary for our discussion to enter into the question of whether handloom output increased or decreased in the aggregate. One point that needs to be emphasized is that the demand for machine-made yarn was generated largely by the surviving handloom industry. As India was also the source of raw cotton, in spite of the free trade policy practised by the British Government, British and Indian businessmen recognised the potential for profitable import substitution in the area of machine-made cloth. As in the case of imported machine-made cloth, of course, the home-produced mill-made cloth would also compete with handloom products.

Thus, there would be four potential sources of demand for Indian mill products cloth or yarn in India : (1) import substitution in the case of mill-made cloth, (2) displacement of handloom cloth, (3) import substitution of mill-made yarn, and (4) displacement of hand-spun yarn. However, by the late nineteenth century the fourth factor had

dwindled greatly and new cotton mills whether under European or Indian control, had to depend on the three other sources of demand for selling their products.

It is well known that because of various factors, including the availability of raw cotton nearby, western India took the lead in construction of cotton mills, whether exclusively for spinning yarn or for producing the finished cloth as well. However, in Bengal an early beginning was made with the establishment of a cotton mill at Bowreeh near Calcutta under the auspices of Fergusson and Company, a leading firm of English traders in Calcutta in 1817.² Expending nearly £200,000 (for 20,000 spindles and 100 looms) the Bowreeh Cotton Mill Co. with non-Indian technical staff and using Indian raw cotton could spin yarn ranging between 20's and 50's counts. Commercial failure led the proprietors to sell the mill for only £60,000 to Henry Gouger with a firm conviction that "there never will be another manufacturing for spinning of cotton yarns" in India.³ The mill ceased working in the 1840's. In the early years of the 1830's another Englishman named Patrick, supported by the authorities and Lord Willian Bentinck, established a second cotton mill under the banner, Fort Glester Cotton mill, near Calcutta.⁴ Sceptical businessmen in England and India felt that "it [was] doubtful whether they (cotton mills in India) [would] be able to compete with cotton mills in England".⁵

But these beginnings were followed up only rather feebly in eastern India. The control of manufacturing industry by the Europeans was much stronger in Eastern India than in Bombay and Ahmedabad.⁶ Since most of the big British managing agency houses had close relations with the export trade in British cotton goods, they were perhaps more influenced by the fear of damage that could be done to British trade in

India through the growth of an Indian cotton mill industry than big managing agency houses in western India. In the establishment of cotton mill industry in India there was a regional difference between South, East and West. Madras had a larger handloom industry and possibly larger demand for coarse yarn, where import substitution was easier. In relation to western India, spinning mills in eastern India would have the disadvantage of more expensive raw cotton and a later start (in spite of the foundation of Bowreeah in the late 1810's).

Thus, while hand spinning was virtually extinguished and handloom weaving managed to survive in a scattered manner and in a precarious condition (sustained by consumers' preferences and employment of family labour), the abundant supply of raw material (cotton) and existence of a vast home market naturally gave rise to the idea of establishing an import-substituting cotton mill industry in India employing the mechanical appliances of Britain. Excluding indigo factories and the Bowreeah cotton and Fort Gloster cotton mills, before 1850 there was an almost entire lack of factory industry in India. The industries that first attracted the attention of the English capitalist class / cotton / were and jute in eastern India during the 50's of the past century.

2. Political and fiscal factors behind the growth of the cotton industry

The cotton textile industry of India had to face a great deal of hostility from Lancashire industrialists who succeeded in securing government intervention in their favour. The Government of India conceded their demand for abolition of import duties on cotton goods in 1882 and for imposition of countervailing excise duties on Indian mill production when the import duties on cotton goods were reimposed in 1894.⁷ Their demand was made in the name of free trade although it

should have been quite clear that the import duties on cotton goods could not have any protective significance, at the rate they were imposed, given the very small proportion of Indian products which would have offered any competition to Lancashire products in the Indian market. The product composition of the Indian cotton mills shows that there was hardly any competition between Indian and Lancashire mills in the spinning of yarn below 24s counts.⁸

Generally speaking, Indian manufacturers used such imported British machinery as could only spin and weave yarn upto 30s counts. Since the proportion of wage cost and cost of raw cotton was higher in the case of coarse yarn, Indian mills had a greater advantage, in spinning such yarn in relation to Lancashire manufacturers, and found it easier to produce coarse yarn for handlooms than to search for new markets for finer yarn. All established channels of trade both in the U.K. and in India were geared to Manchester goods and the entrenched trading groups had an innate distrust of their ability to push India-made cotton products in the market. Lancashire's success in the overseas markets rested upon a well-knit system for marketing of Manchester goods which was, according to a contemporary American authority, quite unmatched by any commercial organisation.⁹ The cotton mills of Lancashire with their first-mover advantages and with their strong ties with the British imperial power were able for a long time to hold on to their markets in the colonies. So, the so-called Indian competition and the tariff debate were devices to suppress the potential, rather than an actual, rival in the field of cotton industry. The lack of policy of tariff protection on behalf of the Government of British India made the Indian cotton manufacturers unsure about their future.¹⁰ Indian cotton mills failed to effect even an absolute substitution of their products for imported U.K. fabrics. The concessions obtained by the Manchester group did

have an adverse effect on investment and diversification of production in the cotton textile industry in India, irrespective of whether the mills were owned by Indians or the British industrialists.

3. Investment and production in eastern India : Quantitative evidence

Although the first Indian cotton mill was floated in eastern India in 1817, the turning point in the growth of the Indian cotton industry is to be sought in western India: the first cotton mill in Bombay was established in 1854.¹¹ The export of raw cotton from the U.S.A. to the U.K. cotton mills was cut off by the American Civil War (1861-64), the demand for Indian raw cotton increased greatly. Indian cotton merchants made fabulous profits from the raw cotton trade and neglected the cotton mills. With the cessation of the boom in cotton trade, the cotton mills in India were overtaken by a financial crisis and stability was restored by 1872.¹² The accumulation of capital during the boom period of the 1860's and a perceived demand for Indian coarse yarn both in the local (for handloom) and foreign markets (especially in China and Japan) led to a rapid progress of the industry between 1869 and 1892. In 1880-81 out of 62 mills working in the country, 42 were in Bombay, 7 in Bengal, 4 in Ahmedabad, 3 in Madras, 2 each in Kanpur and Central Provinces and 1 each in Indore and Hyderabad.¹³ Before starting any discussion about the cotton mills in eastern India we have to remember several important points :

- a) The dominant and more intensive regional supremacy of the British Crown in eastern India made the British rupee capitalist groups aspire for the establishment and control of all industries including cotton mills in this region,¹⁴ whereas the cotton mills of western India (Bombay and Ahmedabad) were financed predominantly by Indian merchants. The

British rupee capital of eastern India did not somehow venture into cotton mills in western India, the main supply source of Indian raw cotton.

- b) The cotton mills of eastern India had to compete at the same time with Bombay and the Lancashire group. The survival of the cotton mills of Bengal against such tough competitors over the period under study suggests that the regional comparative advantage lay mainly in the existence of large local market.
- c) British merchants and industrialists, who possessed almost entire control and domination over industrial, financial and trading activities in the eastern region invested sparingly in the cotton mills and paid hardly any attention to the production of fabrics to meet the demand of the local market, the biggest market for Lancashire piece-goods in India. Hence, the suspicion of mutual understanding between Lancashire and the British businessmen in India and between the British and Indian cotton manufacturers of eastern and western India respectively cannot be discarded.

The expansion of Indian cotton mills between the late 1850's and 1870's indicates that by using home-grown cotton, they could successfully compete with Lancashire in the production of coarse yarn and cloth upto 20s counts for domestic use and for sale in the Far and Near East. This pattern or style of production remained almost unaltered during the period under study. Though the growth was irregular until about 1900, cotton mills in India grew much faster in the 1880's than in the 1890's. However, the number of cotton mills in Bengal remained stagnant at 7 between 1880 and 1890. The number of cotton mills under joint-stock companies which was 10 in Bengal in 1905 went up to 19 in 1910.¹⁵ But according to another Government source this number was 14 during 1910-11.¹⁶ This bunching of increase in number between 1905 and 1910

Table 1 Number of cotton mills in the several provinces and centres of British India.

Year	Bombay	Ahmedabad	Bengal	Madras	United Provinces	Central Provinces	Punjab
1898-99	126	N.A.	10	11	6	6	4
1899-1900	136	N.A.	10	11	6	6	5
1900-01	138	30	10	11	6	7	5
1901-02	137	30	10	12	8	7	5
1902-03	140	32	10	12	9	7	6
1903-04	140	32	10	12	9	7	8
1904-05	141	33	10	11	9	7	8
1905-06	142	35	13	11	9	7	8
1906-07	152	42	13	11	10	7	8
1907-08	155	50	13	11	11	7	8
1908-09	159	52	12	11	12	6	7
1909-10	162	53	13	12	13	7	7

Source: FCSI, from 1894 to 1906, and SBI, from 1907 to 1911. The source does not mention whether Bombay represents Bombay Presidency or Bombay City and Island. N.A. indicates not available.

suggests that apart from other factors, the Swadeshi movement (1905-08) also may have encouraged the establishment of new cotton mills in Bengal.

