

**A CENTURY OF HANDICRAFTS IN RURAL  
BENGAL, C. 1670-1770**

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CERTIFICATE

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## ABBREVIATIONS

B.M.	<u>British Museum</u>
CSSH	<u>Comparative Studies in Society and History</u>
EHR	<u>Economic History Review</u>
EPW	<u>Economic and Political Weekly</u>
JASB	<u>Journal of the Asiatic Society of Bengal</u>
JEH	<u>Journal of Economic History</u>
JFH	<u>Journal of Family History</u>
JIH	<u>Journal of Indian History</u>
IHR	<u>Indian Historical Review</u>
JESHO	<u>Journal of Economic and Social History of the Orient</u>
IESHR	<u>Indian Economic and Social History Review</u>
IJHS	<u>Indian Journal of Historical Science</u>
JPS	<u>Journal of Peasant Studies</u>
IRS	<u>Indian Record Series</u>
NAS	<u>National Archives of India, (New Delhi)</u>
NLR	<u>New Left Review</u>
DEP	<u>A Dictionary of the Economic Products of India</u>

## PREFACE

Several historical writings in recent years have been devoted to trade, urban life, agrarian history, and social and cultural life of Bengal in the 17th and 18th centuries on the basis of primary and secondary source material available in various archives and libraries, both in India and abroad. Surprisingly enough, no research monograph has taken up in problem of rural industrialization of Bengal, which provided the goods for internal as well as external trade and which was responsible for the hectic activity of various European East Indian trading Companies, privateers as well as other Afro-Asian traders. It was again the proto-industrial production and its supply to different national and international markets that can appropriately be recognised as the pre-condition for flows of American silver into India rather than American silver that was the pre-condition for developments in international commercial exchanges after the 16th century.<sup>1</sup>

Hence the need to pay attention to these neglected issues such as manufactures of rural Bengal, its dynamism, its role

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1. For details of the issue of the flows of American silver and its role in international and national trade, see K.N. Chaudhuri, "The East India Company and the Export of treasure in the Early 17th Century", Economic History Review, (hereafter cited as EHR) second series, Vol. 16, No. 1, (1963-64), p. 38. Also see his, "Treasure and Trade balances: The East India Company's Export Trade, 1660-1720", EHR, second series, Vol. XXI, No. 3, (Dec., 1968), pp. 482-493. For further study see his, "European Trade with India", The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750 (eds.), Tapan Raychaudhuri and Irfan Habib, (Orient Longman, 1982), pp. 382-406. For the antithesis of K.N. Chaudhuri's views see Frank Perlin's, "Monetary Revolution and Societal change in late Medieval and Early modern Times-A Review Article", The Journal of Asian Studies, Vol. XLV, No. 5, (Nov. 1986), pp. 1041-1046.

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in internal, coastal, intra-Asian and foreign commerce of Bengal, etc. It might also be useful to examine the manufacturing activities in Bengal in the context of "proto-industrialization."<sup>2</sup> Since 1972, the concept of proto-industrialization gained momentum in European and American academic circles to construct new historical, social, economic and cultural interpretations regarding transition from feudalism to capitalism. The works of Rudolf Braun, Franklin F. Mendels, D.C. Coleman, Peter Kriedte, Hans Medick, Jurgen Schlumbohn, Pat Hudson, Charles Tilly and Richard Tilly, P. Lasslet, Rosenberg, Herbert Kisch, David Levine, Wolf Fisher and many others have revolved round the Western Europe, Central Europe and Eastern Europe, Africa, Latin America, America, China and Japan, etc. No commendable, micro and macro-economic work have been devoted to analyse agricultural, rural industrial, industrial developments of any region of India or India as a whole in the frame work of proto-industrialization. Only a limited attempt has been made by Frank Perlin to examine the validity, acceptability and dynamism of the proto-industrialization process in Indian continent, although the thesis is devoted to the South Asia.<sup>3</sup> The fundamental contention of Frank Perlin's, "Proto-industrialization" and pre-

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2. 'Proto-industrialization' as an economic term to denote 'Industrialization before industrialization' was first used by Franklin F. Mendels, in 1972. For details about the terms and its utilization see his, "Industrialization and population pressure in 18th Century Flanders", unpublished Ph.D. dissertation, "The first phase of industrialization process" Journal of Economic History, (hereafter cited as JEH), 32, (1972), p.261. Gay Gullickson, "Agriculture and Cottage Industry: Redefining the cause of proto-industrialization," JEH, Vol-43, No.4 (Dec, 1983), p.831. D.C. Coleman, "Proto-industrialization: A Concept too many," EHR, Vol. 36, No.3 (August, 1983; Second series), pp.44-47.

3. Frank Perlin, "Proto-industrialization and pre-colonial South Asia," Past and Present, No.98, (1983), p.33.

colonial South Asia" is to study the de-industrialization process in India within the frame-work of proto-industrialization in which he has accepted Amiya Kumar Bagchi's de-industrialization thesis.<sup>4</sup>

We recognised the prevalence of usurer's capital, commercial capital and merchant capital in case of Bengal. This played vital role in national, international, internal, local and coastal commercial intercourse by European East Indian Trading Companies, privateers as well as other Afro-Asian traders.<sup>5</sup> Thus the demand of rural handicrafts increased considerably and it provided impetus for qualitative as well as quantitative advancements in their production. This led to the improvement of living standard, rise in inflation, price rise, money economy,

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4. See Frank Perlin, loc.cit., pp.30-95. Also see Amiya K. Bagchi, "De-industrialization in India in the 19th Century: Some theoretical implications," Journal of Development Studies, XII, (1976), pp.135-64. Bagchi's thesis is critically examined by Marika Viciany. "The De-industrialization in the 19th Century: A methodological critique of Amiya K. Bagchi," IESHR, 16, (1985), pp.105-146. Bagchi further responded to this, see his, "A Reply," IESHR, 16, (1979), pp.148-49.

5. For this purpose see Om Prakash-Dutch Trade in Bengal, K.N. Chaudhuri's Trading World of Asia, K.N. Chaudhuri, Trade and Civilization in Indian Ocean, Sushil Chaudhuri, Trade and Commercial Organization in Bengal, N.K. Sinha, Economic History of Bengal two volumes. etc. For users capital, see Irfan Habib, "Banking System in Mughal India," Tapan Ray Chaudhury (ed.), Contribution to Indian Economic History. Also see Irfan Habib, "Usury in Mughal India," in Comparative Studies in Society and History, 1964. For All India Commerce, See Ashin Das Gupta, Decline of Surat, Tapan Ray Chaudhury, Jan Company in Action in Malabar Coast, Pamela Nitingale, Trade and Commerce in Western India, etc. For privateers see, Watson, Foundation for Empire English Private Trade in India: 1659-1760, (Delhi, 1980).

intensification of market, urbanization, and exploitation of labourers or petty commodity producers by merchants, and merchants as well as artisans of various class by zamindars and ruling groups of the Mughal courts during the initial period of our study and by merchants in particular and European merchants in general in collaboration with middle men and Indian merchants, etc. during later period. Simultaneously it is also maintained that early medieval technologies were still at work in rural industries, transportation etc. No attempt was made to replace them.<sup>6</sup> No modern commercial innovations were used in dealing with Western merchants.

Therefore, the study of rural industries during the 18th century Bengal, which consisted of culture and manufacture of cotton, silk, indigo, opium, ship building, sugar, jute and making of various qualities of ropes, ornaments of gold, silver, brass and steel etc. pottery, fishing, utensils, mat weaving, carpet weaving, coal mining, iron mining etc. is urgently needed.<sup>7</sup>

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6. For details of the art and manufacturing see T.N. Mukherjee's Art and Manufacturing, (Calcutta, 1881). This book is written with a view to produce a detailed description of art and manufacturing of whole India. Birdwood, George C.M., The Industrial Arts of India, (Piccadilly, 1880) also failed to bring a micro-study of industrial arts of a region of India.

7. For details of iron mining see S. Bhattacharya, "Iron Smelters and the indigenous iron and steel industry of India: From stagnation to atrophy," in Aspects of Indian Culture and Society, (ed.), Surjit Sinha, (Calcutta, 1972). Also see R. Kumar Gupta, "Iron Manufacturing Industry of Birbhum: A Study of its growth and extinction," Journal of Indian History, Vol. 38, parts I, III, (April, August, Dec. 1980), Also see Hitesaranjan Sanyal's, "The Indigenous Iron Industry of Birbhum," IESHR, Vol. 5, No. 1, (March, 1968), pp. 102-105.

The mining and metallurgy should be studied in some detail. Iron was mined in the Birbhum district of Western Bengal. Iron mines had also been established in Raniganj area of Western Bengal. During the later half of the 18th century attempts were made to develop coal mining, but it was mined on a limited scale by with the founding of Raniganj coalfields in 1774.<sup>8</sup>

The technological basis of these rural industries has also to be studied properly. And finally, the study of the living standard of rural craftsmen has to be given proper weightage.

It is proposed to study the mode of production in these crafts because it is the mode of production in a particular craft that determines the level of its development and its potentialities to make transition to different mode of production in a craft, its organization, etc., that determines the level of technologies in that craft.

Only recently, micro-economic study of various crafts has been undertaken by economic historians. Even then the field of economic history is in its formative stage. H.R. Ghosal's Economic Transition in the Bengal Presidency, (Calcutta, 1966), R.M. Chaudhuri's, The Evolution of Indian Industries, (Published by the Calcutta University, 1939) are path breaking research works. But these works are confined to modern Indian history. These works do not shed any critical light on the mode of

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8. For this see W.W. Hunter's, Statistical Account of Burdwan, Vol. 4. Also see R.M. Chaudhuri's The Evolution of Indian Industries, (Published by the Calcutta University Press, 1939), pp. 94-123.

production of different crafts of pre-colonial India in general and Bengal in particular.

Debendra Bijoy Mitra's, The Cotton Weavers of Bengal, 1757-1833, (Calcutta, 1978), is really a commendable work so far as the mode of organization of that craft is concerned. This study again confines itself to the colonial period. Secondly, this work is only confined to only one craft i.e. cotton. In this study D.B. Mitra has devoted only one chapter to mode of organization in the cotton industry. Rest of the chapters are mainly concerned with trade, cotton monopoly, the importance of cotton industry in the general economy of Bengal during the period studied by him. He has not undertaken to study the level of technological sophistication in the cotton industry, its role in industrialization or de-industrialization of the industry in the long run, the factors that affected its technological sophistication, living standard of cotton craftsmen, etc. He has not studied the proto-industrialization of Bengal and its role in industrialization proper or de-industrialization. Hameeda Hossain's, the Company's Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal: 1750-1813 is really an important work in this direction. But, this study again confines itself to the textile industries of modern Bengal that include cotton, silk and to some extent jute. This work does not study proto-industrialization, technologies related to this industry, etc.

Balai Barui has worked on the salt industry of Bengal.

His book, The Salt Industry of Bengal: 1757-1800: A Study in the interaction of British monopoly control and indigenous enterprises involves the various methods of filtration, obtaining the salt water, obtaining of saline earth, boiling, etc., with apparatuses utilised in this industry. The work is helpful to study the salt industry.

The present research work entitled "A Century of Handicrafts in Rural Bengal C. 1670-1770: A Study in the mode of Production" is quite different from these studies because it has undertaken to study various handicrafts in rural Bengal in the framework of proto-industrialization. One of the main concerns of this research work is to examine the causes of de-industrialization in Bengal in a framework generally unexplored so far.

My treatment regarding the proto-industries of Bengal is conceptual and statistical. This conceptual, empirical and statistical treatment of the areas involved in proto-industrialization of Bengal is based on available original and secondary source materials published and unpublished in European and Indian languages in various archives and libraries of India.

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CHAPTER - I

AN EXAMINATION OF THE CONCEPT OF "PROTO-INDUSTRIALIZATION."

The term Proto-industrialization - "the process of industrialization before the movement of large numbers of workers to factory employment" was introduced in the vocabulary of socio-economic history in 1972 by Franklin F.Mendels.<sup>1</sup> Since then a number of researches have been carried out both in Europe and America on the various aspects of proto-industrialization.

The prefix "proto" of Greek origin, means first in time, the earliest, original, primitive or less commonly, first in rank or importance or chief or principal.<sup>2</sup> Previously the term proto-industrialization had been used to denote the advances in European agriculture but without systematic usage by E.J.T.Collins, E.L.Jones and S.J.Woolf.<sup>3</sup> The main period

1. For the detailed study of proto-industrialization model see Myron P.Gutmann and René Leboutte, "Rethinking proto-industrialization and the family", Journal of Interdisciplinary History, Vol. XIV, No. 3, (Winter, 1984), p.587, Rudolf Braun, Industrialisierung und volksleben: Die veränderungen der Lebensformen in einem ländlichen Industriegebiet vor 1800, (Zürcher obergerland Erlenbach, 1960). F.Mendels, "Industrialization and population pressure in 18th century Flanders," unpublished Ph.D. dissertation, (University of Wisconsin, Madison, 1970). F.F.Mendels, "Proto-industrialization: the first phase of industrialization process," Journal of Economic History, (hereafter cited as JEH), XXXII, (1972), p.261. David Levine, Family formation in an age of nascent capitalism, (New York, 1977), W.Fisher, "Rural Industrialization and Population Change," Comparative Studies in Society and History, (hereafter cited as CSSH), XV, (1973), pp.158-170. Osamu Saito, "Population and the peasant family economy in proto-industrial Japan," Journal of Family History, (hereafter cited as JFH), Vol. 8, (Spring, 1983), p.30.

2. D.C.Coleman, "Proto-industrialization: A concept too many", Economic History Review, (hereafter cited as EHR), Vol. 36, No. 3, (Aug, 1983, Second Series), p.447.

3. Gay L.Gullickson, "Agriculture and Cottage Industry: Redefining the causes of proto-industrialization," JEH, Vol. 43, No. 4, (Dec., 1983), p.831.

of proto-industrialization may be said to have extended from the 16th to the early 19th century.<sup>4</sup> Proto-industrialization has been discovered by modern researches to have occurred in much of Europe both East (including Russia) and West, America, China, West Africa and Japan.<sup>5</sup>

Proto-industrialization attacked the technolologism: fundamentals both of vulgar Marxism and theories of industrialization.<sup>6</sup> The spatial reach of proto-industrialization concept, undoubtedly, seems to make it possible to see some of the central questions of transition from feudalism to capitalism in a new light.<sup>7</sup> Mendels and others have not only coined the term "Proto-industrialization" to suggest a new research strategy but also propounded a systematic and scientific formulation to study areas of rural industrialization from 16th to early 19th centuries.

Mendels maintains, "Well before the beginning of machine industry, many regions of Europe became increasingly industrialized in the sense that a growing proportion of their labour

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4. Hans Medick, "The Proto-industrial Family Economy: The Structural Function of household and Family during the Transition from Peasant Society to Industrial Capitalism," Social History, No. 1-3, (1976), p. 296.

5. Frank Perlin, "Proto-industrialization and pre-colonial South Asia," Past and Present, No. 1, (1983), p. 34.

6. Frank Perlin, "Scrutinizing Which Moment: A Comment on Geoff Eley, The Social History of Industrialization and the Origins of Capitalism" Economy and Society, Vol. 14, No. 3, (1985), p. 379.

7. Peter Kriedte, Hans Medick, Jurgen Schlumbohm, Industrialization before Industrialization: Rural Industry in the Genesis of Capitalism, (Cambridge University Press, Cambridge, 1981), p. 6.

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potential was allocated to industry yet, that type of industry, the traditionally organised, principally rural handicrafts barely fits the image one has of a modernising economy. There is, however, cognitive value as well as didactic advantage in thinking of the growth of "Pre-industrial industry" as part and parcel of the process of "industrialization" or rather, as a first phase which preceded and prepared modern industrialization proper."<sup>8</sup>

The first phase called proto-industrialization" was not only marked by the rapid growth of traditionally organised but market-oriented, principally rural industry. The second phase of modern, factory or machine industrialization corresponded to mechanism of economic change which were in sharp contrast with those of first phase."<sup>9</sup> Thus, proto-industrialization was accompanied by regional specialization, in which some regions specialized in industry, others in commercial agriculture, still others in forest and agro-industry and thus fostered the rate and speed of industrialization proper by creating capital accumulation, market connections, entrepreneurial skills and agricultural progress.<sup>10</sup>

According to P. Kreidte, H. Medick and J. Schlumbohm proto-industrialization was an essential and vital organ of the process of destroying feudalism. Proto-industrialization, therefore, occurred around those regions where feudalism either lessened

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8. Franklin F. Mendels, "Proto-industrialization: the First phase of the Industrialization Process," JEH, Vol. 32, No. 1, (March, 1972), p. 241.

9. Ibid, p. 241.

10. Gey L. Gullickson, op.cit., p. 831.

or were in the process of full disintegration.<sup>11</sup>

Proto-industrialization serves as a transitional stage on the road to modern industrial capitalism in some industries like textile while in some other industries like mining, metallurgy and steel this kind of relationship is not possible to occur. In some other areas of rural house-hold production like "Languedoc, " devolutionary patterns" has been recognised, with proto-industrialization followed by de-industrialization.<sup>12</sup> (emphasis added).

From a minute study it would appear that proto-industrialization saw the simultaneous occurrence of three ingredients within the framework of a region: rural industries, external destinations and symbiosis of rural industry within the regional development of a commercial agriculture.<sup>13</sup>

The concept proto-industrialization is equally important to provide a systematic study to the development of a 'World system' dominated by those metropolitan countries of Europe which had developed furthest on the road to capitalism and constituted its core. Undoubtedly, proto-industrialization did not originate the world system. This world system together with new colonialism contributed considerably to the formation

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11. P.Kriedte, H.Medick and J.Schlumbohm, op.cit., p.6.  
12. Ronald Amizade, "Reinterpreting capitalist industrialization: A Study of 19th Century France," Social History, Vol.9, (1984), p.332. For details of the proto-industrialization leading to de-industrialization in Languedoc, see, J.K.J. Thomson, "Variations in Industrial Structure in pre-industrial Languedoc," M.Berg, P.Hudson etc. (eds.), Manufacture in Town and Country before the Factory, (Cambridge University Press, 1983), pp.61-91.  
13. D.C.Coleman, "Proto-Industrialization: A Concept too many," EHR, Vol. 36, No. 3, (Second Series, August, 1983), p.437.

of rural industrial regions.<sup>14</sup> Since the world system was gradually taking a different shape and form, the role of proto-industrialization was growing ever larger and more active. Export of industrial products from metropolitan countries had increased considerably and the demand for raw materials in the same countries was similarly increased which had economic, political and social consequences for the overseas world.<sup>15</sup> The low elasticity of supply of the town economy due to the guild system compelled merchant capitalists to explore the potentialities of the rural labour force and to transmit craft production to the rural regions.<sup>16</sup>

The applicability and validity of the dynamic quality of the rural industry to all cases at all times is variable and is especially influenced when placed within the framework of a world market which includes industrialized core areas.<sup>17</sup> The factory and mechanized production of the core region had keen competition with rural craft production of the periphery, often imposed strict limitations upon its horizon of development. Apart from this, the political and economic domination of the metropolis and of international free capital confined peripheral production to certain labour intensive processes

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14. P.Kriedte, H.Medick and J.Schlumbohm, loc.cit., p.8.

15. Ibid, p.9.

16. Hans Medick, "The proto-industrial family economy: the Structural Function of Household and Family during the Transition from Peasant Society to Industrial Capitalism," Social History, Nos. 1-3, (1976), p.297.

17. Pat Hudson, "Proto-industrialization: the case of West Riding Wool Textile Industry in the 18th and 19th centuries," History Workshop, No. 12, (1981), p.36.

only. The surplus of peripheral domestic production is generally drained away to the metropolis and thus "the backwardness of the periphery was continuously and massively reinforced by the economic progress of the core."<sup>18</sup>

The proto-industrial system contained within its structural foundation the essential seeds of its own destruction. Thus, Hans Medick rightly maintains, "in an advanced stage of proto-industrial expansion this structural foundation became one of the negatively determining causes for the transition to industrial capitalism or led proto-industrialization into its cul de sac, i.e. de-industrialization".<sup>19</sup> Proto-industrial system placed the 'labour consumer balance' of the family mode of production into reverse movement by replacing productive labour effort through consumption, leisure, feasting, drinking, playing etc., thereby providing capitalist putter out to fetch maximum profit out of this circumstances.<sup>20</sup> It is this contradiction which cannot be squared in the long run with the dynamics of reproduction and expansion inherent in the proto-industrial system.

The systemic character of the basic structure of proto-industrialization in many respects offers a clue to the controversy of transition from feudalism to industrial capitalism. "The exponents of the concept of a system do not see the 'history of the system of proto-industrialization' in

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18. Ibid, p.36. Also see P.Kreidte, H.Medick and J.Schlumbohm, loc.cit., p.9.

19. Hans Medick, "The proto-industrial Family Economy: the Structural Function of Household and Family during the Transition from Peasant Society to Industrial Capitalism," Social History, No.1-3, (1976), pp.300-301.

20. Ibid, p.304.

opposition to the history of its evolution."<sup>21</sup> Thus, the heuristic use of the concept of a system seemed appropriate in order to narrate proto-industrialization as the specific 'asynchronous' set of socio-economic inter-relationships. This characterizes a typical transformation period. The disintegration of the old pre-capitalist social formations<sup>22</sup> became essential, structural part of emerging capitalism. These historical manifestations of disintegration from pre-capitalist social formations<sup>23</sup> to emerging capitalism specifically provided a historical character to differentiate proto-industrial from industrial capitalism. (emphasis added). During proto-industrial transition phase devolutionary and evolutionary forces operated in a unique social system and thus appeared the 'Janus face' of proto-industrialization.

Karl Marx suggested two possible paths of 'transition

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21. P.Kreidte, H. Medick, J. Schlumbohm, Industrialization before Industrialization, p.9.

22. The societies known to history are formations, that combine modes of production and organize relations between the local society and other societies. Thus, social formations may be regarded as concrete, organised structures that are marked by the prevalence of a dominant mode of production together with the articulation of a complex group of modes of production in a subordinate position. Samir Amin holds that "all pre-capitalist societies are social formations combining the same elements and marked by (1) the predominance of a communal or tribute-paying mode of production, (2) the existence of simple commodity relations in limited spheres; and the existence of long distance trade relations. Long distance trade is the process of linking independent formations together. Long distance trade also brings the products whose cost of production in one society is not known in the other and scarce goods for which substitutes cannot be found. See Samir Amin, Unequal Development, (London, 1976), p.16.

23. P.Kreidte, H. Medick and J. Schlumbohm, op.cit., p.9.

from feudal mode of production<sup>24</sup> to capitalist mode of production.<sup>25</sup> The first path involves the emergence of large scale commerce and of a merchant class and merchant capital on the basis of pre-capitalist mode of production while the second path is the revolutionary one containing the capitalization of the production process itself.<sup>26</sup> The 'systemic' approach to proto-industrialization is closely related to each other, actually as forming two parts of the same historical process. Different modes of production were structural component of the proto-industrial system. Hence, the transition from one mode of production to another cannot be a moment of destruction, however brief, rather it is itself a movement subject to a structure which has to be discovered.

The production and its structure can never disappear although it may take a particular form in each mode of production.<sup>27</sup> The forms of transition themselves are particular 'forms of manifestation of this general structure; hence they formed a

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24. The term mode of production means productive forces and relations of production as two sides of social production in totality form the mode of production and they determine the character of the society. See Walter Schellenberg, Capital: A Basic Course (Dresden, 1968), p.20. Maurice Dobb holds that "by mode of production he (Marx) did not refer merely to the state of technique - to what he termed the state of the productive forces - but to the way in which the means of production were owned and to the social relations between men which resulted from their connections with the process of production." M.Dobb, Studies in the Development of Capitalism, (London, 1978), p.7. Samir Amin recognised five modes of production. See his Unequal Development, pp.13-14.

25. P.Kriedte, H.Medick, and J.Schlumbohm, loc.cit., p.9.

26. Ibid, p.9. See Dobb's, Studies in the Development of Capitalism, p.17. Also see M.Dobb, "The Transition from Feudalism to Capitalism" Baljit Singh and V.B.Singh(eds.), Social and Economic Change, (Delhi, 1967), pp.262-264.

27. L.Althusser and E.Balibar, Reading Capital, (London, 1975), p.273.

configuration of 'transitional modes of production.'<sup>28</sup> That is why P.Kriedte, H. Medick and J. Schlumbohm analyse "as long as proto-industrial capitalism had not exhausted its possibilities for expansion on the 'broad foundation' of the Pre-capitalist mode of production, the second road was used only reluctantly. When, on occasion, it was taken it could quickly be left again in favour of the first road. Only when the problem arising in the process of proto-industrial growth could no longer be solved within the framework of the old production system did the process of circulation change into a mere element of the production process."<sup>29</sup>

Thus, proto-industrialization is neither a part of the old social formation of feudal mode of production, nor as part of the new formation of capitalist mode of production, nor as a unique third system or as a system which emerged from these two. Behind the appearance of domestic industry quite divergent relations of production were operating. They appear as different kinds of proto-industrialization.

Proto-industrialization contained part of both the elements of great transformation process; gradual disintegration of feudal mode of production and gradual emergence of capitalist mode of production.<sup>30</sup> During proto-industrialization,

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28. Ibid, p.273. Also see P.Kriedte, H. Medick and J. Schlumbohm, op.cit., p.10.

29. Ibid, p.10.

30. Ibid, p.10.

capitalist relations of production<sup>31</sup> emerged often haltingly, sometimes even subject to retrogression, especially when compared with early centralized manufactures. The formation of such relations of production has strategic importance to bring breakthrough of the industrial revolution which compelled all other societies either to industrialize or to de-industrialize.<sup>32</sup>

The expansion of rural industry depended generally upon agrarian unemployment and underemployment due to population explosion, access to an urban market, farming with considerable emphasis on herding rather than tillage.<sup>33</sup>

Proto-industrialization contains at its core the manufacture of cottage industry commodities for market, and together with other factors includes wide promotion of industrialization through the development of network of trade and transport, the encouragement of labour skills and the inducement to peasants to initiate manufacture and to adopt extra-agrarian employment.<sup>34</sup>

31. The social side of production, the relations of people to each other in the process of social production are the relations of production and "the sum total of these relations of production constitute the structure of society." The relations of production, thus, consists of the forms of ownership of the means of production, the position of the classes, the social groupings in production, reciprocal relations, the forms of distribution of the product and the conditions of exchange and distribution, etc. See, Walter Schellenberg, op.cit., pp.17-18.

32. P.Kriedte, H.Medick and J.Schlumbohm, loc.cit., p.10.

33. Charles Tilly and R.Tilly, "Agenda for European Economic History", JEH, No.1, (March, 1971), p.189. Also C.Tilly, "the Historical Study of Vital Processes", C.Tilly(ed.), Historical Studies of Changing Fertility., p.28.

34. Richard Rudolph, "Agricultural structure and proto-industrialization in Russia: Economic Development with Unfree Labour.", JEH, Vol. XLV, No. 1, (March, 1985), p.49.

It, therefore, would be appropriate to interpret the model of European proto-industrialization as a theory of structural transformation with special stress on the significance of regional specialization.<sup>35</sup>

In this thesis an attempt will be made to analyse the circumstances leading to the origin of proto-industrialization together with model for family economy, demographic pattern and its impact on rural industrialization, the relationship between market opportunities and mercantile response, the connection between agrarian change and proto-industrial production.<sup>36</sup>

A look at the process as it unfolded itself in Europe should help us in getting a deeper insight in the problem.

#### DIVISION OF LABOUR BETWEEN TOWN AND COUNTRYSIDE

During the initial years of early modern Europe the autarchic division of labour, based on closed social units, especially the manorial estate, disappeared with emergence of a type of division of labour mediated by market economy. Two conditions are essential for the functioning of an exchange economy: an agricultural surplus has to be produced to feed town dwellers; and demographic increase has to be such that can crowd the emerging towns. These two conditions

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35. Osamu Saito, "Population and the Peasant Family Economy in Proto-industrial Japan," JFH, Vol. 8, No. 1, (Spring, 1983), p. 30.

36. Charles Tilly and Richard Tilly, loc. cit., p. 188.

37. P. Kreidte, H. Medick and J. Schlumbohm, op. cit., p. 12.

are functionally interrelated. Swifter and higher population growth supported an increase in food stuff production and thus, intensification of agriculture through application of many methods and techniques in agriculture. Demographic increase and agrarian transformation in conjunction with revival of commerce lay at the basis of the flourishing towns.

Among European nations, it was England alone which enjoyed an internally unified market during our period.<sup>38</sup> Markets established and grew first around the sea coast, along rivers and a few administrative centres and junctions of overland trade routes.<sup>39</sup> The agriculture of such regions was first affected both by the "pull" of market demand, raising the value of produce, value of land and peasants time and by the easier spread of knowledge of technical improvements by which that demand could be satisfied.<sup>40</sup> The increased and intensified demands for grain affected practices and organisation far into the interior in the continent including hill and mountain areas, wet lowlands, etc.

Ports came into existence where harbours existed and they were situated not on the coast but at a point on a river which was at the head of navigation for the craft of the time.<sup>41</sup>

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38. Robert L. Heilbroner, The Making of Economic Society, (Delhi), pp. 43-51.

39. William N. Parker, "Introduction," William N. Parker and Eric L. Jones (eds.), European Peasants and Their Markets: Essays in Agrarian Economic History, (New Jersey, 1975), p. 20. See also Southgate, English Economic History, (London, 1958), pp. 17-18.

40. Ibid, p. 20.

41. G.W. Southgate, English Economic History, (London, 1958), pp. 17-18.

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The tendency to commute labour services for a money income and either to lease out the signiorial demesne for a money rent or continue its cultivation with hired labour promoted the growth of the market in England.

The division of labour between town and countryside, increasingly turned opposite to the further development of the forces of production. Change does come to peasant economies.<sup>42</sup> Economic change could throw off its fetters only when the self-sufficient peasant production unit could be cracked open. In the modern world they are infected with opportunities and pressures originating in the exchange economy outside, large scale, long term change in pre-modern economies.<sup>43</sup> Ester Boserup provides valuable analysis to this situation by arguing that traditional agricultural economies change when the pressures of a demographic increase against a static resource and technological base forced them to do so. As increased subsistence needs exhaust resources necessary to extensive exploitation, the people must keenly intensify their sphere of economic activity by applying greater labour to the same land, increase frequency of cropping<sup>44</sup> and even engaged themselves to industrial pursuits<sup>45</sup> not only

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42. Richard C. Hoffmann, "Medieval Origins of the Common Fields," W.N. Parker and E.L. Jones (eds.) European Peasant and Their Markets: Essays in Agrarian Economic History, (New Jersey, 1975), p. 31.

43. Ibid., p. 31.

44. Ester Boserup, The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure, (Chicago, 1965), pp. 11-18.

45. P. Kreidte, H. Medick and J. Schlumbohm, Industrialization before Industrialization, p. 13.

for home consumption but also for sale in the market, and thereby achieve the newly required production level. Boserup's opinion thus accepts the availability of more intensive techniques and the willingness of a society to utilise them. Hence she rejects the possibility of a society choosing or being forced to evolve other means of adaptation to situations of population pressure.<sup>46</sup> Further, the intensification of agriculture can itself create new disruptions of the social order. Other recent research monographs suggest that agricultural intensification is but one possible reaction to population pressure and that increased and formalized social controls can be yet another alternative.<sup>47</sup>

The development of new stage in the social division of labour adversely affected the privileged position of town in the overall process of production and exchange process. As a consequence, the rural centres of industrial commodity production and local markets gradually emerged. Often the division of labour between town and countryside, was abolished in the legal sense only when free trade was introduced. The social and economic forces which promoted the expanding production of industrial goods in the countryside turned out to be stronger in the long run.<sup>48</sup>

#### THE ORIGIN OF PROTO-INDUSTRIALIZATION

Proto-industrialization originated during the high middle ages with the decline of feudalism, where manorial economy

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46. Richard C. Hoffmann, loc. cit., p. 32.

47. Among historians and anthropologists holding such views Brian Spooner and Robert Netting are most important. See Brian Spooner (ed.), Population Growth: Anthropological Implications, (Cambridge Mass., 1972).

48. P. Kredte, H. Medick & J. Schlumbohm, loc. cit., p. 13.

operated under fundamentally changed circumstances as a division of labour mediated by market was established.<sup>49</sup> Experience of these economic developments impelled the feudal lords to relinquish the old system of appropriating social surplus labour since the transaction cost was very high. Consequently, a new and consistent but vulnerable relations of appropriation in this changed environment was established.<sup>50</sup>

In most Marxist academic discussions it is often postulated that the key to the transition to a capitalist mode of production is the transition to a stage at which the putting out system or verlag system develops, with traders or merchant capitalist functioning as intermediaries between the cottage producers and the market.<sup>51</sup> At this state of economic development, market relations penetrated and capital is accumulated for further utilisation to establish industry. The concept merchant capitalism makes a sharp class distinction between peasant and capitalist and thus, obfuscates the basic process involved (emphasis added). In tracing the process of beginning market production, the term merchant capital obscures the vital role played by the peasant household. Marx himself pointed out that the capitalist merely inserted himself into a system of rural industry,<sup>52</sup> where the process of differentiation and polarization had created a resource in the form of cheap labour power which could easily be tapped by merchant capitalists.<sup>53</sup>

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49. Ibid., pp.6-7.

50. Ibid., p.7.

51. Richard Rudolph, "Agricultural structure and proto-industrialization in Russia: Economic Development with unfree labour," JEH, Vol. XLV, No. 1 (March, 1985), p.52.

52. Ibid., p.52.

53. P. Kreidte, H. Medick and J. Schlumbohm, op.cit., p.7.

During this phase, production was organised in many different ways. Two variants come up. On the one hand, the household functions as a self-contained unit, differentiated internally, so that each member has specific task to perform, on the other hand, industrial variant involves differentiation between households rather than within themselves, where each household specialised in one art and manufacturing.<sup>54</sup>

Social organization of agricultural labour is highly dependent on seasonal fluctuations in reaching at the peak during harvest period.

The pattern of employment for women in these countries, between 1690 and 1750 was almost exactly similar compared to male employment in an earlier period. We trace a market difference in female's pattern by transferring their role to the spring activities away from the harvest, whereas male's relative involvement in the harvest appeared to be far greater. The periods of highest employment security for women had become equally the spring and the harvest. By 1793 and 1814 the female pattern had proceeded further in the same direction, although the change was probably delayed by the temporary shortage of male labour during the war ensuring relative equal female involvement in both the spring and the harvest.<sup>55</sup> During the rest of the period throughout the year, females were either unemployed or under employed seeking supplemental employment.