Between 1885 and 1895 the growth of the Indian cotton mill industry became specially prominent. With the introduction of improved machinery such as ring-spinning and revolving top flat cards, finer yarns and cloth of more variety in larger amounts were produced and the trade was fairly brisk during this period.¹⁷ But the cotton mills of Bengal failed to expand at the same rate as in Bombay and Ahmedabad. Between 1880 and 1910 rupee capital investment in the cotton mills of British India increased by Rs. 144,559,000 or by more than three and a half times, while in Bengal it increased by Rs. 385,000 only (on a base of Rs 5.5 million in 1880-81).

In spite of having a probable comparative advantage of cheap labour and rapidly expanding local market, the stagnation of the British cotton mills seems to support our argument, that there were ties between British businessmen in eastern India and those in Britain, which prevented an adequate growth of the cotton industry in eastern India. The dynamism of indigenous capital was confined to the cotton mills of western India.

In the cotton mills of Bombay and Ahmedabad a larger amount of rupee capital was invested by the Indian merchants than in any industry financed and controlled by the British industrialists in India. In eastern India the share of rupee capital investment in the cotton mill industry was even smaller than in other industries such as tea, jute and coal, almost entirely monopolised by the British private investors. From the figure of 'nominal' capital nothing can be said about the amount actually invested in a particular cotton mill or industry as a whole in Bengal between 1880 and 1900, as is shown in Table 2. The

paucity of data makes it difficult to make a comparative study of investment in cotton and other industries in eastern India or in the cotton mills of eastern and western India. However, the data on paid-up capital or capital invested available from 1902 show that in 1910-11 out of a total of Rs 12.4 million invested in the cotton mills of Bengal, fourteen rupee joint-stock cotton mills shared Rs 9.4 million and the rest was accounted for by one sterling cotton mill.¹⁸ According to another

Table 2 Number of cotton mills and their capital in Bengal and British India, 1880-1910
(capital in '000 figures)

Year	British India		Bengal	
	Number of mills	Capital	Number of mills	Capital
1880-81	55	Rs 54,000 + £ 80	7	Rs 5,525
1884-85	78	Rs 77,317 + £ 330	N.A.	N.A.
1890-91	115	Rs 100,000 + £ 370	7	Rs 9,275
1894-95	131	Rs 111,628 + £ 370	8	Rs 9,275
1900-01	177	Rs 146,276 + £ 669	10	Rs 15,475
1904-05	187	Rs 151,679 + £ 650	10	Rs 8,275 + £ 287
1910-11	226	Rs 198,559 + £ 200	14	Rs 9,380 + £ 200

Source : FCSBI, from 1895 to 1906, and SBI, from 1907 to 1911; and R.S. Rungta : Rise of Business Corporations in India, 1850-1900, Cambridge, 1970.

Note : The SBI did not categorically mention whether the capital stands for British Indian cotton mills is 'nominal' or 'paid-up' but wrote 'capital as far as known'. In case of Bengal this source mentioned the capital as 'nominal' upto 1900-01, and there after it was recorded as 'paid-up' capital. Rungta does not mention whether the capital amount (given in his book) is 'nominal' or 'paid-up', from where I have taken the figure for the years 1880-81 and 1890-91 only.

official source, of the total of 19 joint-stock rupee cotton mills in Bengal in 1910-11, 16 mills invested 9 million rupees. But the source did not mention the paid-up capital of sterling cotton mills.¹⁹ Thus, two different figures on paid-up capital from two official sources for the same period make the problem of measurement of investment more complicated; there is no way of telling which is the more reliable estimate.

Table 3 shows that between 1902 and 1910 while the value of investment in jute and coal industries increased by Rs 32.5 and 38.5 million respectively, in the cotton mills it increased by only 0.4 million rupees. The all-India figure of investment in the cotton mill industry shows that between 1900 and 1910 there occurred an increase of Rs 52.3 million rupees (Table 2). Both the absolute value of the paid-up rupee capital of the Bengal cotton mills and their share in the rupee paid-up capital of companies in eastern India declined between 1902-03 and 1908-09 and reached their lowest ebb in 1905-06 when the boycott of imported British cotton goods was gaining momentum.

As is evident from Tables 1, 2 and 3, over the period 1902-10 and especially during the phase of the Swadeshi movement, 1905-08, the rate of growth of cotton mills in Bombay and Ahmedabad was much higher than in Bengal. The cotton mills of Bengal failed to reap the harvest of the Swadeshi movement (i.e. by investing more capital in the cotton mills) which Bombay and Ahmedabad did under Indian entrepreneurship. It is very likely that British cotton mill-owners in Bengal identified themselves so much with imperial interests that they failed to take advantage of the Swadeshi movement and establish new cotton mills in Bengal.

Table 3 Paid-up capital of joint-stock companies in cotton and other industries of eastern India, 1902-03 to 1909-10
(in '000 Rs)

Year	Total paid-up capital of rupee companies in eastern India	Rupee paid-up capital in cotton mills in Bengal	Percentage of (2) to (1)	Paid-up capital of tea companies	Paid-up capital of jute companies	Paid-up capital of coal companies
	(1)	(2)	(3)	(4)	(5)	(6)
1902-03	158,096	8,725	5.5	34,853	34,208	20,505
1903-04	161,056	8,475	5.3	34,691	35,451	21,919
1904-05	166,210	8,275	5.0	34,223	39,426	23,277
1905-06	173,579	7,975	4.6	33,863	44,246	22,673
1906-07	180,165	8,436	4.7	34,302	47,480	24,843
1907-08	208,776	8,475	4.0	34,778	55,785	31,599
1908-09	238,932	3,312	3.5	33,713	59,548	52,892
1909-10	258,910	9,143	3.5	35,203	66,757	59,259

Source: The table is prepared on the basis of data published by FCSBI, from 1902 to 1906; and SBI, from 1907 to 1911.

4. The supply of raw cotton

Before entering into a discussion on the production of cotton goods by the mills of Bengal it is necessary to say something about the supply of raw cotton to the mills. The conditions of supply of raw material greatly influenced the nature of expansion or growth pattern of such agri-based industries as tea, jute, cotton etc. Raw cotton in eastern India was obtained from three sources - from local sources, from western India and imports from abroad. But there are difficulties in assessing accurately the net supply of raw cotton for mill consumption in eastern India.

During the period under study no thorough and systematic data are available in the above mentioned three sources. Even the amount of raw cotton annually imported into and exported from eastern India by rail and river is not available upto 1890. We can perhaps use coastal trade data to supplement other information. However, costwise imports and exports showed a marked difference for the period 1903-04 to 1905-06.

Because of the lack of both official and non-official information upto 1891-92 it is not possible to present a systematic account on area and yield of raw cotton in the eastern region before that year. Complete returns of eastern India (Bengal, Bihar and Assam) began to be published officially from 1892-93, but upto 1907-08 big gaps remained in respect of the permanently settled districts of Sylhet, Cachar, Goalpara and the hill tracts of Assam.²⁰ According to estimates presented by Anandendu Guha the cotton acreage per year in eastern India had increased from 159 thousand acres in 1848 to 222 thousand acres during the period 1867-71 but fell to 176 thousand acres between 1897-98 and 1900-01.²¹ The official source, Returns of Agricultural Statistics of British India deals with all the cotton producing provinces except Bengal and according to this source the average cotton acreage in Assam between 1884-85 and 1888-89 was about 1,312 acres only.²² From Agricultural Statistics it is evident that while in British India the acreage and outturn increased steadily, in eastern India it declined greatly between 1892 and 1907.

The available ASI data for Assam shows the acreage under raw cotton cultivation to have been on an average 3,000 and 10,000 acres for the periods 1892-93 to 1903-04/^{and 1904-05} to 1909-10 respectively. These data refer only to plain tracts of Assam neglecting Lusai hills, the present Nagaland and Arunachal. They did not properly cover even the permanently settled plain tracts of Assam. We have, therefore, rejected

the ASI figure and accepted its estimates of above 42 thousand on an average for the period 1903-04 to 1906-07 as more reliable.²⁵ Another official source, namely, The Statistical Tables for British India, 1889, corroborates our estimate, also supports it, since it gives the average acreage under cotton cultivation in Assam as 40 thousand acres between 1883-84 and 1886-87.²⁴

Table 4 Acreage and production of raw cotton in eastern India, 1892-1907
(in '000 figures)

Annual average for period	Acreage			Production (lbs)		
	British India	Eastern India	Percentage of (2) to (1)	British India	Eastern India	Percentage of (5) to (4)
	(1)	(2)	(3)	(4)	(5)	(6)
1892/93-96/97	14,588	201	1.49	956,827	25,256	2.43
1897/98-01/02	13,773	149	1.09	974,115	16,896	1.73
1902/03-06/07	19,588	123	0.63	1,495,602	13,549	0.91

Source: The table has been constructed on the basis of data published by Agricultural Statistics of India (ASI), from 1901-02 to 1906-07 and supplementary figures on 'Estimated Area and Yield' of ASI from 1901-02 to 1906-07. Production figures are given in bales of 400 lbs each and multiplying the total number of bales by 400 we get the production in lbs.