54. David Levine, Family Formation in the Age of Nascent Capitalism, (New York, 1977), p. 13.

55. K.D.M. Snell, "Agricultural seasonal unemployment, the standard of living and women's work in the South and East, 1690-1860", EHR, Vol. 34, No. 3, (Second Series, August 1981), p. 410. Also see his, Annals of the labouring poor: Social change and Agrarian England, 1660-1900, (Cambridge University Press, Cambridge, 1985), pp. 15-66, for a fuller description of the pattern of employment.

The male pattern continued much as it was in 1690-1750, but with less noticeable unemployment after the spring activities, in which women would now seem to be much more heavily concentrated. After spring, women became increasingly vulnerable to unemployment till December. In such environment with nominal gender differences or virtually indifference to employees, we have moved to a situation indicating an unprecedentedly marked sexual division of labour. Women engaged in agrarian work were most secured from unemployment. This change was long term and its origin can certainly be dated from a period before 1793 almost certainly between 1750 and 1790.<sup>56</sup>

Highly seasonal or flexible labour demands in certain regions determined the location of rural industry.<sup>57</sup> Seasonal unemployment was simply a pre-condition for the expansion of industrial commodity production to the countryside.

The situation of live-stock raising farms differs from that of arable farms. On the former, work is more evenly distributed over the whole year, but it is much less intensive. Ample evidence is available to demonstrate that Norfolk Course,<sup>58</sup> increased the number and production of forage crops.<sup>59</sup> The effect was to afford a much greater supply of fodder, enabling more animals to be kept. This intensified cultivation on infertile soil by the

56. Ibid., p.413.

57. Gay L. Gullickson, "Agriculture and Cottage Industry: Redefining the cause of proto-industrialization," JEH, Vol.43, No.4, (Dec, 1983), p.836.

58. G.W. Southgate in his, English Economic History, (London, 1958), p.112, recognised a four year course introduced by Lord Town Shend to increase the productivity. The fallow year was eliminated; corn crop was grown in alternate years. In the intervening years a clover crop and a root crop were grown to preserve the fertility of the soil.

59. E.L. Jones, Agriculture, and the Industrial Revolution, (Oxford, 1974), p.129.

proper use of more manure. More manure also enlarged the forage crops, which meant in turn that still more fattening beasts could be kept.<sup>60</sup> Consequently, milk production in Germany and the Netherlands had gone up from less than 150 gallons per cow during lactation in 1750 to 220 and even 400 gallons per cow with associated improvements in butter churns and cheese presses.<sup>61</sup> Since the price index for mutton was rising almost continuously, from 109.5 in 1780 to 121.6 in 1790 and 246.4 in 1800, fattening beast breeders were encouraged to breed much more beasts. The price index of wool did not grow in that ratio.<sup>62</sup> These improvements in excess grain and fatstock production in less favored situations, such as the wetter, more elevated parts of the north and west and on the heavy Midland days compelled men to regulate legislation to suppress these developments. Poor farmers in these districts reacted by concentrating on dairying, rearing store beasts and above all by seeking supplementary income from by employment in industry.<sup>63</sup>

It is generally assumed that the rural industries of Europe were concentrated in barren Mountain regions. Braun has maintained that the most industrialized regions in the Swiss canton of Zurich were the most distant highlands—"a black country with discrete zones of settlement, woodglens of forbidding aspect, inconceivably bad communication and a rude climate". He further stated that the key to adoption of cottage industry lay in the weakness of peasant

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60. Ibid., p. 129.

61. R.M. Hartwell, "Economic Change in England and Europe, 1780-1830", C.W. Crawley (ed.), The New Cambridge Modern History, Vol. IX, (Cambridge University Press, 1969), p. 34.

62. E.L. Jones, loc. cit., p. 151.

63. Ibid., p. 130.

collectively, and that the weakness was linked to the system of agriculture. In such collectivity industry has little play.<sup>64</sup>

The barren Mountain regions are regarded suitable for the rearing of the sheep. Other beasts are also reared in these regions. Excessive rainfall in these regions may depress average yields and increase the riskiness of arable production in the region, while increasing the growth of grass.<sup>65</sup> In these regions due to animal husbandry, woollen industry, leather industry, etc. were established.<sup>66</sup>

The entire economy was susceptible to the rhythm of the seasons and to the way this rhythm was heightened or softened by the chances of the weather. The seasonal round and its emphasis or muting by the weather acted first on the output of agriculture then on the consumption of food, followed by the supply of raw materials to industry and finally, trades, industrial plant driven by wind or water power, and transport were adversely affected.<sup>67</sup> Outdoor occupations like building, brick making, brick layers and plasters, grain milling which utilized wind and water power and the heavy industries which depended on water mills were specially sensitive to hard frosts or heavy rains, freezing of the reservoir ponds in winter, the drying up of the mill races

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64. Gay L. Gullickson, "Agriculture and Cottage Industry: Redefining the causes of Proto-industrialization," JEH, Vol. 43, No. 4, (Dec, 1983), p. 836.

65. Ann Kussmaul, "Agrarian Change in 17th Century England: The Economic Historian as Paleontologist," JEH, Vol. XLV, No. 1, (March, 1985), p. 15.

66. E. L. Jones, Seasons and Price: The Role of the Weather in English Agricultural History, (London, 1964), p. 79.

67. Ibid., p. 21.

in summer and winter alike. It was manufacturing sector which was least affected by the vagrancy of weather, (emphasis added).

Seasonality of production was a characteristic feature of many enterprises besides agriculture but in none was fluctuation more marked. The character of the individual season mattered enormously on land. The seasonal work-rhythm in agriculture was most evident on the larger arable farms. The crop year means brisk activity: sowing the cereals in autumn and spring, frantic haste and urgency at harvest. Threshing was virtually the only winter task of any importance. The height of this regular, seasonal peak of agricultural employment differed strikingly from year to year according to the crops sown and the yields which the weather produced.

During the start of sowing season, arable farmers borrowed money to buy seed, to pay for the labour of sowing and cultivating reached at the peak of indebtedness at the start of harvest. The farmers paid off their debts after the post-harvest sales of grain. Winter supplies were bought in at the great fairs of early autumn, from where money flowed to the town tradesmen, hucksters, hawkers, and travelling salesmen to set the consumer goods industries at work. The magnitude of this cash transfer from agricultural to industrial England depended on two variables, both closely tied to the weather; firstly, the volume and value of harvest work; and secondly, the farmers profits.<sup>68</sup> This seasonal fluctuations in agricultural production, employment opportunities in agriculture, outdoor occupations, mining, and industries dependent on wind and water power, enforced the rural labouring poors to seek

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68. Ibid., pp. 43-67.

supplemental income and thus contributed to the emergence of rural handicrafts industry, (emphasis added).

Available statistical researches estimate the population growth of 15th to 17th century Europe as faster with certain exceptions. The Europe from the Atlantic to the Urals forms about 1/5th of the earth's population.<sup>69</sup> After 1522 the population of England increased continuously upto 1695 and finally, England was overpopulated. Economic growth did not keep pace with population growth. Income per head declined. Prices in England between 1500 and 1540 rose by a half, then more than doubled in the next 20 years and by the end of the century prices were about 5½ times more than what they had been 100 years ago. Prices rose by something over 60% in the reign of Elizabeth.<sup>71</sup> Throughout Western Europe agricultural prices rose more than non-agricultural prices and cereal prices more than live-stock prices.<sup>72</sup> The value of land

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69. F.S.Spooner, "The Economy of Europe 1559-1609", R.B.Wernham (ed.), The New Cambridge Modern History, Vol.3, p.32. Also see F.C.Spooner, "The European Economy 1609-50," J.P.Cooper (ed.), The New Cambridge Modern History, Vol.IV, (Cambridge University Press, 1970), pp.70-71. For further information see Jean Menvret, "Prices, population and Economic activities in Europe 1688-1715: A Note," J.S.Bromley (ed.), The New Cambridge Modern History, Vol.VI, (Cambridge, 1970), p.884.

70. David Grigg, Population Growth and Agrarian Change: An Historical Perspective, (Cambridge University Press, 1980), pp.84-85. Following is the statistics:

<u>Year</u>	<u>Population in (M)</u>	<u>Rate of Growth (% p.a.)</u>
1522	5-2.3	-0.1
1545	2.8	0.9
1603	3.75(4.5)	0.5(.8)
1650	5.1	0.6
1695	5	-04

71. G.R.Elton, England Under the Tudors, (Delhi, 1977), pp.224-228.

72. David Grigg, loc.cit., p.85.

also rose—with a rise in rents on some manors from 8 fold to 10 fold between 1558 and 1642. On most aristocratic estates rents doubled between 1590 and 1640.<sup>73</sup>

The growing shortage of land was reflected in the steep rise in the cost of land and the cost of agricultural products. The relationship between the prices of labour and land shifted in favour of the latter. Due to these reasons marginal soils were cultivated after available good soils had been exhausted. A broad stratum of landless peasants originated in regions of large farms. In the middle of the 15th century large farms existed in large number.<sup>74</sup> In the four centuries following 1500, the distribution between the great landowners (with estates of around 10,000 acres and upward), the gentry and squiarchy (with between 300 and 10,000 acres a piece) and the small land owners (with less than 300 acres each) remained remarkably stable, altered only slowly and does not appear to have been subject to any sudden and dramatic shifts.<sup>75</sup> But the share of small owners after 1690 declined to some extent. The argument is twofold. First, conditions became rough for peasant survival due to price rise, heavy land taxation, especially war taxation on peasants as well as other landowners that compelled the peasants to sell their Holdings. In addition, many small landholders were attracted

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73. Ibid., p.87.

74. Hermann Levy, Large and Small Holdings: A Study of English Agricultural Economics, (London, 1911), p.4.

75. F.M.L. Thompson, "Landownership and Economic Growth in England in the 18th Century," E.L. Jones and S.J. Woolf (eds.), Agrarian Change and Economic Development: The Historical Problems, (London, 1964), p.42.

towards trading and commercial occupations and deserted farming while they retained ownership of their holdings, (emphasis added). Secondly, conditions of relative shortage of land in the market, forced those who wanted to buy land to nibble at peasant holdings. These smaller landowners of early 19th century came from completely non-agricultural families and many were non-farmers.<sup>76</sup>

The Established landowners (estate holders) opted to borrow loans without being forced to sell for various family purposes; so that the ratio of indebtedness to annual income seems to have been increased substantially during the 18th century. This development was caused in part by the perfection of legal devices—the strict settlement, which permitted long-term mortgages to be raised for specific family purposes or at the time of re-settlement, where the development of the equity of redemption provided security to both borrower and lender. But it was caused in even greater part, by the growth of credit available for this sort of lendings. Some of this was institutional including London private banks, insurance offices etc. But much of it was private lending. Private lenders were from that class of businessmen which in earlier centuries would have been land purchasers and this class of businessmen lent money to those landowners when they must know that most borrowings were for non-productive purposes.<sup>77</sup>

From this social upward mobility through inheritance, usury, money lending, and finance, three profound consequences have to follow. One is the creation of the most productive agricultural system in Europe, with possible exception of Holland. These

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76. Ibid., pp. 43-45.

77. Ibid., p. 54.

thrusting, calculating and profit oriented self-made men turned their entrepreneurial skills into re-organizing agricultural practices and introducing new mechanics and innovations and became the leaders of agricultural revolution. The second major alleged consequence is the primacy of England in the race to modernity and industrialization. In this race small-holders and sometime landless stratum played very vital role in introducing new crafts in these regions. This move of the labouring poor in the rural regions was supported by the newly absorbed landed elite by an ambitious incentive to make money since glittering rewards of social prestige were within their grasp. After 1650 the landed elite was interested in protecting domestic industry and commerce and open up foreign markets with rural handicrafts. The third consequence "is the creation of a stable yet flexible political system, which defused potentially threatening attacks by its readiness to co-opt new comers into the ranks of the ruling class."<sup>78</sup> Lawrence Stone further postulated that there is an inverse correlation between the rate and ease of upward mobility and the intensity of class conflict: when mobility channels are blocked, social tensions rise and vice-versa. It was the willingness of the ruling elites to absorb new comers into their rank and file that transformed England from an agricultural nation into an industrial one with a huge urban proletariat and also gradually shifted from an oligarchy to a participatory democracy, both without revolutionary outbreaks of violence and destruction.<sup>79</sup>

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78. L. Stone, and Jeanne C. Fawtier Stone, An Open Elite? England 1540-1880 (Oxford, 1984), p.4.

79. Ibid., p.5.

In the areas of partible inheritance, the fragmentation of land took an extra-ordinary proportion. This gives rise to many problems: time is wasted going from one plot to another, land is wasted in paths and boundaries, machinery is difficult to use economically and pests and trespassers are difficult to control.<sup>80</sup> Many reasons can be traced to the fragmentation of land. In some cases it may have arisen because each villager sought some land on different types of soil. In other cases, the scattering of a farmer's fields may be a way of avoiding the risk of isolated climatic hazards. By the 18th century, the bulk of the rural population consisted not of full-scale farmers in control of enough land to feed their household but of small holders and occasionally, of landless sub-stratum. These small holdings of the 18th century were of various classes:<sup>81</sup> (1) Very small plots, some of whose holders were also owners, some tenants of a landlord or sub-tenant under a farmer. In any case they were for the most part labourers as well as occupiers, working on larger farms as day labourers; (2) small farmers proper, working on their own plots with his family members; (3) the yeomen, employed little outside labour and very little day labourer. Between the 16th and 17th centuries European rural industry was approximately located in regions with relatively landless peasantry.<sup>82</sup>

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80. David Grigg, Population Growth and Agrarian Change: An Historical Perspective, (Cambridge, 1980), pp. 22-23.

81. Hermann Levy, Large and Small Holdings: A Study of English Agricultural Economics, translated by Ruth Kenyon, (London, 1966), pp. 3-4.

82. Eriq L. Almquist, "Pre-famine Ireland and theory of European proto-industrialization: evidence from the 1841 census," JEH, Vol. 34, No. 3, (Sept. 1979), p. 700. For German case see Reinhard Bendix, Max Weber an intellectual portrait, (Los Angeles, 1977), p. 17.

Peasant families with and without subsistence<sup>83</sup> level of land holding could adopt either of the two strategies. (1) Such families followed the path of obtaining subsistence minimum by using their land more intensively. Under the pressure of 'unsatisfied demands' the peasant family increased its labour input per unit of land. Further fragmentation of the landholdings decreased the total yield and consequently the marginal return. This strategy could not be adopted on very small holdings. (2) Very small farmers depended more on income from crafts and trades. Here income from agriculture must be supported by income from non-agricultural labour.<sup>84</sup> When such group comes into contact with the advanced sector, the group becomes subject to a number of external influences and supplementary cash production, if it develops, is a response of the subsistence group to these influences. These are of two kinds: market and non-market forces. The former reach the subsistence group from the exchange economy of the advanced sector and provide an incentive for supplementary cash production while the latter modify the ability and willingness of the members of the

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83. To discuss subsistence holding, subsistence production, subsistence living and subsistence farming see A.T. Mosher, "The Development Problems of Subsistence Farmers: A Preliminary Review" Clifton R. Wharton Jr. (ed.), Subsistence Agriculture and Economic Development, (London, 1970), pp. 6-11, C.R. Wharton Jr., "Subsistence agriculture: concept and scope," C.R. Wharton (ed.), Subsistence Agriculture and Economic Development, pp. 19-20.

84. P. Kriedte, H. Medick and J. Schlumbohm, Industrialization before Industrialization, p. 16.

subistence group to respond to that incentive.<sup>85</sup> As the market forces are also subject to modification by external non-market forces, there is in fact quite a complex interplay of forces and influences involved in the growth of supplementary cash production.<sup>86</sup>

T.S. Ashton put great emphasis on the rate of interest as the cost factor in the explanation of the cyclical variations of investment in the late 18th century and his conclusion that there is a good correlation in particular between the percentage yield on consols and the rate of enclosure has become the standard point in literature.<sup>87</sup> Ashton pointed out that even if the rate of interest rose, the sharp rise in the food-stuffs stimulated tillage and enclosure. As a result, the cost of enclosure rose in the 18th century.

The broad pattern of physical mobility in England during 17th and 18th centuries are already visible. Migration was almost universal phenomena affecting the mass of the national population.

85. E.K. Fisk and R.T. Shand, "The Early stages of Development in a primitive Economy: The Evolution from subsistence to Trade and specialisation". C.R. Wharton, Jr (ed.), Subsistence Agriculture and Economic Development., (London, 1970), p. 262.

86. Ibid., p. 262. The growth of supplementary cash production is, therefore, dependent on two factors namely "incentive and response." In the first case, incentive was transmitted to the subsistence group by the market forces, while in the second there is the strength of resistance or inertia of the subsistence group to changes of the types required for supplementary cash production. Both these factors are resultants of complex manifold of components, broadly classified into 'internal and external.' The 'internal' components are the market forces that operate in a deterministic fashion with known laws. The 'external' components are the non-market forces through which intervention was possible.

87. T.S. Ashton, An Economic History of England: The 18th Century, (London, 1955), p. 41. Commenting on Ashton, J.D. Chambers and G.E. Mingary in their, The Agricultural Revolution, (London, 1966), p. 82. has used the approach of self-financing the enclosure. But recent studies rejected this possibility and argued that most of the enclosure were financed by borrowing on mortgage. A large number of enclosures especially that promoted by large landlords, was financed not by borrowing but out of current estate income.