From Table 4 it can be seen that while in British India the acreage and outturn of cotton increased from 13.4 million acres and 909 million lbs respectively in 1892-93 to 22.3 million acres and 1,963 million lbs of raw cotton respectively in 1906-07, in eastern India it declined from 0.23 million acres and 29.4 million lbs to 0.13 million acres and 12.0 million lbs of raw cotton respectively, during

this period. The share of eastern India in acreage and production declined from 1.71 per cent and 3.2 per cent to 0.59 per cent and 0.51 per cent respectively between 1892-93 and 1906-07. The output of the crop went down a little more sharply than its acreage. Hence the productivity per acre also declined from 128 lbs in 1892-93 to 91 lbs only in 1906-07, i.e., per acre productivity had fallen by 30 per cent during this period. The meagre local outturn was not enough to feed the mills of Bengal. The supply of local raw cotton for the Bengal cotton mills was supplemented by cotton imported from western India by sea, land and river.

Owing to the absence of reliable data, we do not exactly know the amount of raw cotton consumed by the cotton mills of Bengal during the period 1880 to 1890. On the basis of consumption in subsequent years we can make a rough estimate of average mill consumption of raw cotton for this period. For this estimate, we have the official information that except for the introduction of ring spindles in the 1880's, the technology in the cotton mills did not change significantly till the First World War. Therefore, labour employed per spindle can be taken as an index of capacity utilisation. The labour-spindle ratio which was 0.03 during 1880-90 remained the same between 1902 and 1910.²⁵ The extensive use of ring spindles increased per spindle consumption from the late 1890's by an unknown amount. Raw cotton-spindle ratio was 1.67 cwt. between 1902-03 and 1909-10.²⁶ On the basis of labour-spindle ratio and raw cotton-spindle ratio for the period 1902 to 1910 we estimate the cotton consumption in the mills for the period 1880-90. However, to avoid over estimation of consumption because of the smaller proportion of ring spindles in the earlier period, we assume that the consumption of raw cotton per spindle was not above 1.56 cwt. during 1880 to 1890. In calculating the net availability of raw cotton we

have taken imports of foreign raw cotton by sea, coastwise imports and imports by rail and river (including local production) into Bengal on one side and deducted exports coastwise and by rail and river from Bengal to other parts of eastern India especially to Assam.

Table 5 Net availability of raw cotton for
Bengal cotton mills, 1880-1910
(annual average)

	1880 to 1884	1885 to 1889	1890-91 to 1894-95	1895-96 to 1899-1900	1900-01 to 1904-05	1905-06 to 1909-10
<u>Imports</u>						
Foreign	66	251 ^(a)	137 ^(b)	3,764	1,900	2,016
Coastwise	156,066	170,680	234,578	160,343	72,609	167,736
Rail and River	N.A.	N.A.	490,102	700,902	709,178	797,920
<u>Exports</u>						
Foreign	Nil	Nil	Nil	Nil	Nil	Nil
Coastwise	25,061	29,095	21,538	28,337	37,348	66,304
Rail and River	N.A.	N.A.	102,206	120,070	127,442	158,927
<u>Net Balance of imports</u>						
Foreign and coastwise	131,071	141,836	213,177	135,770	37,161	103,448
Rail and River	303,638 ^(c)	364,269 ^(c)	387,296	580,832	581,736	638,938
<u>Grand Total</u>	<u>434,709</u>	<u>506,105</u>	<u>600,473</u>	<u>716,602</u>	<u>618,897</u>	<u>742,441</u>

Source: The table has been constructed on the basis of data published by Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., from 1880 to 1911, vols. 1 and 2; Accounts of the Trade Carried by Rail and River in India, from 1895 to 1911; Statistical Table Relating to Indian Cotton: Indian Spinning and Weaving Mills, Their Production and its Distribution, Bombay, 1880, FCSBI, from 1895 to 1906; and SBI, from 1907 to 1911.

Figures of coastwise trade (imports and exports) in raw cotton are not given under foreign merchandise, but are given under the heading of 'Indian merchandise in'. So, we have taken it as Indian cotton produced by and exported from western to eastern India. Accounts of trade (imports and exports) carried by rail and river do not mention separately the amount of foreign and Indian raw cotton. Raw cotton imported into India was mostly consumed by the mills of Bombay Presidency as they could spin higher counts of yarn. If the mills of Bengal required foreign raw cotton they would import it by sea as it would cost less to do so than to carry it overland by rail. Further, we have included local production under rail and river trade; if we deduct this amount from rail and river trade, the balance is raw cotton exported from central and western part to eastern India.

According to one source the approximate quantity of cotton annually consumed by the mills of Bengal was 160,061 cwt. during the years from 1880 to 1884 and 266,039 cwt. during 1885-1889.²⁷ This is consistent with the amount given by Schofield who figured that cotton mills of Bengal consumed 247,000 cwt. of raw cotton during 1882-85 and 1886-87.²⁸ But the net availability of raw cotton (Table 5) from 1891 shows a marked divergence from the figures for 1880 to 1889. If the figures of raw cotton consumption given in these two sources for the period 1880 to 1889 are correct, the enormous increase in the net availability of raw cotton for mill consumption during the later years indicates that the number of spindles and looms had increased with the same speed. But this did not occur, so these figures for the period

Note of the previous Table 5.

Note: (a) indicate 3 years average; (b) shows 4 years average only, and (c) stands for amount estimated on the basis of 1.56 cwt. of raw cotton consumption per spindle. According to Report on the Rail Borne Traffic of Bengal (which deals only with rail borne trade) net imports of raw cotton by rail into Bengal was 699,165 cwt. on an average for the period 1883-84 to 1887-88, but as river borne trade is not available for 1880 to 1890, we do not accept it as correct.

1880 to 1889 cannot be accepted as correct. Rather, our estimated figures on the basis of 1.56 cwt. of raw cotton consumption per spindle during the period 1880 to 1889 shows a logical consistency with the figures for subsequent period. So, we regard the earlier quoted figures for 1880-87 as underestimates.

The steady increase in the net availability of raw cotton consumption by the mills of Bengal indicates that the local market for twist and yarn used mainly by the handloom sector in eastern India was quite dynamic.

5. Manufacture of cotton goods

The cotton mills of Bengal were basically spinning oriented and engaged mainly in the production of coarse yarn for use by the handloom in eastern India. Even at the end of the period under study, the number of looms installed in Bengal cotton mills was only a little above one thousand and the spindle-loom ratio clearly indicates that only a very small fraction of the total yarn production was being used by the weaving section.

From official source it appears that cotton mills of Bengal were exclusively spinning oriented upto 1895,²⁹ though another source mentions that out of a total of 6 cotton mills one had 126 active looms during the 1880.³⁰ One cotton mill at Malesh in the district of Hooghly with 200 looms first started weaving in 1896³¹ and another mill at Syarnagar in the district of 24 Parganas introduced only 9 looms in 1901-02.³² The total number of looms in the cotton mills of Bengal increased from 218 in 1905-06 to 1,575 in 1910-11.³³

Of the total amount of yarn produced by the Indian cotton mills, Bombay used to spin about 73 per cent, Bengal about 8.5 per cent, Madras

and N.W. Provinces about 6 per cent each and Central Provinces about 4.5 per cent during the period 1894-95 to 1906-07.³⁴ Over the period India imported all types and different numbers of counts of foreign yarn ranging from 1s to above 50s, of which Bengal had a share upto 35.04 per cent between 1894 and 1910 (Tables 11 and 13). In spite of the fact that lower counts of yarn had become more costly to spin in England, to retain her hold on the market she exported coarse yarn regularly to India. Of the total foreign yarn imported into Bengal between 1894 and 1910, coarse yarn of 1s to 25s counts constituted roughly 3 per cent and yarn of 31s to 40s counts shared about 80 per cent (Table 12A).

Table 6 Spinning-oriented Bengal cotton mills,
1880-1910

Annual average for period	Number of spindles	Number of looms	Spindle-loom ratio
1880-84	194,640	59	3,299
1885-89	233,506	8	28,189
1891/92-95/96	319,069	0	
1896/97-1900/01	400,649	202	1,983
1901/02-1905/06	431,853	215	2,009
1906/07-1910/11	417,496	1,006	415

Source: The table has been computed on the basis of data published by FCSBI, from 1895 to 1906; SBI, from 1907 to 1911; and Statistical Table Relating to Indian Cotton : Indian Spinning and Weaving Mills, Their Production and Distribution, 1889.

In Bengal (Punjab and U.P. also) the mills spun only a negligible amount of yarn above 20s counts and yarn of counts 20s and below represented 99 per cent of the output (Table 7). As the Indian handloom industry catering to mass consumption used yarn of 20s counts and below

the cotton mills of India including Bengal spun most of their produce in this category. It is interesting to note that Bengal's share in the total amount of yarn spun in India declined from about 10 per cent during 1895-99 to about 8 per cent during 1900-06 (Table 8). This is due to the fact that the number of spindles (and looms) increased much faster in Bombay and Ahmedabad than in Bengal. A large increase in the number of looms in the Bengal cotton mills during the later half of the 1910's was accompanied by a reduction in the absolute number of spindles.

Table 7 Production of different numbers of counts of yarn in the cotton mills of Bengal, 1896-1910 (in '000 lbs)

Annual average for period	Counts 1s to 10s	Counts 11s to 20s	Counts 21s to 30s	Counts 31s to 40s	Counts above 40s	Total
1896/97-1900/01	14,621 (39.2)	21,623 (58.0)	983 (2.6)	35 (0.1)	20 (0.05)	37,282
1901/02-1905/06	20,016 (43.8)	23,181 (50.7)	2,360 (5.2)	112 (0.3)	8 (0.02)	45,677
1906/07-1910/11	10,342 (25.8)	25,046 (62.5)	4,296 (10.7)	217 (0.5)	121 (0.3)	40,022

Source: The table has been constructed on the basis of data provided by FCSBI, from 1895 to 1906; and SBI, 1907 to 1911.

Figures within the brackets indicate percentage to the total.

Yarn of 11s to 20s counts constituted about 57 per cent of the total yarn produced by the mills of Bengal as well as India (Table 7) the decrease in the spinning of coarsest counts of yarn of 1s to 10s and a sharp increase in the production of 21s to 30s counts in Bengal over the period (except during the first five years of the new century)

indicate that the Indian handlooms were changing their pattern of consumption from coarser to less coarse yarn. To make a study on the pattern of production it would be better if we have a detailed break-down of different numbers of counts of yarn produced by the cotton mills of India as in the case of imported foreign yarn. For the latter we have a classification into 8 different groups of counts ranging 1s to 10s, 11s to 15s, 16s to 20s, 21s to 25s, 26s to 30s, 31s to 40s, 41s to 50s and above 50s. The sharp decline in the import of foreign yarn of 21s to 30s counts especially 26s to 30s counts (Tables 12A and 12B) between 1895 and 1918 strongly supports our hypothesis that Indian cotton mills were gradually shifting towards the production of less coarse yarn for Indian handloom industry, the main consumer of yarn.

The difficulty in giving a complete time series of output of cotton goods and yarn is that available official sources do not provide any figures of the amount of yarn and cloth produced by the cotton mills of Bengal till 1894. Even the data available for the subsequent period do not include a classification of different types of yarn (plain twist and yarn, and coloured twist and yarn) the mills of Bengal used to spin. Data in the shape of output of only five categories of counts of yarn are available and are reproduced in Table 7. The figures available for the period between 1895 and 1910 show that in comparison with British India, the production of yarn in the Bengal cotton mills started declining but weaving of cloth increased from the beginning of the present century. However, the proportion of cloth woven in Bengal was very small even in 1909/10 (Table 8).

Even the period the net availability of yarn for eastern India increased by about 69 per cent (Table 16). Rail and river were the main traffic channels which carried about 73 per cent of the total imports and exports of foreign and Indian twist and yarn (Tables 14 and 15). Of



Table 8 The amount of yarn and cloth produced by the
Bengal cotton mills, 1895-1910
(in '000 lbs)

Annual average for period	Yarn		Cloth	
	Bengal	British India	Bengal	British India
1896/97-1900/01	37,282 (8.40)	443,990	186 (0.20)	91,853
1901/02-1905/06	45,720 (7.92)	577,315	575 (0.43)	134,894
1906/07-1909/10	40,046 (6.58)	608,926	2,359 (1.21)	194,151

Source: The table has been computed on the basis of data published by FCSBI, from 1895 to 1906, and SBI, from 1907 to 1911.

Note : Figures within the brackets stand for percentage over British India.

the total rail and river traffic, railways alone, as in the case of raw cotton, carried about 80 per cent of the total twist and yarn.

6. Potential field for import substitution and investment in the cotton mill industry of eastern India

We will now look more closely at the structure of the market for cotton yarn in eastern India. This will indicate the extent to which the cotton mills of eastern India were able to tap the potential for import substitution.

It is true that exports constituted an important outlet for Indian yarn, particularly from the 1880's onwards. During the 1880's the amount of yarn exported came to exceed the amount imported. By 1895-96 exports were about four times as great as imports, but the value

of exports was only a trifle over double that of imports. Though the volume of exports became nearly six times as great as that of imports in 1900, the value was only three times as great. The import of finer yarn was large because the handlooms produced much fine quality cloth for which they required a finer yarn than the Indian mills produced. Indian mills turned out coarse yarns for use at home and in other Asian markets, while Lancashire provided fine yarn for Indian handlooms.

In 1880, net imports of yarn into eastern India comprised more than 75 per cent of the total yarn used in the handloom industry. The imports declined in absolute quantities upto 1894-95, and then fluctuated for the next fifteen years. Indian yarn supply grew faster so that the proportion of the total yarn supplied by Indian mills rose from 24.2 per cent in the quinquennium 1880-85 to 69.7 per cent in the quinquennium 1900-05, and then declined slightly (see table 16). The product composition of the mills of India, including Bengal, shows that about 88 per cent of the yarn was of coarser varieties ranging from 1s to 20s counts (of which 11s to 20s counts shared 56 per cent). It follows, therefore, that most of coarse cloths woven by the handlooms were made from Indian coarse yarn. For the production of quality fabrics the handloom sector had to depend on British yarn of finer counts. We have separate figures for the two types of foreign yarn, namely plain and coloured (of different counts) that came into Bengal between 1895 and 1910 for handloom consumption, but no such information is available for Indian yarn (except their different numbers of counts). However, the use of finer quality (ranging from 26s to above 50s counts) British coloured yarn in the handlooms of eastern India increased by 841,513 lbs, while the import of plain yarn of that quality declined by 1,310,148 lbs (see tables 12A and 12B). The spinning of finer counts (ranging from 31s to above 40s) in the mills of India increased by 13,546,000 lbs

between 1896/97 and 1910/11, but in the mills of Bengal the total amount of the yarn spun was only 338,000 lbs (see Table 7 in the period 1906/7 to 1910/11). The output of finer yarn increased by 283,000 lbs over the period 1896/97 to 1910/11. So the gap in the supply of finer counts of foreign yarn to the handloom industry of eastern India during this period was mostly filled by the mills of India. It is important to note that though the mills of India, as well as Bengal, substantially increased their production of coarse yarn quite, the imports of British plain coarse yarn upto 25s counts into eastern India increased tremendously - by about 8 times between 1895 and 1910 (see Table 12A). However, the proportion of British plain coarse yarn to total yarn supply in eastern India remained small even at the final date of our period. Thus, although in the area of spinning of coarse yarn, the mills of India, especially Bengal mills, had a comparative advantage, the potential for import substitution was not fully realised.

The net supply of yarn was entirely consumed by the handloom sector of eastern India. As we have seen earlier (sections 3 and 4) the cotton mills of Bengal were spinning-oriented. The estimated amount of yarn available for handloom consumption has been arrived at by deducting the consumption of yarn in the Bengal mills. The yardage of cloth woven by the handloom sector of this zone shows that over the period its output increased considerably.

It is interesting to note that upto 1895 the handloom sector wove on an average 6.9 per cent of the total cloth available for eastern India. But as the supply of Indian increased steadily from the mid 1890's, the production of cloth in the handloom sector rose to 9.9 per cent on an average between 1896 and 1910.

Table 9 Estimated production of cloth by the
handloom sector of eastern India,
1880-1910

Annual average for period	Not avail- ability of yarn (in '00 lbs)	Amount of cloth pro- duced by handlooms (in '000 yards)	Percentage of hand- looms cloth over the total availability	Total availabili- ty of cloth for eastern India (in '000 yards) (mills + handloom)
1880/81-84/85	17,013 ^(a)	68,052	7.64	891,171
1885/86-89/90	16,963 ^(a)	67,852	6.22	1,090,099
1890/91-94/95	14,021	56,084	6.89	869,750
1895/96-99/1000	26,969	107,876	10.69	1,008,952
1900/01-04/05	25,352	101,408	9.63	1,053,468
1905/06-09/10	28,683	114,732	9.33	1,229,525

Source: The table has been computed on the basis on data published by Annual Statement of the Trade and Navigation of British India with Foreign Countries, etc., from 1879 to 1911; and Accounts of the Trade Carried by Rail and River in India, from 1895 to 1911.

Notes : (a) Indicates excluding rail and river carriage.
(b) Pounds of yarn have been converted into yards of cloth at the rate of one pound of yarn = 4 yards of cloth in the case of handloom.

During the 1880's, of the net supply of mill-made cloth for consumption in eastern India, the share of Indian piecegoods was only 1.4 per cent. This increased to only 4 per cent of the total during the next 15 years. Though the Indian mill share increased to 13.4 per cent during 1906 to 1910, in terms of net available supply of mill-made cloths in eastern India it was not very significant.

Table 10 Net supply of mill-made cloth to eastern India, 1880-1910

(in '000 yards)

Annual average for period	Foreign	Indian	Percentage of (2) to (1)	Output of mills of Bengal	Net supply of mill-made cloth for eastern India	Total net availability (mills + handlooms) for eastern India
	(1)	(2)	(3)	(4)	(5)	(6)
1880/81-84/85	811,924	11,195 ^(a)	1.36	N.A.	823,119	891,171
1885/86-89/90	1,008,519	13,728 ^(b)	1.34	N.A.	1,022,247	1,090,099
1890/91-94/95	788,481	25,185	3.10	N.A.	813,666	869,750
1895/96-99/1000	860,256	40,124	4.46	596	901,076	1,008,952
1900/01-04/05	905,637	43,996	4.63	2,427	952,060	1,053,468
1905/06-09/10	957,920	147,653	13.36	9,221	1,114,795	1,229,525

Source: The table has been constructed on the basis of data published by Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., from 1879 to 1911;

Accounts of the Trade Carried by Rail and River in India, from 1895 to 1911; and SBI, from 1907 to 1911.