Most of the physical mobilities involved servants, apprentices, would be spouses and others out to better themselves, travelling fairly limited distances, to a neighbouring town or village, usually within an area defined by traditional notions of a sub-regional "country" called "Circular mobility."<sup>88</sup> There were also longer distance subsistence migration involving mainly poor people, pushed by hardship often toward town.

Women during our period seems more mobile, though they covered shorter distances. In rural regions, mobility among women was markedly higher in comparison to men, but in town the divergence was small, partly because more employment for the boys as apprenticeship.<sup>89</sup>

Urban community by offering a complex factors, including the greater number and variety of employment opportunity, the marketing links with villages of its hinterland and the operation of the apprenticeship system exploited more extensive catchment. Thus, unilinear pattern of mobility was difficult to trace.

Local level of urbanization also influenced the regional kaleidoscope of physical mobility. Movement to the colonies had only a minor role to play. Thus, clearly no single model can be propounded to comprehend the complex pattern of internal migration.

No less important were the long distance, push dominated migration found in the period before 1640. Most movement was localised and basically circular, whether it involved settlement

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88. Peter Clark, "Migration in England During the late 17th and Early 18th Centuries," Past and Present, No. 83, (May, 1979), p. 59.

89. Ibid, p. 74.

or marital migrants, apprentices, itinerant traders etc; here "pull forces" held sway.<sup>90</sup> Here, migrant labour region had little need for cottage industry because the seasonally unemployed agricultural workers lived elsewhere and preferred industrial employment in their home subsistence regions rather than commercial regions. It is perfectly true that in such regions, established land-owners played virtually no part in the cotton industry, in other textiles, in pottery, in the metal-working industries or in the engineering and machine tool industries in the later half of the 18th and first half of the 19th centuries.

Land owners were not conspicuous among the rank of entrepreneurs and promoters in these activities, all of them necessarily required some land for standing room, and some required more extensive land controlled resources, clay pits, water courses etc.<sup>91</sup> The process of industrial and urban growth provided a great array of opportunities to landowners to grow rich by allowing their property resources to be exploited for coal, iron, slate, gravel, houses and even railways, by adopting a passive, rentier stance and allowing others to do the risk-taking job. The fortunate beneficiaries of such developments were, no doubt, a small minority of the entire landed class.<sup>92</sup>

The next commercial agricultural regions were those where commercial agriculture was operated. These regions produced commercial crops, food-stuffs, industrial raw materials and certain

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90. Ibid, pp.89-90.

91. F.M.L.Thompson, "English land Society, in the 19th Century," Pat Thane, Geoffrey Crossick and Roderick Floud (eds.), The Power of the Past: Essays for Eric Hobsbawm, (Cambridge University Press, Cambridge, 1984), pp.199-200. He calculated that in the first half of the 19th century the top dozen or so of the super wealthy were landed aristocrat.

92. Ibid, p.200.

desirable beverages. It also grew new crops, beasts and new stocks. In such agriculture, for improving the fertility capacity of the soil, peasants need farmyard manure, sheep fold, dung from sheep and corned horses, for dry grass-lands from pigeons and poultry and for dry soils from pigs.<sup>93</sup> For composting vegetable matter, old thatch, offal straw, rushes, bracken, thistles, fallen leaves, etc. were soaked in ponds. Near the coast sea weeds were utilised. These required large number of labourers. In such regions raw materials were easily available for cottage industry. In peak season, in temperate agriculture most crops have to be harvested with a short period time and the annual demand for labour is compressed into rather short intervals. The small holders and rural proletarians could secure work on estates and large farms. Even regions with high population density experienced "the summer crisis"-the shortage of harvest labour.<sup>94</sup> This is because of the adoption of rural industry for supplemental income on a more continuous basis. Thus, industrialization in commercial agricultural regions depended on agrarian resource of capital, entrepreneurial talent and technical skill.<sup>95</sup> Conceivably, industry might be wholly financed by mercantile enclave. Land owners also can play a vital role in fostering industry. Added to this were the practising farmers, who could also make early moves into industry. In 1720, 60% of youths apprenticed in Leicester hosiery trades came

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93. Eric Kerridge, The Agricultural Revolution, (London, 1967), p. 240.

94. F.F. Mendels, "Proto-industrialization: The First Phase of the Industrialization Process," JEH, Vol. 32, No. 1, (March, 1972), p. 242.

95. E.L. Jones, "Agriculture and Economic Growth in England, 1650-1815: Economic Change", see his Agriculture and the Industrial Revolution, (Oxford, 1974), p. 102.

from villages outside, though by 1780 the proportion had fallen to 45%.<sup>96</sup>

Mendels observed in an article in 1980 that proto-industrialization occurred in regions with distinct and interdependent agricultural zones "a commercial agricultural zone of large farms and sparse population concentrating on the production of cereals with migrant harvest labour, and a subsistence agricultural zone of fragmented farms, dense population and increasing craft production whose residents survived by working in cottage industry during the winter and harvesting crops in the neighbouring zone during the summer."<sup>97</sup> The compactness of the small farm zone were the key to proto-industrialization. Depression, population pressure, war, epidemics, plague, famine, cholera, harvest failure etc. created favourable circumstances for the labourers as well as small farm holders to make transition to pastoral farming, a temporal strategy and finally, left room to increase the under employed and unemployed labour force.<sup>98</sup> These labour force were absorbed in cottage industries of the region. (emphasis added).

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96. Ibid., p.103. On average during 18th century about 50% of the immigrant apprentices to the cutler trades of Halmshire were the sons of men engaged in farming, but the proportion was falling over time.

97. Gay L. Gullickson, "Agriculture and Cottage Industry: Redefining the cause of Proto-industrialization," JEH, Vol.43, No.4, (Dec., 1984), p.836.

98. D.C. Coleman, "Economic Problems and Policies", F.L. Carsten (ed.), The New Cambridge Modern History, (Cambridge at the University Press, 1964), p.21.

The social property system determined the local distribution of power and the agrarian relations of production which in its turn restrict or promote the spatial expansion of industrial commodity production.<sup>99</sup> The local seigneur and the village community were of central significance in the differentiation process of the peasantry. Even in the areas of partible inheritance these classes directly and indirectly tried to influence these process by insisting on the indivisibility of the holdings.<sup>100</sup> Regions with loose constellation, therefore, promoted proto-industry, (emphasis added).

In a single-crop grain farming regions demesne had little

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99. See for detailed study Robert Brenner, "Agrarian class structure and Economic development in pre-industrial Europe", Past and Present, No. 70, (Feb, 1976), pp. 30-31. Also see his "Agrarian class structure and Economic Development in Pre-Industrial Europe: A Rejoinder," Past and Present, No. 96, (August, 1982), pp. 16-17. Also see Patricia Croot and David Parker's "Agrarian class structure and Economic Development," Past and Present, No. 78 (Feb, 1978), p. 39. They maintained that in England customary tenants formed the bottom of the farming ladder, tended to become wage labourers. Actually, during the course of the 16th and 17th centuries peasants were so squeezed that they could not survive on the income fetched from their land alone. A significant minority became totally dispossessed and joined the vagabonds in absence of intermittent employment. This process happened in areas of devastating warfare, in vicinity of the great towns, where the urban bourgeoisie was buying up the estates of destitute peasantry and mobility alike, and regions where transport facilities offered access to market. This was occurred in Toulousian, Lauragais and even in France. For further study see, Robert Brenner, "The origins of capitalist Development: a critique of Neo-Smithian Marxism," New Left Review, (hereafter cited as NLR), No. 104, (1977), pp. 25-92.

100. P. Kreidte, H. Medick and J. Schlumbohm, Industrialization before Industrialization, p. 17. For a detailed study of the inheritance pattern see, E. R. Brenner, A. V. James, and W. T. Morrill, "Inheritance, Demographic structure and Marriage: A cross cultural perspective," JFH, Vol. 7, No. 3, (Fall, 1982), p. 290.

need for child and woman labour. Thus, together with 'social limit'<sup>101</sup> we have to take into account the 'technological limit'. In such regions little or virtually no option was left for the development of cottage industry. But, to avoid the flight of the peasants, the lords always try to engage the peasants in cutting the trees, finish the road work, and the preparation of construction materials etc.<sup>102</sup> Furthermore, the setting-up of manufacturing workshop gave reason to hope for a more intensive utilization of female and child labour. This line of argument is further supported by the following empirical data: in the 18th century, the feudal quota i.e. the portion extracted from the rural net income (i.e. gross yield minus expenses) amounted between 38 and 46% in central Europe. During the same period, approximately 70-80% of the central European peasants produced insufficient income to assure family's livelihood after deducting expenses and feudal dues.<sup>103</sup>

The mode of feudal dues expropriation also determine the

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101. Witold Kula, An Economic Theory of the Feudal System: Towards a Model of the Polish Economy, 1500-1800, (Briston, 1976), p. 46, If we term the volume of labour that one managed to extract from the village without causing the utter ruin of the peasantry the 'physiological limit' emerged. We must take into account of the fact that this limit was undoubtedly never reached due to peasant resistance. We, therefore, have to introduce a co-efficient which could be termed as the 'Co-efficient of realizable coercion.' The co-efficient of realizable coercion, would then give us the 'Social Limit', i.e. the volume of services it was possible to extract from the peasant under particular institution, condition taking into account a specific productivity of labour, a specific relationship of forces between the classes and specific possibilities for sabotage or flight by the peasants.

102. Ibid., pp. 47-48.

103. P. Kreidte, H. Medick and J. Schlumbohm, Industrialization before industrialization, p. 18.

degree of domestic industry development. Social surplus labour could be appropriated through following forms: (i) in the form of labour dues; and (ii) in the form of payments in kind and money. Through high levels of labour rent, the peasant sector is reduced to the level of simple reproduction and merely serves as a source of labour services for the demesne dominated enterprise. Its labour process and reproduction was dominated by the landlord; only the organisation of necessary consumption remained autonomous.<sup>104</sup> Banaji also argues that the feudal enterprise was necessarily linked with the market. Consequently, landlords engaged into the production for market, 'the motor force of expansion in the feudal economy.' To achieve this end, the feudal lords calculation caused expansion of the volume of production via expansion both in demesne area and in labour services by reducing the peasant sector to a level of simple reproduction, required for the pure enterprise. Hence, highly developed feudalism involved commodity production, a conclusion completely opposed to Sweezy's analysis.

A significant factor which contributed to the proto-industrialization of Russia in the excellent agricultural regions was the growing practice of the landholders seeking alternative activities for their peasants in the off seasons due to the

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104. John E. Martin has taken the following argument from Banaji. See John E. Martin, Feudalism to Capitalism: Peasant and Landlord in English Agrarian Development, (The Macmillan Press, 1983), p. 8.

growth of the Market.<sup>105</sup> Adequate Empirical data are not available to propound such model, yet there is sufficient evidence<sup>106</sup> to suggest that Kustar and proto-industrial activities were as wide spread in the black earth zone as in the centre and north.

#### FACTORS OPERATING OUTSIDE THE AGRARIAN SECTOR

If industrial commodity production was to develop into full-scale proto-industrialization, the specific changes in the agrarian sector had to interact with the changes in supra-regional markets. Merchant capital had to develop and exploit the unutilised resources which existed in the countryside.

The 'secular growth periods' in European economic history broke the power of the towns.<sup>107</sup> The high labour intensity of

105. Richard Rudolph, "Agricultural Structure of Proto-industrialization in Russia: Economic Development with Unfree Labour," JEH, Vol. XLV, No. 1, (March, 1985), pp. 52-55, 63. Also see Edger Melton, "Proto-industrialization, serf agriculture and Agrarian Social Structure: Two Estates in 19th Russia", Past and Present, No. III, (May, 1987), p. 77. In the central black earth areas one finds the putting out of labour service peasants on temporary quit rents and conversely, the transfer of quit rent peasants to labour service depending on the need for different kinds of labour for different tasks, at different periods of the year. Wage labour was used for some processing of products and for the supervisory persons in the mills and brick works, serf labour was used for the milling of rye, wheat etc.

106. One such evidence is brought about in light by Richard Rudolph who quotes Baron August Von Haxthansen to support his Model. He has borrowed a long passage of evidence from Von Haxthansen. Richard Rudolph, Ibid., pp. 61-62.

107. P. Kreidte, H. Medick and J. Schlumbohm, Industrialization before industrialization, p. 21. For the rise of the towns study, Van Werveke, "The rise of the towns," M.M. Postan (ed.), The Cambridge Economic History of Europe, Vol. III, (Cambridge, 1963), pp. 3-40. Also see A.B. Hibbert, "The Economic Policies of Towns," M.M. Postan (ed.), loc. cit., pp. 158-206. Also see Sylvia L. Thrupp, "The Gilds," M.M. Postan (ed.), Cambridge Economic History of Europe, Vol. III, pp. 230-279. and H.D. Meredith, Economic History of England: A study in Social Development, (London, 1949), pp. 118-136.

prefactory industrial commodity production which required the involvement of large numbers of workers in production process created scarcity of labourers for exploiting the productive potentialities of the towns. Consequently, the rural labour force had to be mobilized. In state of urban economy's low elasticity of supply, merchant capital in absence of any other substitute had shifted production units to the rural regions. Foreign demand provided opportunities to exploit unutilized resources in the rural regions. The opportunity cost of such factors were very small or virtually zero, 'since their utilization did not imply that they were withdrawn from productive utilization elsewhere.'<sup>108</sup>

The cost factor favoured the shift of commodity production to rural areas. Raw materials were cheaper owing to less competition, less demand and large supply. Transportation cost was negligible. The tax pressure on artisans were lower in the countryside. Speaking of Europe generally, E. Hobsbawm has pointed out that as a general rule the transformation of crafts into "putting out" industries began seriously during the boom of the 16th century and the 17th century is clearly the century when such systems established themselves.<sup>109</sup> The new industrial by-employments supposedly led to a rise of living standards, a reduction in marriage age and high population growth and finally, compelled the rural labourers into a large term dependence on industrial incomes.<sup>110</sup>

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108. P. Kreidte, H. Medick and J. Schlumbohm, Ibid., pp. 21-22.

109. Eric Hobsbawm, "The General Crisis of the European Economy in the 17th century, "Past and Present," No. 6, (November, 1954), p. 51.

110. Charles Sabel and Zonathan Zeitlin, "Historical alternatives to mass production, Politics, Markets and Technology in 19th Century industrialization, "Past and Present," No. 108, (August, 1985), p. 139.

What is more important in the first phase of predominantly domestic handicraft capitalism was not the availability of cheap labour, but cheap labour possessing a piece of land and thereby had a subsistence base in agriculture.<sup>111</sup> Rural labourers required cash incomes, so they had to sell their products at whatever prices offered to them.<sup>112</sup> The merchant capitalist did not directly supervise the production process and exerted spatial importance over the myriad of rural workers by controlling their access to the market and thus, forced wage down by negotiating individually with rural cottagers, the less bargainer compared to urban journeymen. Therefore, rural industrialization depended on the de facto proletarianization of the workforce.<sup>113</sup> In course of time, some of the intermediaries turned into self-employed entrepreneurs, growing rich and working towards politico-social emancipation from the city. Economically, proto-industrial labouring class remained poorer than their landhold counterpart and were more dependent on market fluctuations<sup>114</sup> and it remained the chief form of non-agricultural production in Europe for about 300 years or so.<sup>115</sup>

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111. M. Dobb, Papers on Capitalism, Development and Planning, (London, 1967), p. 22.

112. Brenda Collins, "Proto-industrialization and pre-famine emigration," Social History, Vol. 7, No. 1, (Jan, 1982), p. 142.

113. David Levine, Family formation in an age of nascent capitalism, (New York), 1977, p. 13. Also see M. Dobb, Papers on capitalism, development and planning, p. 22.

114. Wolfram Fisher, "Rural industrialization and population change" CSSH, Vol. 15, (1973), p. 160.

115. Dan Nobudere, op.cit., p. 12.

PROTO - INDUSTRIAL FAMILY ECONOMY

In pre-industrial agrarian societies, the unity of production, consumption and generative (biological) reproduction, formed the basis of the politico-socio-economic order throughout the phase of proto-industrialization. This characterizes the "Ganzes haus."<sup>116</sup> The proto-industrial household<sup>117</sup> and the peasant household had in common the same productive forms, the unity of labour, consumption and demographic reproduction differing fundamentally so far as different function within overall socio-economic system is concerned.

In the system of either Grundherschaft<sup>118</sup> or Gutsherschaft, the peasant household and family<sup>119</sup> contributed to the 'social reproduction' of the relations of property and subsistence conditions owing to its ownership of land and its control exercised

116. 'Ganzes Haus' means the whole house, the large, multi-generational kinenfolding, servant employing household. The concept of 'Ganzes Haus' has been taken by Hans Medick in his "Proto-industrial Family Economy," Industrialization before Industrialization, p.28, from O. Brunner. P. Laslett also discusses the concept of 'Ganzes Haus' in his, Family and illicit love in Earlier Generations: Essays in Historical Sociology, (Cambridge University Press, 1977), p.39.

117. The word household particularly indicates the fact of shared location, kinship and activity. Hence all solitaries have to be taken to be households, for they are living with themselves and this is the case when they have servants with them, since servants are taken as household members. But in this discussion servants has not been taken as household members. For detailed study see P. Laslett, "The History of the Family," P. Laslett and R. Wall (eds.), Household and Family in Past times, (Cambridge University Press, 1972), pp.28-32.

118. Grundherschaft is a manorial system in which landlord practically did not undertake direct cultivation and leased out all or part of the estate to peasants who paid rents in kind or cash.