Note : (a) and (b) indicate annual average of 4 and 2 years respectively. N.A. means not available. We have said earlier that till 1905 the number of looms in Bengal was insignificant.

From Tables 9 and 10 it appears that the handloom sector was the only major source of locally woven piece goods at an all India level until the Indian cotton mills started weaving on a large scale. Till 1895 the amount of cloth woven by the Indian mills was negligible. From then onwards, Indian cotton mills concentrated more on home market and weaving owing to the uncertainty in regard to trade with China. ³⁵ The uncertainty

areas because of the change in the currency policy of the Government of India. From 1893, the value of the rupee was tied to that of sterling rather than the bullion value of silver. This disrupted the exchange relations with China whose coinage was still in silver. The growth of cotton manufacturing in both Japan and China also propelled the Indian mills towards weaving of cloth for the home market.³⁶ Japanese mills were soon supplying the major part of the yarn for their own home industry, and the cotton mills of China and Japan jointly met the increasing yarn demand of China.

Throughout the period Lancashire supplied about 50 per cent and above 95 per cent of the total net availability of mill-made yarn and cloth respectively to eastern India and the rest by Indian mills. In terms of total consumption of cloth, between 1880 and 1910, the handloom sector of eastern India and Indian mills jointly supplied only about 6.4 per cent (8.4 per cent by handloom and about 4.4 per cent by Indian mills) of the regional market and the rest, 93.6 per cent, was imported from the U.K. (Tables 9 and 10).

In order to find out in which sectors import substitution potential was least exploited and also to form an idea of the rough distribution of locally produced piecegoods as between coarse and fine cloth, we analyse the imports of yarn in terms of their counts. Bengal was a net importer of yarn throughout our period, although we cannot find out the exact level of exports of yarn from Bengal to places outside eastern India.

As we have seen, in spite of the Indian mills' comparative advantage, both the absolute amount and percentage of foreign plain coarse yarn upto 25s counts imported into eastern India increased in the years between 1895 and 1910. The absolute imports of coloured

coarse yarn, however, declined during the period 1905-10 (see tables 12A and 12B).

Table 11 Share of Bengal in the total yarn, coarse and fine (in lbs), imported into British India, 1895-1910

Annual average for period	Plain twist and yarn		Coloured twist and yarn	
	British India	Bengal	British India	Bengal
1894/95-98/99	19,530,943	6,441,282 (32.97)	20,590,714	4,689,501 (22.77)
1899/1900-03/04	14,542,910	4,842,563 (33.29)	18,676,467	5,237,718 (28.51)
1904/05-09/10	17,649,925	5,318,843 (30.2)	17,814,603	5,377,518 (29.9)

Table 12A Quantities of different numbers of counts of foreign plain twist and yarn imported into Bengal (in lbs), 1895-1910

Plain twist and yarn

Coarse counts	1894-95 to 1898-99		1899-1900 to 1903-04		1904-05 to 1909-10	
	B. India	Bengal	B. India	Bengal	B. India	Bengal
1s to 10s	108,823	8,652 (7.95)	137,858	64,872 (47.06)	144,090	40,155 (27.86)
11s to 15s	97,871	10,448 (10.68)	115,837	11,819 (9.51)	90,656	21,971 (24.23)
16s to 20s	160,159	9,915 (6.17)	298,695	111,010 (37.17)	447,817	149,776 (33.44)
21s to 25s	15,182	975 (6.42)	29,653	4,083 (13.77)	54,573	5,479 (10.03)
	382,467	29,990	582,043	190,984	737,136	217,381

Table 12A

<u>Fine Counts</u>							
26s to 30s	4,381,325	115,997 (2.65)	2,765,031	23,770 (0.86)	2,667,042	46,894 (1.75)	
31s to 40s	12,147,326	4,906,247 (40.39)	8,215,444	3,160,215 (38.47)	9,231,505	3,091,380 (33.48)	
41s to 50s	1,149,144	488,981 (42.55)	1,108,668	432,275 (38.99)	1,846,229	619,484 (33.55)	
Above 50s	1,470,681	900,065 (61.20)	1,871,725	1,035,319 (55.31)	3,151,350	1,343,384 (42.62)	
	19,148,475	6,411,290	13,960,868	4,651,579	16,896,124	5,101,142	

Table 12B Quantities of different numbers of counts
of foreign coloured twist and yarn
imported into Bengal (in lbs),
1895-1910

Coloured twist and yarn

Coarse counts	1894-95	to	1898-99	1899-1900	to	1903-04	1904-05	to	1909-10
	B, India		Bengal	B, India		Bengal	B, India		Bengal
1s to 20s	2,605,028		222,826 (8.55)	1,885,145		232,653 (12.34)	1,109,885		88,887 (8.0)
21s to 25s	2,599,866		20,824 (0.80)	1,658,985		462 (0.03)	876,192		1,268 (0.14)
	5,204,894		243,650	3,544,130		233,115	1,986,075		90,155
<u>Fine Counts</u>									
26s to 30s	1,568,545		148,013 (9.44)	997,298		110,431 (11.07)	1,001,995		89,539 (8.93)
31s to 40s	12,922,121		4,232,959 (32.76)	12,736,034		4,919,153 (38.62)	12,953,948		5,123,067 (39.54)
41s to 50s	510,562		49,419 (9.68)	725,107		7,162 (0.99)	824,843		39,538 (4.79)
Above 50s	384,591		15,460 (4.02)	673,899		17,859 (2.65)	1,010,994		35,221 (3.48)
	15,385,819		4,445,851	15,132,338		5,054,605	15,791,780		5,287,366

Source: The tables 11, 12A and 12B have been constructed on the basis of data published by Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., from 1894 to 1911.

Note : Figures within the brackets in the tables 11, 12A and 12B indicate percentage of Bengal to total yarn of two categories imported into India.

Both in absolute and in percentage terms the imports of foreign plain coarse yarn of all categories, especially 1s to 10s and 16s to 20s counts, into Bengal increased tremendously from 1900 onwards (as is evident from Table 12A).³⁷ Table 12A also shows that for finer counts of plain and coloured twist and yarn ranging 26s to above 50s eastern India (India also) had to depend on Lancashire. Though the imports of plain finer yarn had come down, the volume of coloured finer yarn had increased. The aggregate amount of these two categories had declined by only 434,278 lbs or about 4 per cent at the end of third quinquennium. The volume of imported finer plain yarn of 31st to 40s counts had fallen from 4.9 million lbs to 3 million lbs, while imports of coloured yarn of the same range of counts increased from 4.2 million lbs to 5.1 million lbs between 1895 and 1910.

Cotton piecegoods imported or woven were not classified in terms of the counts of yarn used in them. But the net available supply of different number of counts of yarn including Indian yarn (of which the percentage of coarse yarn was always 80) left over for handloom and mill consumption shows that a large section of Indian people consumed coarse cloth. Of the total yarn imported into India between 1895 and 1910 the share of coarse yarn on an average was 21.6 per cent (coloured coarse yarn 3.4 per cent and plain coarse yarn 18.2 per cent). In the case of Bengal by contrast, it was 6.8 per cent (plain coarse 3 per cent and coloured coarse 3.8 per cent). Throughout the period the amount of

Imported foreign yarn was gradually declining in Bengal except for the last 5 years (1906-1910). The share of foreign yarn was above 49 per cent on an average of the net supply of yarn in eastern India between 1880 and 1910. The amount of imported coarse yarn to total imports was low. However, of the net available supply of yarn as a whole, coarse yarn constituted always a higher proportion than fine yarn. Figures in Table 13 show that while the volume and share of plain coarse yarn imported into Bengal and British India increased, the coloured coarse yarn decreased in a more or less similar way. We will now consider that

Table 13 Share of Bengal in coarse and fine (plain and coloured) yarn imported into British India, 1895-1906

(in percentage terms)

Annual average for period	Plain		Coloured	
	Coarse	Fine	Coarse	Fine
1894/95-98/99	7.84	33.48	4.68	28.89
1899/1900-03/04	32.81	33.31	6.57	33.40
1904/05-05/06	35.04	31.87	6.06	34.75

Source: The table has been computed on the basis of data provided by Annual Statement of the Trade and Navigation of British India with Foreign Countries, etc., from 1894 to 1907.

amount of annual average of Indian and foreign yarn was left for the consumption of handlooms in eastern India over the period under study.