119. Family does not denote a complete coresident domestic group. See P. Laslett, "The History of the Family", loc.cit., p.28.

the work-process, over land as the significant means of subsistence and production. Hence two elements are essential for the production (i) Property, necessarily a pre-condition of production<sup>120</sup> and (ii) its protection by various means, which interferes in the process of production and reproduction, forced appropriation of a substantial part of peasant products.

The exploitation of the family labour power in the domestic industry increased with double effects: (i) it was the most important factor in the transition from small holder or sub-peasant household to industrial commodity producing household: and (ii) it also brought changes in the internal structure of family, in the distribution of roles and finally, in the alteration of the function of the household within the total socio-economic system. With the establishment of market relations and money rents, this change is observable in the function of rural handicraftmen's household within the manorial system.

The household economy of the weavers had comparatively different function to that of peasant economy, where every individual household had its own independent production centre and as a result, contained an entire economy. On the contrary, in many ways the weaver remained peasant, whose livelihood was not an individual concern, rather it was part of a broader household strategy; in which the maintenance of bonds to peasant agriculture fostered familial solidarity over working class identity whose destinies depended in the immediacy of flesh and blood

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120. Karl Marx, Grundrisse: Foundations of the Critique of Political Economy, (Penguin Books in Association with New Left Review, 1973), p.87.

relationship among family and kin.<sup>121</sup>

THE MODEL OF THE 'FAMILY ECONOMY'

The most important aspect of the 'rationality' of family economy lies in the maximization of gross produce.<sup>122</sup> Thus, the problem of the rational use of the family worker consists in (i) determining the optimum rate of wages and of employment which will maximise the profits of enterprise allowing for the productivity of this factor, and (ii) determining the factors that affect the productivity of the worker, and influencing these factors.<sup>123</sup>

In defining peasantry Teodor Shanin delineated it as a social entity with four essential and interlinked facets; the family farm as the basic multi-functional unit of social organisation, land husbandry and usually animal rearing as the main means of livelihood, a specific traditional culture closely linked with the way of life of small rural communities and multi-directional subjection to powerful outsider.<sup>124</sup> But Sidney W. Mintz adds one more element to this: peasantries commonly live in a close association with landless, wage earning agricultural

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121. Douglas R. Holmes and Jean H. Guataert, "An Approach to Modern Labour: Worker Peasantries in Historic Saxony and the Fruiy Region over three Centuries", CSSH, Vol. 28, No. 2, (April, 1986), p. 191.

122. H. Medick, "Proto-industrial Family Economy," P. Kreidte, H. Medick and J. Schlumbohm, Industrialization before industrialization, p. 41.

123. Maurice Godelier, Rationality and irrationality in Economics, (Monthly Review Press, New York and London, 1972), p. 35.

124. Teodor Shanin, "The Nature and Logic of the Peasant Economy 1: A Generalisation," JPS, Vol. 1, No. 1, (1973), pp. 63-64. A. V. Chayanov defined peasant family farms, "By contrast, Peasant family farms, as Chayanov defined them, employed no hired wage labour, none whatsoever. His family farms were pure, in the sense that they depended solely upon the work of their own family members." See Daniel Thorner, "A Post Marxian Theory of Peasant Economy: The School of A. V. Chayanov," in his The Shaping of Modern India, (N. Delhi, 1980), p. 327.

workers, whose economic relations incline us to define them more as rural proletariats than as peasantries.<sup>125</sup>

In 'peasant economy' the family was the basic unit of production and consumption.' Families are composed of 'basic units' - means individual men, women and children.<sup>126</sup> Since family labour is not paid fixed wage, Chayanov claimed that its value cannot be determined. Chayanov further argued that it is the absolute number of household member (producers and dependents), their age and sex, together with the Traditional standard of living of the community, that determines the minimum total output of a household. In any house the ratio of producers to consumers is a dominant determinant of the minimum amount of labour time that must be invested by each producer to produce the socially acceptable minimum output for the household as a whole. This necessary labour input is also affected by absolute number of producers in the household because of the application of the principles of complex co-operation in work and thus, increases the power of each and the stock of capital equipment.<sup>127</sup>

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125. Sidney W. Mintz, "A note on the Definition of Peasantries," JPS, Vol. 1, No. 1, (1973), p. 95.

126. In 'peasant economy' the family is the basic unit meant, not to deny the existence of human individuality, but to make an analytical aggregation of family members into a single economic agent possessing a unified inherent rationality and consciousness. It meant to encompass the conceptual dissolution of internal relations - the domination of some family members by others on lines of age and sex. See Mark Harrison, "Chayanov and the Marxist", JPS, Vol. 7, No. 1, (Oct, 1979), p. 89.

127. Diana Hunt, "Chayanov's model of peasant Household Resource allocation and its relevance to Mbera Division, Eastern Kenya," The Journal of Development Studies, "Vol. 15, No. 1, (October, 1978), pp. 60-61.

Thus, an increase in consumption leads to intensification of labour. When rest forms the main alternative to labour within his farm, peasant tends to consider his labour as of 'no cost' and to use it even when the small amount of additional achieved makes the additional labour 'input' incredibly cheap.<sup>128</sup> This leads to the self exploitation of the family which is the basis of Chayanov's construction of the 'utilitarian family labour-consumer balance'.<sup>129</sup>

The model predicts that with given soil, climate and market conditions, etc. income per capita will tend to be higher. The higher the producer-consumer ratio the work-force has to work harder and longer hours. The lower the producer-consumer ratio the less the likelihood that the minimum output per capita will be exceeded because of increasing marginal dis-utility of labour.

In a monogamous society Chayanov saw the family cycle as a key determinant of the productive capacity and economic performance of the household. The key variables here are the size of the family, the producer consumer ratio, the absolute number of producers in the family and the socially acceptable minimum standard of living.<sup>130</sup>

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128. T. Shanin, "The Nature and Logic of the Peasant Economy 1. A Generalisation," JPS, Vol. 1, No. 1, (1973), p. 71.

129. Mark Harrison, op.cit., p. 89. Also see Hans Medick, "Proto-industrial Family Economy," Op.cit., p. 42. Also see H. Medick, "The Proto-industrial Family Economy: The structural function of Household and Family during the transition from peasant society to industrial capitalism," Social History, No. 1-3, (1976), p. 298. Also see Daniel Thorner, "A Post Marxian Theory of Peasant Economy: The School of A.V. Chayanov," in his The Shaping of Modern India, p. 330. Here Daniel Thorner recognizes the 'concept of labour consumer balance' between the satisfaction of family needs and the drudgery of labour as the nodal and central point for analysing family economics.

130. Diana Hunt, loc.cit., p. 61.

Population explosion during the 17th century, subsistence level or below subsistence level of landholdings, seasonal employment, under employment and un-employment of rural workers, their exploitation by political power holders, rising feudal rents in money or kind, class differentiation in rural population as a process of 'discontinuous accumulation', famine, plague, epidemics, and war in 17th and 18th centuries, contributed considerably to the emergence of rural as well as urban poverty in western Europe during 18th century.<sup>131</sup> In such circumstances, the subsistence economy depended on 'partial exchange', by decreasing agricultural productivity and thus providing economically favourable conditions to the merchants. This led to the indebtedness of the small landholders. Especially in the years of bad harvest and rising prices, they were compelled to purchase grain through borrowed money on interest and to sink in hard hit debt, whereas in good harvest years they found it very difficult to extricate themselves from the previously accumulated debt owing to the absence of surplus production of their subsistence holding. Landless and land-poor producers adopted labour intensive industrial commodity production in the market place.<sup>132</sup> From the first half of the 18th century in these regions, more and more people adopted the economy of markeshifts: an extra job, seasonal

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131. Olwen H. Hufton, discusses with poverty and poor of France. See his, The Poor of 18th Century France, 1750-1789. (Oxford, 1974), pp.11-24. Here he has viewed poverty as the products of 17th Century economic, social, demographic, natural capabilities, etc. developments. Sixteenth and 17th century writers blamed 'leisure preference' as the root of all social evil. Writing in 1509-10 Edmond Dudley suggested that "idleness" was the mother of all vice... and lineal grandame of poverty and misery and the deadly enemy of this tree of common wealth. "For a fuller examination see, David Levine, Reproducing Families: The Political Economy of English Population History, (Cambridge University Press, 1987), pp.38-65.

132. H. Medick, "Proto-industrial Family Economy," op.cit., p.45.

migration, turning the children out to beg, involvement in some seminefarious practice such as smuggling.<sup>133</sup> Increased demand of these industrial commodities in overseas markets provided a strong stimulant even for non-marginal producers to make the transition. Marginal productivity under these conditions was higher in the handicraft sector and rural industry, thus, offered a relatively more favourable opportunity to survive. Cyclical fluctuations of the economy, specially the unsteady demand for products and the irregular supply of raw materials prevented a lasting guarantee of subsistence even.

In pre-capitalist formations, in the sectors where commodity exchange existed, the law of value operated in simple form. Simple commodity production is the predominant form of commodity production, and consequently, prices are equivalent to values.<sup>134</sup> But this is not completely applicable in the case of family labour of the 'Ganzes haus' where family labour produced values, which were realized in the market, but without complete domination by law of value.<sup>135</sup>

The processes of production, consumption and reproduction of the labour power in the economic circle rested on commodity exchange. Since these were essential to industrial commodity production, they did not enter into the regulation and valorization of production costs by the market. The wages of the skilled craftsman before the 19th century and at the beginning of

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133. Olwen H. Hufton, loc. cit., p. 15.

134. Samir Amin, Unequal Development: An Essay on the Social formations of peripheral capitalism, (New York, 1976), p. 60. Here value consists of exchange value and value which in unity represents the commodity.

135. Hans Medick, "The Proto-industrial Family Economy," op. cit., p. 46.

the 19th century were often determined less by "supply and demand" in the labour market than by notions of social prestige and customs. Custom rather than costing governed prices in many village industries, especially where local materials-timber or stone-ware used. Customary wage regulation may cover many things, from the status accorded by tradition to the rural craftsmen to intricate institutional regulation in urban centres,<sup>136</sup> (emphasis added).

Only under the 'dual economy' of pre-capitalist commodity production, the producing family in the rural regions possibly have a chance to access to the market despite the competition from the guilds.

Those domestic workers, who had an agricultural subsistence were immobile because of the structural unity of production, reproduction and consumption. This immobility prevented its full absorption into supra-local labour markets and thus supplied a flexible and cheap labour. Occupational boundaries in these areas were comparatively fluid.<sup>137</sup> They had to be where so much employment was by the job rather than by the job regular working week and where work was difficult to get. In the country building trade jobs were chronically short lived and there was a great deal of movement from one class of work to another.<sup>138</sup>

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136. E.P. Thompson, The Making of the English Working Class, (London, 1963), p. 235.

137. Raphael Samuel, "Village Labour", Raphael Samuel (ed.), Village life and labour, (London, 1975), p. 5.

138. Raphael Samuel holds that craftsman or mechanic in rural regions of France was a man with 2 or 3 strings at his bow. The thatcher might turn hay thrusser for the Summer season, the hurdle maker to repairing carts and wagons, the Stone mason, when out of work, to jobbing carpentry. See his Ibid., p. 5.

Double occupations persisted in many areas throughout the period with considerable regional variations and there was also variations in the extent of mixing double occupations: "a continuum from the fully mixed in which a man might be equally dependent upon two occupations, through the seasonally mixed in which he might be employed in one or other of two occupations depending on the time of the year, to the tending of a garden which added usefully but in a strictly collateral way to the family's comfort." <sup>139</sup> Seasonal intermixing of manufacturing with other activities was widespread wherever industry reached into rural districts. <sup>140</sup>

The 'differential cost' tended toward Zero when they increased their work effort, at least in a 'survival situation' where the family was guided by the need to maintain its subsistence. <sup>141</sup>

Owning or leasing a house, land and the industrial means of production encouraged the production and subsistence as well as increased the progressive deterioration of conditions of production and prices of the means of production. With the progress

139. John Rule, The Experience of labour in 18th century Industry, (London, 1981), p.12. In remote rural districts like St. Just or St. Agnes a high proportion of miners owned small holdings, but growth of mining towns like Redruth, brought a density of settlement which had distributed this settlement. Among northern miners small holdings were encouraged by some employers. Other kind of double occupation occurred at Lancashire where full time weaver complaining of competition from farm weavers. Cornish miners left the mines for the autumn pilchard fishing.

140. Ibid., p.16.

141. H. Medick, "Proto-industrial Family Economy," op.cit., p.47.

of the proto-industrialization in different rural regions, the percentage of house owners and occupants of independent holdings among the total population increased with an opposite trend in case of large and medium-size properties among handicraft producers because of indebtedness.

The rural producers utilized their current incomes in acquisition of real property without having saved up, and, therefore, risk 'long term' indebtedness for the sake of a 'short term' interest in acquisition, which was exclusively aimed at the preservation of the domestic subsistence unit.<sup>142</sup> In course of time, this led to the acceptance of excessive prices for house and land, striving for independence among the petty producers. This enabled the 'abstemious and labourious' cottage tenant to outbid the grazier and they can't (outbid) each other in giving to land the monstrous price. The economic ties to the domestic handicraft production under market conditions provide path to the propensity for purchasing a part of a house or a house for having a stable centre to work around and reside in. This intention of the rural petty producers in favourable economic conditions made possible their 'desire for independence' even though, it was dangerous in long run for the subsistence of the familial production unit precisely because it loosened land ties and finally, land income.

A substantial part of the income of the family economy was consumed by interest on mortgages of land and real property, etc. This leads to individually wrong production cost and also

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142. H. Medick, "Proto-industrial Family Economy" P. Kriedte, M. Medick, J. Schlumbohm, Industrialization before industrialization., p. 47.

became the direct source of indebtedness as soon as production and marketing crises reduced the income of family economy. Such investments worked as anticipated rent, (emphasis added) and reduced the amount of capital that the producers might have invested in the sphere of production. The surplus labour, necessary to amortize these debts functioned as an important impediment to the productive utilization of the potential income in the form of investment capital. This drove family economy into a vicious circle to rely permanently on credit - 'a circle which it could not leave even when alternative occupational opportunities arose.'

According to the prevalent inheritance laws, borrowed loans of the ancestors had to be heaped on the heirs. Therefore, inheritance of a house became one of the renewed and most frequent sources of indebtedness rather than an assured source of subsistence. The habit of buying on credit was wide-spread.<sup>143</sup> This led to the dependency of rural industrial producers on the putterout capitalists or the usurers, (emphasis added).

#### THE FAMILY ECONOMY AS MACRO-ECONOMIC FACTOR

The macro-economic effect (factors) consisted in the fact that the producers of the rural handicrafts family allowed the trader and putting out capitalist to yield a specific 'differential profit! (emphasis added). The corrosive insecurities confronting all workers stem from the nature of wage employment, market fluctuation, old age,<sup>144</sup> ill health due to excessive exposure to starvation, endemic diseases and epidemics.<sup>145</sup> This possibly

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143. Ibid., pp. 49-50.

144. Douglas R. Holmes and Jean H. Quataert, "An approach to modern labour: worker peasantries in Historic Saxony and Fruit Region over three centuries, "CSSH, Vol. 28, No. 2, (April, 1986), p. 194.

145. Wolfram Fisher, "Rural Industrialization and population Change, "CSSH, Vol. 159, (1973), p. 162.

offered opportunity to merchant manufacturers to establish relationship of unequal exchange as well as to save the part of the costs arising in the simple reproduction of the labour power under wage labour relations.

Since, the objective necessities as well subjective preferences of the rural industrial producers did not have alternative opportunities but to employ its labour power in the domestic unit as an indispensable field of employment, the surplus labour of the Family had to be exploited to maintain subsistence<sup>146</sup> did not necessarily enter into market price of the product that they produced. This is particularly true in the case of proto-industrial family labour in adverse conditions. This increased the exploitation of the total familial labour power, without increasing the total labour income of the family. The underpaid productive effort of the women and children played an important role in contributing a necessary share to the family wage without a proportional increase in income. The enormously flexible and well adapted character of the handicraft familial labour power together with increasing labour time according to the requirements of the merchants provided stable source to supply them with industrial products<sup>147</sup> and consequently, an extra profit to the merchant capitalist.<sup>148</sup>

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146. David Levine, "Industrialization and Proletarian Family in England," Past and Present, No. 107, (May, 1985), p. 177.

147. Ibid., p. 177.

148. Hans Medick, "Proto-Industrial Family Economy," op.cit., p. 51.

Those producers with a partial agrarian hold could survive with 'below cost' for labour whereas the landless industrial labour worked under the condition where the prices of the product rather than the value of the labour power equalized through general competition. F.F.Mendels while studying the case of linen worker found the same trend. His study shows that each loom occupied one weaver, four spinner, and one and half other auxiliary workers, who could be children. A household of five person could bring an income of 34 groten for a full days work which was very low compared to the average wage of unskilled workers, which was 20 groten/day in winter.<sup>149</sup> There were also landless wage workers and servants engaged in the industry and receiving income from it. These were not usually employed directly by a merchant employer since, in Flanders, the peasants owned their tools until the 19th century, and merchants were, therefore, not directly engaged in production. Rather, these labourers worked during the dead season for cloth-working families that owing to their size or composition, did not possess the correct mix of labour inputs.<sup>150</sup>

The separation of producers from their means of production by the merchant middlemen led directly to the era of manufacture and joint stock companies. The "famishing lilliputian" cottage industry slowed down large industry<sup>151</sup> and hence, delayed the factory system of production.<sup>152</sup>

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149. Franklin F. Mendels, "Agriculture and Peasant Industry in 18th Century Flanders," W.N. Parker and Eric L. Jones (eds.), European peasants and their Markets: Essays in Agrarian History, (New Jersey, 1975), p. 184.