In spite of the establishment of new cotton mills in India over the period the steady inflow of Lancashire yarn into India indicates that the capacity of the Indian mills was not adequate to meet the local demand. Though the amount of imported yarn into India was falling off

Table 14 Availability of Indian twist and yarn in
Bengal 1880-1910
(in '000 lbs)

Annual average for period	Imports			Exports			Balance (Imports- exports)
	Coastal	Rail & river	Total	Coastal	Rail & river	Total	
1880/81-84/85	6,978	N.A.	6,978 ^(c)	2,861	N.A.	2,861 ^(c)	4,117 ^(c)
1885/86-89/90	9,149	N.A.	9,149 ^(c)	2,625	N.A.	2,625 ^(c)	6,524
1890/91-94/95	15,684 (42.05)	21,615 (57.95)	37,299	7,929 (25.43)	23,253 (74.57)	31,182	6,117
1895/96-99/1900	19,133 (39.09)	28,817 (60.91)	48,950	7,275 (23.24)	24,032 (76.86)	31,307	17,643
1900/01-04/05	15,620 (31.12)	34,573 (68.88)	50,193	5,893 (18.12)	26,631 (81.88)	32,524	17,669
1905/06-09/10	10,617 (17.65)	49,545 (82.35)	60,162	5,166 (12.29)	36,877 (87.71)	42,043	18,119

Table 15 Availability of foreign twist and yarn in
eastern India, 1880-1910
(in '000 lbs)

Annual average for period	Imports				Exports			
	Sea	Coastal	Rail & river	Total	Sea	Coastal	Rail & river	Total
1880/81-84/85	14,506	3,815	N.A.	18,321 ^(c)	29	5,398	N.A.	5,427 ^(c)
1885/86-89/90	13,567 ^(a)	3,497	N.A.	17,064 ^(c)	48 ^(a)	6,577	N.A.	6,625
1890/91-94/95	11,942 ^(b) (41.17)	1,478 (5.21)	15,512 (53.62)	28,932	26 ^(b)	1,732 (8.0)	19,270 (91.64)	21,028
1895/96-99/1900	13,408	1,456	14,170 (48.80)	29,034	69	2,028	17,611 (89.36)	19,708
1900/01-04/05	9,386	694	14,850 (59.57)	24,930	69	1,181	16,057 (93.10)	17,247
1905/06-09/10	11,354	68	14,709 (56.29)	26,131	4	747	14,816 (95.18)	15,567

Table 16 Net supply of foreign and Indian twist and
yarn for handlooms in eastern India,
1880-1910 (in '000 lbs)

Annual average for period	Total	Net imports of Indian yarn	Percentage of the total	Net imports of foreign yarn	Percentage of the total
1880/81-84/85	17,013 ^(c)	4,117 ^(c)	24.2	12,894	75.8
1885/86-89/90	16,963 ^(c)	6,524 ^(c)	38.5	10,439	61.5

1890/91-94/95	14,021	6,117	43.6	7,904	56.4
1895/96-99/1900	26,969	17,643	65.4	9,326	34.6
1900/01-04/05	25,352	17,669	69.7	7,683	30.3
1905/06-09/10	28,683	18,119	63.2	10,564	36.8

Source: Tables 14, 15 and 16 have been computed on the basis of data published by Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., from 1879 to 1911; and Accounts of the Trade Carried by Rail and River in India, from 1895 to 1911.

Note : For all the tables (a) indicates 3 years' average, (b) shows 4 years' average and (c) indicates excluding rail and river carriage which is not available upto 1890. Figures within brackets of tables 14 and 15 stand for percentage of the total.

except into Bengal, the import of Lancashire piecegoods went on increasing until in 1913-14 it was over 3 million yards or two and one half times of India's own mill production.³⁸ Till the 1920's the U.K. cotton industry was decidedly a dominating power in the world market exporting 70 per cent of their produced piecegoods and 70 per cent of their exports went to the Far East, Near East and India.³⁹

The figures of capital invested and output produced highlight the fact that the rates of growth of the cotton mills in Bengal was very low in comparison with (1) its growth in western India and (2) the growth of other industries in eastern India. The cause of slow development of any industry is generally explained in terms of rate of return on capital which to a large extent is determined by the cost of production and demand for the product. We will now consider how far these factors stood in the way of expansion of the Bengal cotton mills. We have already discussed the major factors inhibiting investment in cotton mills industry in eastern India. It remains to point out that dividends

declared by the few cotton mills that were built were no better, but not much worse, than were obtained in enterprises in other industries. The dividends declared by the seven old Bengal cotton mills ranged between a 2 per cent and 15 per cent over the period 1884-1905.

Table 17 Dividends declared by the cotton mills of Bengal, 1884-1910
(in per cent)

Name of the companies	1884-88	1889-93	1894-98	1899-1903	1904-1910
Bengal ^P	7.0	8.0	7.9	N	4.6 ¹ / ₂
Bowree ^P	4.8	3.0	N	N	9.0
Dunbar ^P	N	3.8	7.5	N	N
Empress of India	5.9	3.4	3.4	N	1.1 ¹ / ₂
Goosery ^P	8.6	4.6	6.0	N	N
Muir ^P	12.6	4.8	11.5	6.6	5.4 ¹ / ₅ (b)
Victoria ^P	2 ¹ / ₂ (a)	10.0	10.4	8.0	15.0 ^(c)

Source: The table has been prepared on the source of data provided by Capital, from 1888 to 1912.

Note :. (a) This is for the year 1887, dividends for other 4 years are not given. Companies marked 'p' had issued preference shares. It is observed that the dividends declared annually by the companies are not regularly given in the source Capital for consecutive years and does not mention categorically whether the companies paid dividends or not. Hence, I assume that the companies declared no dividend for these years and the symbol 'N' is used to designate the cases. (b) Rs.1,500,000 bonus distributed in 1908 in fully paid preference shares. (c) Year ended 31st March, 1911.

Table 17 shows that all the seven old cotton mills in eastern India paid quite reasonable dividends upto 1898. From the available

data for the subsequent years (upto 1910) it is evident that a few mills paid on a high rate of dividend. A high level of demand of yarn for local handlooms (as is reflected from the large amount of imports of foreign yarn) kept the domestic market steady and made it possible for Bengal cotton mills to obtain satisfactory profits on investment. So, the lowness of the actual rate of return could not be the sole explanation for a slow rate of investment.

A plausible explanation for the lower rate of growth of cotton mills in comparison with other industries is that the rate of profit in the former was lower than that of the other industries in eastern India. The British, from the beginning had a large base for accumulation of capital in the eastern zone. The British managing agents of the eastern zone who engaged in the cotton mills of Bengal⁴⁰ were well established. They were at liberty to switch capital from one industry to another whenever necessary. During 1902-03 out of 10 Bengal cotton mills 6 issued debentures amounting to Rs 3 millions and in 1910-11 out of 14 mills 9 issued debentures amounting to Rs 3 millions, or nearly one third of the total paid-up rupee capital.⁴¹ The proportion of debenture financing in this industry was much greater as compared with other industries in this region. This suggests that the managing agency houses in order to lighten their risk, might have contributed capital to the cotton mills mainly in the form of debentures. It is the very abundance of investment opportunities in other fields that may have limited British investment in cotton mills in eastern India.

Over the period 1880-1910, many old and established companies in tea, jute and coal industries managed by reputed managing agency houses failed to declare dividends for several years at a stretch or sometimes declared a low rate of dividend ($1\frac{1}{2}$ to 2 per cent). But the

tea and jute industries had expanding markets in which the British companies enjoyed something like a collective monopoly. Even in the coal industry transport costs conferred a monopolistic advantage on the local industry. However, in the case of cotton yarn and piecegoods, the British-controlled mills in eastern India would have to compete against a formidable competitor in Lancashire and many of the managing agents found their importing interest in conflict with other manufacturing interests. Naturally, they preferred to limit their investment in such risky enterprises as cotton mills. Moreover, even in the area of import substitution in cotton goods, the Bombay and Ahmedabad mills appeared to enjoy a clear comparative advantage.

7. Some arguments reconstructed

We will recapitulate some of our arguments in the hope that the logical structure will be clearer. Eastern India was never important on the cotton map of India. In Bengal, especially in eastern Bengal, the cultivation of raw cotton at one time had been in a thriving position, with Dacca as a manufacturing centre.⁴² In spite of the decay of the hand spinning and weaving industry a large international market was available for the handloom industry, because women in particular over large tracts of India were stuck firmly to multi-coloured and artistic fabrics. Moreover the impact of foreign imports was not felt in a full measure in all parts due to lack of a good communication network all over India. But in Bengal and on the Malabar coast where both men and women usually wore plain white clothing, imported mill-made goods had an easy access and many weavers lost their hereditary occupations; and the general trend was one of decay and decline of handlooms. The large and growing imports of mill-spun twist and yarn aggravated the trouble more actually and hand spinning as an occupation had practically disappeared.

The increasing unemployment and pressure on land not only led to frequent famines in the nineteenth century but also reduced the area of cotton cultivation to a great extent in eastern India.⁴³ Except Chittagong, Tipperah Hill Tracts, Cuttack, Jalpaiguri and parts of Assam the cultivation of cotton was not of very great importance in the districts of eastern India.⁴⁴ Experiments to grow Egyptian cotton in the government estate of Khoorada in the district of Puri in Orissa proved a great success and government in its report 1882-83 stated that raw cotton was a favourite crop with the ryots, but in the fertile plains of Bengal the production of raw cotton was inconsiderable.⁴⁵ Experiments in raising the American varieties of raw cotton at Akra near Calcutta during the first quarter of the nineteenth century were not very successful; but the Superintendent of Fort Gloster cotton mill declared it to be similar to the famous Upland Georgia cotton.⁴⁶ The experiments with different foreign hybrid varieties carried out in Burdwan in the first half of the 1880's showed that long staple cotton could be produced in the plains of Bengal.⁴⁷ But these efforts were not followed up and in the Agricultural Report for 1886-87 the Director of Agriculture, Bengal remarked, without showing any reason, "I do not, however, think that it will ever be extensively grown in Bengal".⁴⁸

Bengal raw cotton was not exported on a large scale. The major part of the production was consumed by the hand spinning industry of eastern India. The market of Bengal raw cotton in that sense was not a wide one. The production of Bengal muslin and other high quality fabrics for export and other types of coarse cloth for local consumption by the handlooms before the advent of Lancashire products is evidence that a very good quality cotton (both long and short staple) was produced by the local cultivators according to the need of the handloom industry of eastern India. The decline of hand spinning industry

greatly reduced the demand for local raw cotton. As a consequence the cultivators had lost their interests and the cultivation of cotton was almost abandoned. Thus, before the advent of British rule the supply of raw cotton was dependent on the demand of the local handloom industry.

There was a long time gap - of at least a century - between the decay of hand-spinning industry and the revival of handloom industry based on imported mill spun yarn. During this period the cultivation of raw cotton in eastern India was almost eliminated. Under such a situation the cotton mills of Bengal were floated and had to depend mostly on the supply of raw cotton from western India. During our period when the hand spinning industry was almost extinct a small amount of annual exports (coastwise and by rail and river) of raw cotton from Calcutta to other parts of the eastern region, reveals that the demand of raw cotton for hand spinning was still alive. All these signs indicate that had there been any prospect of reviving demand the culture of cotton might also have revived. The supply of raw cotton was responsive to what had already happened in the handloom industry and what was happening in the cotton mill industry. The lack of demand for local raw cotton arose from the decay of the hand spinning industry. It was further aggravated by the indifferent attitude of the British millowners in eastern India.

The scattered data available on cotton cultivation in eastern India distinctly reflects a declining tendency in its acreage and per acre productivity during the nineteenth and first decade of the twentieth century.⁴⁹ In this regard the explanation of stagnation or decline of cotton cultivation in terms of soil and climate has to be accepted only with some major qualifications. Government experiments on cotton cultivation in Bengal proved that by the introduction of some

of the best American varieties the cultivation of this important crop could have been revived with great advantage.⁵⁰ The decline in the cultivation was at least greatly due to the fact that the production of raw cotton in eastern India as a commercial crop did not receive the same attention from the government and the mercantile interests as it received in western India. In eastern India, the combined effect of long established foreign trade of jute, the interest of Dundee manufacturers to float jute mills near the place of raw jute production which was followed up by a well organised marketing net work for its collection enabled it to be considered as a commercial crop very quickly. The British businessmen in eastern India never paid any attention to the commercialisation of cotton as in the case of jute as their fortune was tied more with the export of raw cotton and import of British made cotton products. As a consequence, heavy dependence on up-country supplies throughout the nineteenth century, is symptomatic of the inner weakness of the cotton industry and explains why cotton mills in this region could not develop as they did in the western part of India.⁵¹

An argument put forward is that an unfavourable structure of rates for raw cotton from central and western part of India to Bengal might have increased the cost of production in Bengal compared with Bombay. But the wage rate in Bengal was lower than in Bombay and might have compensated and overcome the effect of freight charge on cost of production, if British businessmen had really been interested in the industry.

We will now consider the possibility of local market and market abroad for cotton products manufactured in the mills of Bengal. We have discussed earlier in the section 5 (Political field for import substitution and investment in the cotton mill industry of eastern

India) that the net imports of yarn for handloom consumption in eastern India had been increased by about more than two thirds, i.e., by 68.6 per cent during the period under study (Table 16). An absolute fall of 2.9 million lbs in the annual average of net imports of yarn between 1885/86 to 1889/90 and 1890/91 to 1894/95 was mainly due to fall in the annual average supply of foreign yarn by 2.5 million lbs. That is, net imports of Indian yarn fell by 0.4 million lbs due to drought and famine in the western part of India. Annual fluctuations in the supply of Indian yarn in the subsequent years was caused mainly for drought. Though domination of foreign yarn in absolute terms continued for a long time (upto 1890) the general trend was an increase in the relative importance of Indian yarn in the market of the eastern zone. Upto 1895 more than half of the need was supplied by Lancashire. Then a sharp decline came in the supply of foreign yarn. The output of yarn on a ring spindle was substantially larger than on a spindle of the older type, while the labour requirements of the former were less exacting and mechanism less complicated.⁵² This phenomenal expansion during the late 1880's and 1890's occurred, owing, among other factors, to quick and successful acceptance of ring spindles in the Indian cotton mills.

Secondly, the British industry made a structural change in the production of yarn. As the rate of return from finer counts (above 20's) and piece goods was higher, they switched over to finer counts and piece goods to feed the European countries and their colonial markets respectively.

Thirdly, a relative stagnation in equipment and output from the late 1880's to late 1890's in the Lancashire cotton industry was also responsible for the short supply of yarn.⁵³

The imposition of an excise duty on Indian yarn to counteract the import duty on British yarn put a damper on the expansion of the Indian industry. However, establishment of better railway communication from the late 1880's boosted the supply of Indian yarn from western to eastern India, which indirectly compensated the loss arising from the decline of the Chinese market from 1892 onwards.⁵⁴

In the case of cotton fabrics eastern India was the biggest market of the British piece goods. The existing market of imported piece goods was controlled by a powerful trading group who had established a deep-rooted trade channel with the Lancashire net work. The task of taking entry into this market with Indian mill made cloths was no doubt hard. The domination of the existing piece goods market in eastern India by imported goods created an impression among the Indian and British cotton manufacturers of India that the Indian market for Lancashire cloths could not be replaced by Indian mill-made fabrics. This impression probably dampened the incentive of local mill-owners to compete with Lancashire and invest adequately in the cotton mill industry.

8. Stagnation of possibilities

Our study of the cotton mill industry in eastern India shows that there was very little growth even in the production of yarn in which the cotton mills of Bengal concentrated. Nor was there any significant attempt to expand the production of cotton piece goods. While the relative importance of foreign yarn imports in the total imports of yarn of this region declined, Lancashire was able more or less to maintain its level of exports of yarn, over the period under study. The domination of Lancashire in the piece-goods markets continued.

There was a rising trend in the imports of piece-goods of Lancashire. The relative share of Lancashire in the market of eastern India declined somewhat towards the end of the period but even then it amounted to not less than 85 per cent of the total. As industry in the eastern region was completely dominated by British capital, the initiative for any significant expansion in the cotton textile industry of this zone had to come from this group. The neglect of the cotton textile industry by British capitalists cannot perhaps be entirely explained by its relatively lower profitability (as compared with other industries). The businessmen could not have failed ^{to} perceive the expansion of the market for both yarn and piece goods in this region. The disadvantage of not having abundant raw cotton in this zone could have been offset by the lower labour cost. Cotton textile mills in this area were also better placed than their counterparts in Bombay in respect of the export market in the Far East. One has, therefore, to attach some importance to the linkage of the trading net work controlled by the same business houses which were also dominant in the industrial sector. It was the entrenched position of this network which also made it difficult for the textile mill-owners of western India to penetrate in this region, thereby slowing down the overall rate of growth of the Indian cotton textile industry.

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8. Westland's detailed enquiry shows that upto 1895 only about 6 per cent of the total Indian yarn was of counts over 24s. James Westland: 'Indian tariff and cotton duties', U.K. Parliamentary Papers, 1895, vol.72, p 11. From official figures on detail breakdown of production of different counts of yarn, it is evident that between 1896 and 1911 only 2.9 per cent on an average of finer counts of yarn ranging 31s to above 40s was produced by the Indian mills. / Financial and Commercial Statistics of British India (FCBI), from 1895 to 1906; and Statistics of British India (SBI), from 1907 to 1911.
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10. Report of the Indian Tariff Board (Cotton Textile Industry Inquiry), vol.2, 1927, p 14.
11. C.N. Davar, the pioneer of Bombay cotton mill, was followed by Manekji N. Petit and others afterwards. Menta : The Cotton Mills of India : 1854-1954, pp 12-25.
12. Report of the Indian Tariff Board (Cotton Textile Industry Inquiry), vol.II, pp 14-15.
13. Statistical Tables relating to Indian Cotton : Indian Spinning and Weaving Mills, Their Production and its Distribution, Bombay, 1889.
14. The cotton mills of eastern India were all located on the bank of the Hooghly near Calcutta.