150. Ibid., p. 185.

151. Hans Medick, "Proto-industrial Family Economy," op.cit., p. 52.

152. C.C. Harris, The Family and Industrial Society, p. 118.

Otto Kuusinen holds that the capitalist's manufactories competing with and ousting the old craft guilds became the crucial link in the metamorphosis of merchant capital into industrial capital, whilst others regarded the putting out system organized by large merchants of the town to employ craftsmen scattered in workshops in the villages or suburbs as the crucial road to the matured factory system.<sup>153</sup> It was based on a relationship of dependence in which the growing capitalization of the sphere of production did not necessarily correspond with the destruction of the pre-capitalist base. In the family mode of production, the domestic producer instead of growing tendency of control of the merchant or putting out capitalist over raw materials, finished goods, land, house and means of production, exercised a considerable degree of control over the production process. In proto-industrialization, the accumulation of capital increased the control over the product rather than over the production process, (emphasis added).

On the level of the social relations of production, this contradiction manifested in inertia regarding innovations and in a disproportionate rise in transaction costs. "The difficulty of motivating the spatially dispersed workers to follow the advances in techniques and fashion, according to the demands of the market" was the Achilles heel of the putting out system.<sup>154</sup>

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153. Maurice H. Dobb, "The Transition from Feudalism to Capitalism," Daljit Singh and V.B. Singh (eds.), Social and Economic Change, Essay in Honour of Prof. D.P. Mukherjee, (Allied Publishers Ltd., Delhi, 1967), p. 265.

154. H. Medick, "Proto-industrial Family Economy," op.cit., pp. 52-53.

This inflexibility of the social relations of production, caused by the spatial dispersion of the production unit as well as by the control of the domestic producers over the work process, correspond with the interest of the merchant capital who kept his capital liquid and thus, fetched profit from its circulation.<sup>155</sup>  
The first phase of industrialization was, thus, characterized by expanded output resulting from both the duplication of units of production and the specialization of function, (emphasis added).

HOUSEHOLD FORMATION AND FAMILY STRUCTURE AS ELEMENTS  
 OF THE PROCESS OF PRODUCTION AND REPRODUCTION

The average household size of the rural cottage workers was higher than the farm workers.<sup>156</sup> Recent proto-industrial researches have demonstrated that proto-industrialization freed the younger generation from family structures and strictures for economic reasons, thus providing them opportunities for earlier marriage with subsequent effect on demographic growth.<sup>157</sup>

Proto-industrialization also created 'empty nest' families. For the sake of domestic economy, it was necessary that at least one child should remain in the house as heir. When such conditions of production prevailed, the parent-child group would appear to

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155. David Levine, "Industrialization and the Proletarian Family Economy," op.cit., p.177.

156. Jack Goody has made a good study of Farm family. See his "The Evolution of the Family," P. Laslett and R. Wall (eds.), Household and Family in Past Time, pp.103-124.

157. Richard L. Rudolph, "Family Structure and Proto-industrialization in Russia," JEH, Vol.40, No.1, (March, 1980), p.112. Also see Wolfram Fisher, "Rural Industrialization and Population Change," CSSH, Vol.15, (1973), p.160. Also see R.A. Houston, "Marriage Formation and Domestic Industry: Occupational endogamy in Kilmarnock, Ayrshire, 1697-1764," JFH, Vol.8, No.3, (Fall, 1983), p.215. Also see Michael B. Katz, Michael J. Doucet, Mark J. Stern (eds.), The Social Organization of Early Industrialism, (Harvard University Press, 1982), p.244.

have been the predominant family constellation. But when individuals earned and living outside the home, all children would leave the parental home, particularly when they got an opportunity for neo-local settlement. With increased life expectancy, the phase during which parents lived without their children lengthened.<sup>158</sup>

The proto-industrialization did not alter the customs and usage of matrimony, it provided a large segment of the rural population the material possibility of starting new ways. With proto-industrialization these people could individualise courtship and marriage.<sup>159</sup> Putting out system provided boys and girls the material pre-requisite for marriage.

Peasants produce goods also for market and they buy goods on the market. To this extent, the economic viability of an agricultural holding was affected not only by its size, but also by market prices.<sup>160</sup> Market forces may also induce changes in agricultural specialization and thus create or remove constraints on holding size. Therefore, peasants were obliged to find ways of avoiding the division of the land in spite of the inheritance system or conversely, the new crops might facilitate or encourage sub-division. Land distribution in villages were also modified through exchanges in land markets. Peasants could also rent land from others. In many regions most of the peasants were tenant

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158. Michael Mitteraner and Reinhard Sieder, The European Family: Patriarchy to partnership from the middle ages to the present, (Oxford, 1982), pp.40-41.

159. Rudolph Braun, "Proto-industrialization and Demographic change in the Canton of Zurich," Charles Tilly (ed.), Historical Studies of Changing Fertility, (Princeton University Press, 1978), p.319.

160. Lutz K. Berkner and Franklin F. Mendels, "Inheritance System, Family structure and Demographic patterns in Western Europe, 1700-1900", Ibid., p.215.

farmers who rented all or part of their holdings.

In the developed proto-industrial regions, high rate of occupational endogamy among weavers and household formation among rural artisans depended exclusively on the highest possible work capacity of both the marriage partners. That is why, a woman's ability to work as an artisan had been taken into account to determine her value as a marriage partner more than her father's profession, socio-economic status etc.<sup>161</sup> Sometimes women brought with them looms and other tools into marriage. The means of production were provided by the parents as part of their marriage agreement.<sup>162</sup>

The need to maximise family's incomes in a capitalist market<sup>163</sup> invited the bulk of the rural cottage industrial family members to exploit the possibilities by forming a team of husband, wife and children. This need also promoted the production of maximum numbers of child, and thereby its survival chances beyond the critical emergency.<sup>164</sup>

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161. H. Medick, "Proto-industrial Family Economy, op.cit., p.6. Also see David R. Weir for study the marriage pattern and marriage age especially his "Rather Never than late: Celibacy and Age at marriage in English whor<sup>e</sup> fertility, 1541-1871, JFH, Vol.9, No.4, (Winter, 1984), p.341.

162. Douglas R. Holes and Jean H. Quatnert, "An approach to modern labour worker peasantries in Historic Saxony and Friuli Region over three centuries, CSSH, Vol.28, No.2, (April, 1986), p.199.

163. Frank Perlin, "Scrutinizing which moment 1 A Comment on Geoff Eley, "the Social History of Industrialization: Proto-industry and the origins of Capitalism, Economy and Society, Vol.14, No.3, (1985), p.384.

164. H. Medick, "Proto-industrial Family Economy, op.cit., p.57.

During emergency, teenage children of the rural handicraftsman in absence of work at household workshop embark on an extended sojourn in service.<sup>165</sup> One source interprets that children as young as 3 or 4 years contributed to the family income and thus encouraged large family size.<sup>166</sup> Teenage children in cottage industrial Familial household substantially contributed to the common fund by transferring their earnings to their parents. Thus proto-industrial society had a reserve army of labour and most of the problems were created by its demand rather than by its supply. The monetization of women's and children's labour, whether paid individually or as part of the family's piece rate, the additional labour provided by wives and children were crucial determinants of proletarian Family income during the early industrialization. Rarely such women and children were independent wage earners and their wages were generally paid to the male head of the family unit.<sup>167</sup>

Complex household forms occurred occasionally among proletarian proto-industrial producers. Household with servants and apprentices has been traced during the period under review. Such households were the traditional rural craftsmen or of small entrepreneurs with landed property.<sup>168</sup> The third important group of

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165. David Levine, "Industrialization and Proletarian Family in England, op.cit., p.76.

166. Wolfram Fisher, op.cit., p.162.

167. David Levine, loc.cit., p.176.

168. Hands Medick, "The Proto-industrial Family Economy: The structural function of household and Family during the transition from peasant society to industrial capitalism, "Social History, Vol.1-3, (1976), p.307.

proto-industrial household were 'kulaks.' Even in the 14th century or earlier than this, 'kulak types of enterprise' were existing in the village or the local traders or worker owner in town handicrafts, employed hired labour, in most of the west European countries.<sup>170</sup>

The extended family of the rural artisans was the forerunner of the proletarian household. It functioned as a private means to distribute and redistribute the poverty of the nuclear family through family and kinship system.

During proto-industrial system the separation of labour in which men would function as privileged consumers, 'symbolizing the role of chief bread winner' was quite obvious. This is evident at home and in wider community.<sup>171</sup> The 'egalitarian' tendency manifested in the active defence of traditional norms of subsistence. Evidences support women's public involvement in food riots and actions against excessive price rises. Political and patriarchal controls were loosened. The individualization and personalization of the relationship between husband and wife arose from the necessities of domestic production, (emphasis added).

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169. Ibid., p.307. Also see his "Proto-industrial Family Economy," op.cit., p.59.

170. M.Dobb, Studies in the Development of Capitalism, p.18.

171. H.Medick, "Proto-industrial Family Economy," op.cit., p.62.

THE KAUF SYSTEM: PETTY COMMODITY PRODUCTION AND ITS  
INTERACTION WITH MERCHANT CAPITAL

In some cases in eastern as well as western Europe, the rural producers delivered their industrial products to feudal lords with securing an equivalent compensation. Town commerce and industry was hard hit when aristocracy started to trade on a large scale. Town merchants and craftsmen were dependent on middlemen for the supply of raw materials, who, with the support of the aristocracy, were in position to dictate the prices and thereby degenerated the town craftsmen into beggars and vagrants.<sup>172</sup> D.C. Coleman further quotes Georgery King's figure for 1680s and 1690s and classed 23% of the national population as labouring people and outservants and a further 24% as cottagers and paupers.<sup>173</sup> Since in the England of the 17th century, a much larger proportion of the population was composed of children, they formed a formidable part of the total labour force. As a result many children and cottagers' wives were by-employed in small local industries in rural districts. For some of them agriculture was only a by-employment and the greater part of their time was spent in industrial wage earning. In the woollen districts, nearly all the labourers' wives were engaged in spinning worsted and yarn, in Bedfordshire, lace-making employed at least three quarters of the female population, while straw

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172. For East European Countries and specially for Bohemia See A. Kilma, "Industrial Development in Bohemia, 1648-1781" Past and Present, No. 11, (April, 1957), p. 88.

173. D.C. Coleman, has taken this empirical data in his "Labour in the English Economy of the 17th Century," E.M. Carus-Wilson (ed.), Essays in Economic History, Vol. II, (London, 1962), pp. 294-295.

plaiting and knitting employed women in other counties.<sup>174</sup> Many of the lace makers and spinners devoted all their times to such occupations. In many households some of the woollen and linen clothing was provided at home; mother and children were all engaged in spinning lined woollen thread which was sent to the local weaver.<sup>175</sup>

The concentration of specialized craft in certain proto-industrial region and the opening of the distant markets, forbade the craftsmen to exploit market directly.<sup>176</sup> It was the parochial scale exchange relations of the direct producers that gave golden opportunity to merchant capital and wealthy (kulak) villagers to assume that functions for all producers.<sup>177</sup> Further, it was the separation of the raw material from the craftsman, craftsman from the consumer, the meagre resources in the hands of the producers and its meagerness so straitly bounded his horizon in space and time that enabled the source of commercial profit,<sup>179</sup> (emphasis added).

It was the dependency of handicraftsmen on merchant capitalists in normal time as well as in crisis and in personal difficulty, who extended loan to the producers 'against the unfinished product' on the promise not to sell his finished good

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174. Ivy Pinchbeck, Women Workers and the Industrial Revolution: 1750-1850, (London, 1930), p.23.

175. Ibid., p.23.

176. Jurgen Schlumbohm, "Relations of Production-productive forces Crisis in Proto-Industrialization," P.Kreidte, H.Medick and J.Schlumbohm, Industrialization before Industrialization, p.98.

177. M.Dobb, Studies in the Development of Capitalism, p.89.

178. J.Schlumbohm, loc.cit., p.99.

179. M.Dobb, loc.cit; p.89.

to others.<sup>180</sup> 'Local glut' and 'Local famines' provided precondi-60  
tions for the thriving of the merchant capital. The big merchant  
capitalists were comparatively in an advantageous position. They  
lowered the purchase price by mutual agreement among competing  
buyers or through public institutions. Thus, a whole chain of de-  
pendencies were created—from the country spinner working for  
the yarn merchant, to the country weaver who was dependent not  
only on the yarn merchant for his raw materials but also on  
linen merchant who sold his product on the market or delivered  
it to foreign commercial establishments. Local traders and mer-  
chants depended on bigger merchants to conclude agreements with  
the factors.<sup>181</sup> In the sphere of production, the direct producers  
used home made or purchased raw materials, his own tools, labour  
power of his family and to a smaller extent the wage labour.  
Therefore, two polar types can be distinguished: the cottage craf-  
tsman mode, and the cottage labourer mode.<sup>182</sup>

Both cottage-craftsman and cottage labourer production in  
totality resemble what Shahlin termed the 'domestic mode of pro-  
duction' in which kinship relations are productive relations,  
kinship roles are also economic roles. But in cottage craftsman  
production, the process of manufacture and sale are controlled  
by the members of the domestic group. The independent cottage  
weavers of the Yorkshire district of Halifax illustrate this

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180. D.C. Coleman, The Economy of England: 1450-1750, (Oxford Univer-  
sity Press, 1977), p. 77.

181. A. Kilma, op. cit., p. 90. Mainly Sibeistan and Lusatian in case  
of Eastern Europe visited Bohemia to buy the products of Czech  
Linen industry, much of which they then delivered to big German  
commercial houses. Most important of such farms were Viatis and  
pellier of Nurenberg. They also concluded agreements with manorial  
lords paying them percentage on the Linen bought on their estates.

182. E.N. Goody, "Introduction," E.N. Goody (ed), From craft to Industry:  
The Ethnography of Proto-industrial cloth production, (Cambridge  
University Press, 1982), p. 12.

mode.<sup>183</sup> This kind of craft organization was also found in smithy, carpentry, mittens, butchers, tailors and shoe-makers.<sup>184</sup> These cottagers used raw materials at their home and sold them in the weekly markets. Here the division of labour is contained within the household, and the producer not only owns his own tools but controls both raw materials and has direct access to market. In the later case, many households included besides the household weavers, his wife and children, one or two apprentices and perhaps one or two journeymen, who lived as members of the family and like the children, often later left the house to establish independent weaving households of their own.

These two models are basically different in two ways: The cottage craftsman carried out all or most of the stages of production himself with the help of his household members without paying wages often compassed within one domestic unit. The cottage labourer was specialist performing only one stage of the production process and depended for the rest.<sup>185</sup> The cottage craftsman was independent, in that he raised or bought raw materials, owned means of production and sold his end product in the weekly open market.<sup>186</sup> The cottage labourer was not only dependent on the merchant capitalist for raw materials, for means of production, and for the disposal of the finished goods, but

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183. Ibid., p. 12.

184. A. E. Musson, The Growth of British Industry, (New York, 1978), pp. 19-20.

185. E. N. Goddy, loc. cit., p. 15.

186. A. E. Musson, loc. cit., p. 20.

often was in debt to a particular merchant and so tied to him  
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 and forced to accept the wages he offered. Part of the earned  
 incomes were utilized for replacing the means of production,  
 part of the income were expended to meet the familial need for  
 188  
 livelihood. In the normal time, some of the household children  
 augmented the domestic unit for founding a new tiny size and  
 minimally capitalized unit as the parental unit by borrowing  
 some cash, land and tools as the parental unit allowed them. This  
 189  
 is more evident in the case of prosperous Russian peasants.  
 When a cottage craftsman became successful and accumulated su-  
 fficient capital, he invested his capital into the merchant  
 manufacturer mode, buying up raw materials and giving it out to  
 cottage labourers.

From this world of bottom and his rude mechanics, craftsmen  
 of immense skill and ingenuity were emerging. Occasionally, craf-  
 tsmen rose to a high pitch of excellence to produce excellent  
 pieces of gold, silver and jewels. Sometimes it also led to crude-  
 ness, usually abandoning simplicity only at the risk of vulgar  
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 ostentation.

Capitalists invest their profit in more profitable enter-  
 prises. In absence of such enterprises, the capitalist would

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187. E.N. Goody, loc. cit., p. 15.

188. J. Schlumbohm, "Relations of Production-productive Forces-  
 Crisis in Proto-industrialization," P. Kreidte, F. Medick, and J.  
 Schlumbohm, Industrialization before Industrialization, p. 99.

189. E.N. Goody, loc. cit., pp. 24-25.

190. Charles Wilson, England's Apprenticeship: 1603-1763, (Longmans,  
 London, 1965), pp. 67-68.

always try to buy and sell a larger quantity during the following turnover. If the output of the individual producers remained constant or was not increased, it means possibly the products of an average greater number could be bought. For competition tended to equalize and drive down profit rates, which the merchants could only compensate for by enlarging the turnover and thereby, their profits as well as their market power. Thus the total number of industrial producers had to increase. And this is precisely what the capitalists tried to achieve during proto-industrialization, whenever market opportunities opened up, (emphasis added). At this stage, merchant capital had monopolized the cheap and easily available industrial producers of the rural regions. Here, capital continued to seize the opportunities offered by the changes in the social stratification of the village and by the demographic explosion to enlarge the number of craftsmen. This was the process of becoming concentrated industrial regions, specialized in mass production for far away markets in one or small number of products. With insufficient supply of labour power, with growing demand of labour and with growing competition in labour market, enabled labourers to demand more wages. Consequently, merchant capitalists flocked to distant places possibly to distant regions to tap cheap labour reserves.