15. List of Joint-stock Companies in British India, from 1901-02 to 1910-11.
16. SBI, 1911.
17. W.A. Graham Clark : Cotton Fabrics in British India and Philippines, Washington, 1907, p 14.
18. Between 1902-03 and 1906-07 there were two sterling cotton mills in Garden Reach near Calcutta with a paid-up capital of £ 287,000; but from 1907-08 there was only one sterling cotton mill with a paid-up capital of £ 200,000, (sterling is converted into rupee @ 1s4d. = one pound sterling). SBI, from 1907 to 1911. Capital, in its stock market list shows that there was only one sterling capital cotton mill (Bengal Cotton Mill Co. managing agent M/s Andrew Yule and Co.) with a paid-up capital of £ 120,000 between 1890 and 1905; Capital, from 1888 to 1906.
19. List of Joint-stock Companies in British India, from 1901-02 to 1910-11.
20. The earliest available returns on the cotton acreage of greater Bengal and Assam were submitted by G. Flowden to the Government in 1848 and these were informed estimates made at district level and compiled by the administrative machinery in response to enquiries from above. Parliamentary Papers, 1857, vol.31, No.296, paper 'A selection of papers showing the measures taken since 1847 to promote the cultivation of cotton in India', part 1, Bengal and North-Western Provinces, see pp 122-37. But these returns are not reliable because many districts did not submit returns at all. See also Anandendu Guha : 'Growth of acreage under raw cotton in India, 1851-1901 : a quantitative account', Artha Vijnana, vol.15, No.1, March 1973, pp 1-56.
21. In estimating the acreage, and to make up the data gaps, Guha has revised official data on the basis of other information bearing on acreage or output. Guha : 'Growth of acreage under raw cotton in India, 1851-1901; a quantitative account', Artha Vijnana, vol.15, No.1, March 1973, pp 1-56.
22. Returns of Agricultural Statistics of British India, from 1884-85 to 1888-89.
23. We have taken the supplementary figures on 'Estimated Area and Yield' of ASI from 1901-02 to 1906-07.

24. According to the same sources the estimate of acreage under cotton in Assam was 39 thousand for 1883-84 to 1884-85, 42 thousand for 1885-86 and 40 thousand for 1886-87.
25. Labour-spindle ratio has been calculated on the basis of the total number of spindles divided by the total number of workers employed annually in the cotton mills of Bengal as given in FCSBI, from 1895 to 1906, and SBI, from 1907 to 1911.
26. The raw cotton-spindle ratio has been calculated on the basis of net available supply of raw cotton divided by total number of spindles.
27. Statistical Table Relating to Indian Cotton : Indian Spinning and Weaving Mills, Their production and its Distribution, 1889.
28. F.M.W. Schofield : Note on Indian Cotton, Simla, 1888, p 5.
29. FCSBI, 1895.
30. Statistical Table Relating to Indian Cotton : Indian Spinning and Weaving Mills, Their Production and its Distribution, 1889, p 110.
31. FCSBI, 1896.
32. Ibid, 1901.
33. SBI, 1911.
34. FCSBI, from 1895 to 1906; and SBI, 1901, The percentage of yarn spin has been calculated on the basis of this source.
35. In 1895-96 cotton mills in British India produced only 46,458,149 yards of cloth which increased by 389,163,977 yards in the next year, i.e., more than eight times higher than previous year, and it went up to 1,029,905,755 yards in 1909-10 or more than twenty two times increased than that of 1895-96. SBI, from 1907 to 1911.
36. China herself produced large amounts of raw cotton and possessed the tradition of long established and extensive handloom industry; but lacked capital, enterprise and modern method of transport facilities till the mid 1880's. Within 10 years (1885-1895) "the real beginnings of economic railway development" occurred and from the Treaty of Shimonoeskie, 1895 "foreign capital and foreign methods of industrial organisation" had "at length obtained that

free access to the great centres of population in China which had for years been the object of the most strenuous effort". A.J. Sargent: Anglo-Chinese Commerce and Diplomacy. (Mainly in the Nineteenth Century), Oxford, 1907, pp 248-49.

In 1898 Japan went over to the gold standard, but she adopted it at a ratio with silver which was equivalent to $11\frac{1}{4}$ d. per rupee, so that the Japanese currency was still considerably depreciated in relation to that of India. Moreover, there was clear evidence that prices in Japan accommodated themselves quickly to the fall in the gold price of silver and so, far the situation was not exactly identical with what was seen in China. A Japanese investigation commission of 1896 affirmed the existence of the exchange stimulus in regard to Japanese exports. So, at least for some years after 1893 Japan enjoyed some degree of artificial advantage, which placed India's competitive exports in a position of relative disadvantage.

Parimal Roy : India's Foreign Trade since 1870, London, 1954, pp 134-35.

37. During the period under study different numbers of counts of yarn were divided broadly into two categories, coarse yarn ranging from 1s to 25s and finer yarn from 26s to above 50s.
38. Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., 1915; and SBI, 1915.
39. League of Nations : Memorandum of Cotton, Geneva, 1927, p 51.
40. The cotton mills of Bengal were financed and controlled by 8 reputed managing agency houses, namely M/s Andrew Yule and Co., Shaw Wallace and Co., Kettlewell Bullen and Co., Kilburn and Co., S.M. Johnson and Co., D.M. Morrison and Co., H. Evatt and Co., and Atherton West and Co. Capital, from 1888 to 1912; and Thackers' Indian Directory, from 1882 to 1911.
41. SBI, from 1907 to 1911.
42. Banerjee : Monograph on the Cotton Fabrics of Bengal, pp 1-2; Schofield : Note on India Cotton, p 1; and B.B. Banerjee : The Cottage Industry of Bengal, Calcutta, 1925, pp 2-6.
43. "Since the decline of that celebrated fabric, the cultivation of cotton has almost entirely ceased in this tract". Agricultural Report, Bengal, 1886-87, p 8, quoted in Schofield : Note on Indian Cotton, p 30.

44. General Administrative Report, 1882-83, pp 17-18, quoted in Schofield : Note on Indian Cotton, p 30; Gupta : A Survey of the Industries and Resources of Eastern Bengal and Assam, for 1907-08; and Cotton in Assam, 1870, pp 1-2.
45. General Administrative Report, 1882-83, pp 17-18, quoted in Schofield : Note on Indian Cotton, p 30.
46. During the first quarter of the nineteenth century the Agricultural Society of Bengal experimented with the American variety on a plot of land at Akra near Calcutta, but it ended with failure due to calamities of the season, selection of ill suited land, bad seeds, ignorance of the proper season and improper mode adopted in sowing. Using this cotton the Superintendent of the Fort Gloster cotton mill remarked "This cotton I have carefully watched through the various stages of cleaning, carding, roving, spinning etc., and have no hesitation in characterisation it is equal to the very best Upland Georgia cotton..... My own opinion with regard to the cultivation of Upland Georgia cotton in India, from what I have seen of it is that, if judiciously prosecuted it would ultimately be crowned with success".
Bengal Mill Owners' Association, annual report of the Committee, 1939, p 81.
47. Agricultural Report, Bengal, 1885-87, quoted in Schofield : Note on Indian Cotton, p 32.
48. Ibid.
49. U.K. Parliamentary Papers, 1857, vol.31, No.296, see tabular returns by G. Plowden, pp 122-36;
Statistical Tables for British India, 1881, p 32; and SI from 1890 to 1911.
50. Banerjee : Monograph on the Cotton Fabrics of Bengal, pp 58-59;
Schofield : Note on Indian Cotton, p 30; and
Bengal Mill Owners' Association, annual report of the Committee, 1939, p 81.
51. See in this connexion, Francis Buchanan : An Account of the District of Bihar and Patna in 1811-12, vol.1, Patna, 1954, pp 519-20;
Idea : An Account of the District of Shahabad in 1812-15, Patna, 1934, pp 408-10.

U.K. Parliamentary Papers, 1857, vol.31, tabular returns by G. Plowden, pp 122-37;

An Account of the Trade Carried by Rail and River in India, from 1895-1911; and Annual Statement of the Trade and Navigation of British India with Foreign Countries etc., from 1878 to 1912.

52. The Rabbeth Ring Spindle had been invented by Rabbeth, an American, many decades before it was adopted in Indian spinning. In 1885, Jansetji Tata, for his Nagpur cotton mill, sent Brooksby (a spinning master of this mill) to England to acquire knowledge of ring spindle; and experiments on ring spinning in England impressed him. Under Tata's personal supervision and encouragement, extensive experiments and trials were made. The result, notwithstanding general British disapproval, were astonishing, - especially in terms of output per spindle of the coarser counts which formed the staples of Indian output. The installation of ring spindles in Nagpur with great success created a favourable reaction in Bombay, and Sunderdas Cotton Mill of Bombay adopted ring spindles. This pioneering lead was followed upon an extensive scale by many others. In less than two decades of the first ring spinning coming into India and less than ten years of its first commercially successful use in Bombay, a million ring spindles were being used in Indian mills.

Mehta : The Cotton Mills of India : 1854-1954, pp 43-45;

C.M. Cipolla (ed.) : The Fontana Economic History of Europe, vol.5, The Industrial Revolution, Glasgow, 1973, pp 192-97; and Idean (ed.) : The Emergence of Industrial Societies-1, vol.4, part 1, Glasgow, 1973, pp 161-221.

53. Clapham : An Economic History of Modern Britain : Machines and National Rivalries, 1887-1914, pp 175-77.

54. When China market was of undisputed significance (between 1882 and 1892) in determining the level of prosperity of Indian cotton industry, the number of mills rose from 62 to 127, spindles from 1,551,000 to 3,273,000 and looms from 14,400 to 24,700; i.e., whereas the number of spindles increased by 100 per cent the number of looms expanded by 70 per cent. FCSBI, 1895.