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191. J. Schilumbohm, loc. cit., p. 101.

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THE PUTTING OUT SYSTEM : THE PENETRATION OF CAPITAL INTO  
THE SPHERE OF PRODUCTION.

D.C.Coleman has maintained that putting out system was essentially a domestic system because economic conditions associated with production in the home differed immensely. But in a broader term, the putting-out system must be defined as involving raw material being put out to geographically spread small scale production locations-sometimes in the home-for processing and eventual return to a central merchant manufacturers. Its main current in the initial stage was related to textiles and it has been estimated that from 1485 to 1714 the output of industry increased 5 fold with output per head rising by a factor of 1.6 through putting out system.<sup>192</sup>

The cottages were also the convenient storage points for raw materials as well as for finished commodities, though by the 18th century many depots were found with much fetching and carrying by the out worker. Transportation cost was not very heavy because of the availability of cheap labour in the rural regions. The transaction between worker and putter-out capitalists was based not on exchange of entitlements to the raw materials and commodities, etc., because in transaction process in the market, workers did not participate for worker did not

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192. R. Millward, "The emergence of wage labour in Early Modern England," Explorations in Economic History, Vol. 18, No. 1, (January, 1981), p. 22. Towards the end of the Stuart period putting out system functioned in the hosiery, leather goods and small metal wares with rod iron. D.C. Coleman recognises the spread of Putting Out System in West Riding of Yorkshire, East Anglian, the West County, Norfolk around Norwich, Southern Suffolk and Northern Essex, a centre for coloured and kersey making. Putting Out System was also wide spread in the West County, Gloucestershire through Wiltshire and parts of Somerset down to Devonshire famous for broad cloths, fine woollens and dyed cloths. For regional spread of Putting Out System, see his Economy of England: 1450-1750, (Oxford University Press, 1977), pp. 76-77.

own his output and even merchants were not interested to sell  
 the raw to the workers.<sup>193</sup>

Thus, putting out system involved the following features in early modern England. First, the merchant had little to the raw material, end product and residual income, second, the producers had his task specified in terms both of the end product (volume, quality, date and location of delivery) and in the usage of raw materials supplied by the merchants; third, other element of the method of production were at the discretion of the producer; Fourth payments was specified in terms of II.<sup>194</sup>

Under the putting-out system, the penetration of capital into the sphere of production remained very small. Here the putter out capitalists remained the owner of raw materials throughout the production process.<sup>195</sup> This kind of penetration was not widespread in European Linen industry before the 19th century. In rural textile industry and in some metal industries such putting-out system predominated.

Here, capital, undoubtedly, had to penetrate in circulation and sphere of production in the form of either raw materials or

193. R. Millward, loc. cit., p. 22.

194. Ibid., pp. 25-26. Transactions are arranged by conclusion of agreement, whether formal or informal. Varieties of contractual forms may be applied with differing transaction costs. In simple type contracts arrangements were made in terms of cost and product. When team or joint production is involved; the production function is non-separable, contract focuses on the work input since output is joint to several inputs. More generally where the quantity or quality is not readily dictatable and if there are strong economic inducements for breaking contracts or if many contingencies have to be covered, there is a problem of "contractual incompleteness".

195. J. Schlumbohm, "Relations of Production-productive Forces-Crisis in Proto-industrialization," Op. cit., p. 102.

means of production for creating surplus value. The expenses for raw materials formed the largest part of the total cost in the production process, because expenses on productive forces and workshop often carried on indirect producers home, came very low.

Agents were employed by the putter out to organize, and direct the supervisory work of dispersed domestic producers. They might be functioning as half-small master and half-employee or progressively more an employee on wage contract. They could also be independent businessmen. The employment of intermediaries in the putting-out system reduced the net income of the labourers because middleman often realized a part of the income of primary producers for themselves.

The putter-out capitalist required part of the capital before the commencement of production process. Although he paid to the craftsmen correspondingly lower wages, the part of his capital turned over more slowly, he needed a larger capital in order to carry on his business. This tendency stimulated the putter out capitalist to extract a large profit per unit of product. Capital has an inherent trait to maximize profit but not an inherent tendency to penetrate into the sphere of production. For this to happen profit rate expected from production must be greater than the profit rate common in trade. In this circumstance, the putter out could sell his better quality goods at higher prices, the production costs per unit must have been

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196. Maurice Dobb, Papers on Capitalism, Development and Planning, p.22.

clearly lower than the purchase prices which the trader had to give to the small commodity producers.<sup>197</sup>

The independent producer received a large 'net income'<sup>198</sup> than was necessary for the reproduction of his labour power and saved at least part of the surplus to himself, whereas under the putting-out system surplus went to the capitalist. This explains the transition from former to the later system. Therefore, it was under relatively high profit rate for the industrial producers that the capital penetrated the sphere of production - 'a situation most often brought about by an expansion of the demand for his products.'

Two features of product demand were vital: firstly, there was the demand for high volumes of standardized middle-quality products, and secondly, though production technology was at the stage of medieval technology or largely stagnant in its mechanical dimensions, there was distinct innovation in the mix of materials. This had two implications (i) there was the problem of diffusion of knowledge of new mixes. A putter-out desirous of particular end product could not, at least initially, expect rural producers to be aware of the raw materials necessary for the product, (ii) there was a problem of quality control; since putting-out system was not a vehicle of raising quality, rather meeting a high quantity at a uniform quality. Therefore, selection

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197. J. Schlumbohm, loc. cit., pp. 103-104.

198. J. Schlumbohm has explained the term 'net income' as the difference between the prices of his products and his expenses for the replacement of the means of production.

of particular raw materials was important.<sup>199</sup>

When the demand for the commodity with new fashion increased considerably, the advantage went to the producers and suppliers who supplied the new article to the market first. The production of these fashionable commodities were easier for those capitalists who owned raw materials, means of production and the direct producers for the type of article to be manufactured. A strong incentive was provided for capital to introduce new techniques, tools and forms of organization to lower down the production cost. These norms determine the forms of behaviour and forms of organization which are not merely economic but also psychological, sociological and legal.<sup>200</sup>

In England between 14th and 17th centuries, series of regulations were promulgated to impose English styles for dress.<sup>201</sup> Between 1516 and 1597, 19 such acts were passed. One of the important motives was economic, related to the balance of payments. A maximum price was imposed on imported handkerchiefs and other sorts of linen. Economic motives behind the acts of Apparel, however, were secondary ones. There was only one case of attempting to increase the level of demand by making the wearing

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199. R. Millward, "The Emergence of Wage Labour in Early modern England," Explorations in Economic History, Vol. 18, No. 1, (Jan, 1981), p. 27.

200. Maurice Godelier, Rationality and Irrationality in Economics, (Monthly Review Press, London, 1972), p. 31.

201. N. B. Harte, "State Control of Dress and Social Change in Pre-industrial England," D. C. Coleman (ed.), Trade, Government and Economy in pre-industrial England Essays presented to F. J. Fisher, (London, 1976), pp. 132-165. The first attempt in this direction was made in 1337 followed by 1363, 1378, 1402, 1406. Minor regulations were made in 1388, 1420, 1483, 1510, 1515, 1533, 1554, 1663 etc.

of a garment compulsory. The general regulation of consumption in the same detail as the regulation of production and distribution was not attempted. These regulations directly and indirectly helped the putter out capitalists. The primary producers resisted these developments through various means.

Under putting-out system, the specialization of labour was very advanced. Stages of production from raw materials to finished goods in many trades were undertaken in the households with the help of the Family labour.<sup>202</sup> But now, the family and household ceased to be a production unit. Household and Family was merely the location where production took place. The Family continued to be a unit in regard to consumption and reproduction.

#### TENDENCIES TO CENTRALIZE PRODUCTION:

##### CAPITALISTIC MANUFACTURE

During the phase of proto-industrialization, large manufactories could be envisaged occasionally.<sup>203</sup> As a result of this,

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202. Ivy Pinchbeck, Women Workers and the Industrial Revolution: 1750-1850, (London, 1969), p. 113. Father Superintended the weaving and the mother was responsible for all the preparatory processes, the training and setting to work of the children, Women and Children were associated with picking and cleaning the cotton which involved separation from bale, laying out on a wire riddle or tightly stretching cords, beating well with willow switches to free from dirt, carefully washing out etc. Also see Jennie Kitteringham, "Country work girls in 19th Century England," Raphael Samuel (ed.), Village life and Labour, (London, 1975), pp. 113-127. Women were also employed in hurdle making, chair making, brush making, pillow lace making, lace chipping, brick making etc. as full time or part time worker.

203. M. Dobb, "The Transition from Feudalism to Capitalism," op. cit., p. 273.

medieval organization of industry was collapsing gradually,<sup>204</sup>  
and many small units were replaced by larger ones operating new  
processes.<sup>205</sup>

During our period, some and occasionally all the steps of  
the production process could be centralized in a single produ-  
ction centre on the basis of wage labour and were often supple-  
mented by rural domestic industry.<sup>206</sup> This was initiated by mer-  
chant and putter out by adding some workshops to his counting  
house and his stock rooms with their workers and hence, directly  
supervised some of the productive labour. Some of the craftsmen  
had expanded their workshops and employed wage workers by bre-  
aking off the limitations of the family work unit and concer-  
trated their effort to the supervision of the others and marke-  
ting. Middlemen of the putting-out system played spatial role in  
establishing centralized workshops with new, more expensive pro-  
duction procedures and large and more expensive machinery. All  
the means of production in large workshops were normally the  
property of the entrepreneur.

Shifts in fashion and taste, changes in the pattern of ove-  
rseas trade, mounting competition in some traditional European  
markets and growing urbanization in England, all helped both to  
stimulate new industries by employing new techniques.<sup>207</sup> This te-  
chnological progress increased the volume and variety of comm-  
odities into international markets. As a result, society to

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204. Arthur Raistrick, Industrial Archaeology: An Historical Sur-  
vey, (London, 1972), p. 202.

205. Ibid., p. 200.

206. J. Schlumbohm, op. cit., p. 107.

207. D.C. Coleman, The Economy of England: 1450-1750, p. 151.

promote industrial improvement through mechanical and instrumental innovations sprang up in London, Birmingham, etc.<sup>208</sup> One such society was the 'Royal Society.'<sup>209</sup> Governmental policies both in England and France promoted industry and trade.<sup>210</sup> But these policies were adopted only in late 17th century. The English government only hesitantly accepted an obligation to play a more positive role in the mining and metallurgical industry.<sup>211</sup>

During the second half of the 18th century further encouragement was provided to centralized industry through financing the entrepreneurs at very low interest rate. Interest rate fell from 7 or 8% at the beginning of the 18th century to 3 or 4% in 1750. This is further supported by opening of 52 private banks in London and 400 in the provinces by 1800.<sup>212</sup>

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208. C.H.Wilson, "The Growth of Overseas Commerce and European Manufacture," J.O.Lindsay (ed.), The New Cambridge Modern History, Vol. VII, (Cambridge University Press, 1970), p.29.

209. Charles Wilson, England's Apprenticeship: 1603-1763, (London, 1965), pp.186-187. Royal Society was consisted of 8 committees, of which the largest was the Mechanical consisting of 68 members. The History of Trade Committee was the second consisting of 35 members etc.

210. D.C.Coleman, "Economic problems and policies," F.L.Larsten (ed.), The New Cambridge Modern History, Vol.5, pp.40-41.

211. G.Hammersby, "The State and the English Iron Industry in the 16th and 17th Centuries," D.C.Coleman (ed.), Trade, Government and Economy in pre-industrial England, pp.166-186.

212. R.M.Hartwell, "Economic change in England and Europe, 1780-1830," C.W.Crawley (ed.), The New Cambridge Modern History, Vol. IX, 1793-1830, (Cambridge at the University Press, 1969), p.42.

More fixed capital was required in the centralized manufacturing, the profit rate in the successful manufactures must be larger. Centralized manufacturing with the help of sophisticated techniques and organization must have greatly increased the productivity of labour.

The transformation of handicraftsmen into dependent wage labourer during proto-industrialization manifested in two ways: firstly, either the relations of production in an older proto-industrial region or industry changed; and secondly, new industries and regions, more capitalistically organized grew into significance. This transition in production relation is called by Karl Marx as the 'really revolutionary way.'<sup>213</sup> Here, proto-industrialization catalysed the origin of these new relations of production, their complete and exhaustive development in all areas of material production, the prelude to industrial capitalism, in which proto-industrial system now 'transcended' or 'annuled', met its end. On the contrary, there were regions and industries where the tendency of penetration of capital into the sphere of production<sup>was</sup> weak or arrested at an early stage, and led to a new process called stagnation or late industrialization. In certain extreme cases de-industrialization occurred under the pressure of competition from regions that had advanced from proto-industrialization to industrialization proper,<sup>214</sup> (emphasis added).

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213. M. Dobb, "The Transition from Feudalism to Capitalism," op.cit., p. 272.

214. J. Schlumbohm, op.cit., pp. 110-111.

THE DEVELOPMENT OF THE PRODUCTIVE FORCES: STAGNATION AND PROGRESS

Under centralized production, the entrepreneur expended a considerable part of his capital in manufacturing building.<sup>215</sup> He could also try to entice the reluctant petty producers to leave their domestic workshop. This explains great building activities of England, which W.G. Hoskins classified into three categories; either a complete building of the old house (possibly in a new material and new style) or a reconstruction and enlargement on such a scale to make it virtually a new house and thirdly, building for the first time on a new site.<sup>216</sup> Consequently, transportation cost minimized, control and direction were substantially affecting owing to the absence of intermediaries.

The great majority of practicable new inventions was the product of research by trial and error. The inventors were men closely in touch with requirements of the trade. They learned to solve problems, important for the industrial future, from experience of building blast furnaces, sheices, mills, organs, even bridges, coal pits and dockyard installations. The thermometer, telescope and chronometer were significant for the growth of crafts.<sup>217</sup>

The greatest changes in technology before 1700 occurred in Mining and metallurgy. Mines had to be developed and deepened and this could only come about if haulage, ventilation and drainage

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215. W.G. Hoskins, "The rebuilding of Rural England, 1570-1640," Past and Present, No. 4, (November, 1953), pp. 48-49.

216. Ibid., p. 48.

217. B.A. Holderness, Pre-industrial England: Economy and Society; 1500-1750, (London, 1976), p. 111.

could be improved. The gradual substitution of the 'indirect' method of production from blast furnace and forge for the direct method whereby in the single process a 'bloom' of wrought iron was produced.<sup>218</sup> Blast furnace made steady progress. Water wheel was applied to more and more stages and branches of iron making, processing and finishing. It was used in forging and cutting iron and steel, for drawing wire, making scythes, grinding blades, tools, needles, pins etc.

In textile trades neither the New raperies nor the English acquisition of new skills in dyeing added much to the stock of techniques. First, it was the improvement in spinning wheel by addition of a flager treadle (before 1600), then a comparable range of improvements slowly spread from Italy, Germany and France to the rest of Europe that transformed the textile industry to a large scale in the coming centuries.<sup>219</sup> The Dutch loom, the knitting frame, the throwing mill, the flying shuttle were time saving machines and introduced between 17th and 18th centuries improved the quality.<sup>220</sup> Industrial chemistry improved the bleaching and dyeing by introducing chlorine in these areas.<sup>221</sup> Industrial chemistry also developed considerably by introducing chemical technology in a wide range of industries in the form of alkali, soap, glass and other trades.<sup>222</sup> Chlorine for bleaching

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218. Sybil M. Jack, Trade and Industry in Tudor and Stuart England, (London, 1977), p. 71.

219. B.A. Holderness, loc. cit., p. 113.

220. J. Schlumbohm, op. cit., p. 112.

221. D.C. Coleman, "Industrial Growth and Industrial Revolutions," E.M. Carus-Wilson (ed.), Essays in Economic History, Vol. 3, (London, 1962), p. 336.

222. A.E. Musson, "The Diffusion of Technology in Great Britain during the Industrial Revolution," A.E. Musson (ed.), Science, Technology, and Economic Growth in the 18th Century, (London, 1972), p. 99.

was also introduced in paper industry. There were also introduced a further crucial innovation in the paper industry, providing a new raw material called the discovery of wood pulp.<sup>223</sup> The pulping of the raw materials was originally processed by hand, the rags being mixed with water and pounded. During the course of 18th century chemical industry made a tremendous progress and influenced immensely cotton manufacture through adding various dyeing and bleaching materials, linen, woollen textile manufacture. It also influenced the production of shale which consisted of a mixture of iron sulphide, alumina and silica.<sup>224</sup> These innovations, however, did not bring about revolutionary change in the productivity of the commodity at the end of the 18th century.

During proto-industrial phase, economic and social effects of technological progress were not nearly as sweeping as they became during the Industrial Revolution. This is owing to two reasons: Firstly, the instruments of production used by the large majority of proto-industrial labourers remained such in size, complexity and motive power that they could be installed in the craftsmen's homes, and secondly, the innovations tended to occur in luxury industries affecting the finishing processes as well as employing more labourers.<sup>225</sup> Some of the innovations stimulated a change in production relations, fundamentally important

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223. D.C. Coleman, loc. cit., p. 336.

224. D.W.F. Hardle, "The Macintoshes and the Origins of the Chemical Industry," A.E. Musson (ed), Science, Technology and Economic Growth in the 18th Century, (London, 1972), pp. 168-194.

225. J. Schlumbohm, op. cit., p. 113.

in the development of productive forces. During the proto-industrial phase, the prevalence of stagnating regions and industries together with progressing regions and industries could be explained by the proportional development of productive forces and production relations in space and time.

PROTO-INDUSTRIALIZATION BETWEEN INDUSTRIALIZATION AND  
DE-INDUSTRIALIZATION

Proto-industrialization is functionally related to industrialization, an extremely complex process.<sup>226</sup> This is because the term industrialization sometimes used as a synonym for sustained economic growth, involves a steady rise of real incomes per head, including the tapping of new sources of energy, rise in the proportion of net national product and rapid technological change etc. Associated with industrialization are a number of economic and social changes which follow directly from its defining characteristics.<sup>227</sup>

Charles and Richard Tilly described proto-industrialization as 'industrialization before the factory system'.<sup>228</sup> Keeping in view not only that it predates the factory system but also that it constitutes a transitional stage on the road to it, possibly for these countries which first experienced the process of capitalist industrialization.<sup>229</sup> This implies that during the initial stages of industrialization, many of the characteristics of proto-

226. Peter Kriedte, "Proto-industrialization between Industrialization and de-Industrialization" P. Kriedte, H. Medick and J. Schlumbohm, Industrialization before Industrialization, p. 135.

227. E. A. Wrigley, "The Process of Modernization and Industrial Revolution in England," Theodore Rabb and Robert J. Rotberg (eds.), Industrialization and Urbanization: Studies in Interdisciplinary History, (New Jersey, 1981), pp. 24-25.

228. R. Tilly and C. Tilly, "Agenda for European Economic History in the 1970's," JEH, 31, (1971), p. 186.

229. P. Kriedte, loc. cit., p. 135.

industrialization remained unchanged or did not disappear. The change during the end of the proto-industrial phase and the beginning of the next can be comparatively easily visualized and located through the introduction of factory system and the new industrial organization.<sup>230</sup> During this phase, the growing number of households engaged in industrial work had not yet become fully specialized. The creation of full time, centralized and specialized employment now caused disturbances in the household. Specialization and division of labour meant the end of the traditional alternation of tasks between agriculture and industry. Since the factory work demanded more alternativeness than dexterity or strength, a large fraction of the factory workers could be constituted by children.<sup>231</sup> It, therefore, is not possible to trace connection on all the stages of industrial development.

A direct connection can only be established for the first phase of industrialization, i.e. essentially the textile phase. Under the condition of delayed industrialization the link between the two could loosen or break altogether and the impetus toward industrialization came from outside. It also turned out that the pre-conditions for industrialization which proto-industrialization had brought about could be created in other ways or be replaced by others. Not all proto-industrial regions, made the transition to the factory system. In many regions,

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230. Franklin F. Mendels, "Social Mobility and Phases of Industrialization," Theodore Rabb and Robert J. Rotberg (eds.), Industrialization and Urbanization: Studies in inter-disciplinary History, (Princeton University Press, New Jersey, 1981), p. 72.

231. Ibid., p. 73.

proto-industry, instead of being subsumed into factory industry went into decline. Proto-industrialization could make transition to industrialization only where certain favourable politico-socio-economic and institutional conditions prevailed. In absence of these pre-conditions stagnation or de-industrialization occurred.<sup>232</sup>

Since proto-industrialization cared for only the quantitative expansion of production, it failed to bring about a qualitative sophistication in production and finally, a change in the mode of production. Progress in productivity remained limited and a point was eventually reached where the marginal cost and somewhat later the average cost, of each product rose. With a further extension in the operation of putter-out, supervision of domestic producers became more and more difficult. Consequently, mis-appropriation of raw materials increased with the creation and development of a genuine black market in mis-appropriated raw materials. Quality of products in putting out system in an advanced stage became very difficult to control. Delivery dates could hardly be met with change of fashion due to social and regional differences, it became very difficult for the putter out capitalist to satisfy the demand on less costs.<sup>233</sup> Added to these were the turnover of capital, which was slow due to above reason and admittedly weakening inter-relation between domestic

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232. P. Kriedte, op. cit., p. 135.

233. Water Minchinton, "Patterns of Demand: 1750-1914", C.M. Cipolla (ed.), The Fontana Economic History of Europe, Vol. 3, The Industrial Revolution: 1700-1914, (Sussex, 1976), pp. 141, Also see pp. 96, 99.

production and seasonal rhythm of agricultural labour. Profit in the putting out system declined.

Transportation costs rose proportionately. The textile industry suffered in particular, for the dis-equilibrium between spinning and weaving. This gap was widened with the introduction of flying shuttle because more distant regions joined 'yarn country.'<sup>234</sup> Labour power in this region decreased and wages increased. Other production factors, too, were becoming scarce, so that marginal cost rose, only the centralization of production could bring a lasting solution since in centralized production system process was supervised, the traditional irregular work rhythms could be combated and the producer could be subjected to a rigorous work-discipline. In the case of complete centralization, moreover, the turnover of capital could be increased and the transaction costs lowered. Since the raw material was particularly expensive, fixed capital investments constituted a relatively small share of the total cost in manufacturing mode of production, except in the preparatory and final stages of production process, the increase in productivity in the large manufacturing plant was too low. Therefore, for production increase production process had to be mechanized in addition to being centralized because in the manufacturing mode of production the level of technology remained at the same level as in the domestic mode, its potential for solving problems was limited. It was not to become the dominant mode of production.<sup>235</sup> Therefore, mechanization coupled with centralization was only substitute

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234. P. Kriedte, loc. cit., p. 137.

235. Ibid., p. 137.

to the crisis of proto-industrial mode of production.

In the 18th century England, new mechanisms were needed in the areas of technology and the social organization of labour. The emerging class of industrial capitalists met the difficulties which confronted it by replacing relatively scarce resources like labour, water power and timber, with relatively abundant resources like coal, capital and steampower. Now, fixed capital had to be invested to the application of capital-intensive techniques. Technological change or innovations permitted those limits to be expanded through more efficient utilization of new resources which is conditioned by social institutions including value, attitudes, the social structure, the nature of the state and the religious or ideological proclivities of the dominant groups or classes and of the masses as well.<sup>236</sup> There are a host of lesser institutions that may need to be noticed in considering such problems, like voluntary associations, the educational system, even family structure and other value forming agencies. Such institutions provide elements of continuity and stability, but in performing this function they may function as barriers to economic development by fettering human labour, withholding resources from rational exploitation or inhibiting innovation and diffusion of Technology.<sup>237</sup> Thus, these institutional structures of the society considerably influenced the pace of industrial

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236. R. Cameron, "Technology, Institutions and Long Term Economic Change," Charles P. Kindleberger and Guide de Tella (eds.), Economics in the long run Essays in honour of W.W. Rostow, Models and Methodology, Vol. I, (Macmillan, London, 1982), pp. 32-33.

237. Ibid., p. 33.

development.

The breakthrough of the 1780s and 1790s was based on scarcely more than the mechanization of one branch of one industry. The labour saving technique in that one branch (cotton spinning) was tremendous involving a range of subsidiary innovations the other branch of the industry (weaving) remained largely unmechanized for a period of say 40 years. Throughout these years Britain was completely dependent on a vast army of handloom weavers to convert its yarn into exportable cloth. Outside the cotton industry England lacked all the technical equipment.<sup>238</sup>

A consideration on the development of enterprise during our period: the merchants, tradesmen or undertakers were drawn from almost every social group except the very poorest. This became possible by the breakdown of guild restrictions together with traditional restraints on occupational mobility.<sup>239</sup> All over England, from London, Bristol or Norwich to small provincial towns or developing country districts, younger sons or the head of the families joined the rank of businessmen especially the overseas trade. Most important among such families were Whichcotes or Nelthropes in Lincolnshire, Doughty etc.<sup>240</sup>

Many farming families having gained experience in industry by small scale activities as part of their farms, acquired

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238. John Foster, Class Struggle and the Industrial Revolution: Early industrial capitalism in three English towns, (London, 1974),

239. B.A. Holderness, Pre-industrial England: Economy and Society, 1500-1750, (London, 1976), p.149.

240. Ibid., pp.149-150.

sufficient skill and experience to specialize and even to become managers of the larger plants operated by their lords or by outside investors. Sussex became the centre of such activities in British iron and allied trades by the 17th century.<sup>241</sup>

Four broad groups of bourgeois can be distinguished from our point of view during our period. The first group might be described as, rentiers, forming small group and generally not powerful within the bourgeoisie. Their role in the development of the industry was minor because they remained distrustful of industrial investment for a long while, and preferred to invest in the proven profits of ground rents, commercial income or government loans.<sup>242</sup> The second group comprised of the learned professionals with little or virtually no interest in industry with some exceptions in case of minor role by French notaries. The third and most important group was called bourgeoisie d'affaires, the men who held all the reins at the close of the ancient regime. Their incomes were higher than the nobility. These bourgeois were big merchants, bankers: a few families in the largest cities, closely linked by the family connection and business connection created solidarity among them was astonishingly efficient.<sup>243</sup> These bourgeoisie also controlled the main manufactories. The masters of the enterprises were the wholesale dealers, either they brought

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241. B.A. Holderness, loc. cit., p. 155. For a detailed study of the development of various types of enterprise see, Barry Supple, "The Nature of Enterprise," E.E. Rich and C.H. Wilson (eds.), The Cambridge Economic History of Europe, Vol. V, The Economic Organization of Early Modern Europe, (London, 1977), pp. 394-459.

242. J.F. Bergier, "The Industrial Bourgeoisie and the rise of the working class: 1700-1914", C.M. Cipolla (ed.), The Fontana Economic History of Europe, Vol. 3, The Industrial Revolution, 1700-1914, (Sussex, 1976), p. 401.

243. Ibid., p. 402. In this connection mention must be made of the Protestant bankers of Germany, Paris or Amsterdam, the Shipowners of Marseilles, Bordeaux or Nantes.

together wage-earning workers in factories or mines or more often than not, they resorted to the old verlag-system or putting out system. The fourth class comprised of artisans and shopkeepers and formed the largest segment of the bourgeois class. Income was much lower in this last group.

Very small numbers of masters came from labourers class in the rural industry. The most industrious class with superior ability and vision, reached the position of economic dominance acquired a greater share of local industrial capital. All over Europe a class of peasant entrepreneurs appeared in industrialized countries between 1400 and 1850s.<sup>244</sup>

It, therefore, appears from these analysed empirical data that "the industrial sector in the 18th century was nearly twice as large as previous estimates and that its subsequent transformation was less dramatic".<sup>245</sup> Peter Lindert, the most recent student of the socio-occupational structure of 18th century England has maintained that "England and Wales were almost surely more

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244. Ibid, p. 154. Dorothy Marshall, Industrial England, 1776-1851, (London, 1973), pp. 92-93. But the Magnates were not really typical of the average Lancashire or Yorkshire millowner. Many of these at least, in the early stages of their careers as industrialist, capitalists were the proprietors of very small concerns. Often they were the first to get into the mill in the morning and the last to leave at night. Also see Federigo Malis, "Consideration of some aspects of the rise of Capitalist Enterprise," M. Kooy, (ed.), Studies in Economics and Economic History, (Macmillan, 1972), pp. 153-186, for a fuller account of it.

245. C.K. Harley, "British Industrialization Before 1841: Evidence of slower growth during the Industrial Revolution," JEH, Vol. XLII, No. 2, (June, 1982), p. 283.

industrial and commercial in (Gregory) kings days than he led  
 us to believe." <sup>246</sup> Lindert's account did not include the working  
 experience of living women,youths and children,nor does it allow  
 for the possibility that wives and children of non-industrial  
 workers could themselves be engaged in industrial task.What Lin-  
 dert's analysis provides might be considered as a base-line of  
 non-agricultural economic activity across the length and breadth  
 of 'pre-industrial England!

The diversity and dispersal of rural handicraft manufactu-  
 ring in the 'pre-industrial' period has acquired new emphasis  
 with the recent publications by C.K.Harley and N.F.R.Crafts.Cra-  
 fts postulates that "growth was substantially slower during the  
 years 1780-1831 than is believed by conventional wisdom. <sup>247</sup> In  
 another paper Craft has enumerated that 'growth of real output  
 was considerably faster at the end of the 18th century than it  
 had been at the beginning,although it was still a little below  
 what it was to be in the 19th century. <sup>248</sup> Actually the growth of both  
 total output and output per persons was continously growing but  
 at a slower rate upto the "take off," that provides the big acce-  
 leration in industrial output growth at the end of the century,

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246. Peter Lindert, "English Occupations, 1670-1811," JEH, Vol. XI (1980), p.705. Peter Lindert has analysed late 17th century tax and burial register and has estimated that one family in 8 (179,774/1,390,586) C.1700 was headed by a male worker in manu- facturing trades,this figure represents 1/40th of the total in- dustrial population.He further enumerated that agricultural sec- tor had grown by a factor of about 4 in the same period whereas the industrial sector by 40 fold-thus the industrialists had grown ten times as fast as the agriculturists.

247. N.F.R.Crafts, "British Economic Growth, 1700-1831:A Review of the Evidence," EHR, Vol. 36, No. 2, (2nd series, 1983), p.191.

248. N.F.R.Crafts, "The 18th Century:A Survey," R.Floud and Mcc- loskey(eds), Economic History of Britain since 1700, (London, 1981), p.1.

accomplished by a long period of steady growth in both workshop and farm.<sup>249</sup> Jeffrey Williamson has also recognised the British growth and industrialization as slower and blamed low capital formation shares in national income, low rates of accumulation and little change in the capital labour ratio during the 1760s and 1820s as the main explanatory reasons.<sup>250</sup> He assigned spatial role to the enormous debt issue used to finance the French wars. The war debt crowded out civilian accumulation, inhibited growth and contributed to the dismal performance in the workers standard of living. Mobilization and war also distorted prices.<sup>251</sup>

Williamson is of the opinion that the new evidence confirms the 'trend acceleration' somewhere around 1820s when Britain passed through a secular turning point<sup>252</sup> because fixed capital rose from 30 to 50% of national wealth over the century following 1760s.<sup>253</sup> The rise in the ratio of fixed to circulating capital in industry and commerce was even more dramatic, from 0.83 to 2.56 between 1760 and 1830. The change in mix was driven by the investment demand side: new technologies, social overhead requirements in the cities and all required long term investment in fixed capital, where as the capital market was ill equipped to handle this change in investment requirements and even

249. Ibid., p.1.

250. Jeffery G. Williamson, "Why was British Growth so slow during the Industrial Revolution," JEH, Vol. XLIV, No. 3, (Sept., 1984), p.687.

251. Ibid., p.687.

252. Ibid., p.688.

253. J.G. Williamson, "Debating the British Industrial Revolution," Exploration in Economic History, Vol. 24, No. 2 (April, 1987), pp. 285-286.

failed to generate the new financial innovation. Therefore, to accommodate the rising fixed investment requirements, new innovations in financial system had to be made otherwise capital accumulation was constrained.<sup>254</sup>

#### DE - INDUSTRIALIZATION

On the European continent industrialization did not occur independently. It was primarily and largely a response to the English challenge.<sup>255</sup> Tom Kemp has viewed continental industrialization as 'conscious emulation of British example: nowhere else did it take place as an 'autonomous and organic process!<sup>256</sup>

There is great deal of contradiction in deciding as to which factor leads England to be in the vanguard of Industrial revolution than the continental Europe.<sup>257</sup>

There were still others who claim that Britain as it were, was 'more ripe' for the industrial revolution, the continental economics were not. This ripeness was constituted by a level of development in industry and social arrangements, trade and agriculture, which were partly to be achieved by many continental economics, but wholly by none.<sup>258</sup> The easy availability of mineral wealth, particularly coal and iron, had an immense effect on Britain's leadership in Industrial revolution as well as the

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254. Ibid., p. 286.

255. S. Pollard, Peaceful Conquest: the Industrialization of Europe, 1760-1970, (Oxford, 1981), p. 145.

256. Tom Kemp, Historical Patterns of Industrialization, (London, 1978), p. 17.

257. N.F.R. Crafts, "Industrial Revolution in England and France: Some thoughts on the question 'Why was England first,'" Joel Mokyr (ed.), The Economics of Industrial Revolution, (London, 1985), pp. 119-131.

258. Allan S. Millard and S.B. Saul, The Economic Development of Continental Europe, 1780-1870, (London, 1973), p. 33.

failure of some tardy industrializers like the Netherlands or Irelands.<sup>259</sup> But this is not an appropriate explanation. The importance of coal and iron location is logically correct but of a secondary importance. There were regions without abundantly endowed with coal and iron yet were successful in modernizing their industries. Switzerland, Flanders and Alsace were most important examples.

In recent years political economists like D.C. North and Mancur Olson have placed profound emphasis on political elements that provided possible stimulus to industrial revolution. D.C. North has opined that the British Industrial revolution was facilitated by better specific property rights, which led to more efficient economic organization in Britain.<sup>260</sup> The linking factor between property rights and economic growth consists of the greater efficiency in the allocation of resources resulting from the equalization of private and social rates of returns and costs.<sup>261</sup> Property rights in innovation (patents and trade marks), better courts and police protection, and the absence of confiscatory taxation were some of the political novelties in Britain that raised considerably the rate of

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259. Joel Mokyr, "The Industrial Revolution and the New Economic History," Joel Mokyr (ed.), The Economics of the Industrial Revolution, (London, 1985), pp. 7-8. He has borrowed this line of argument from Wrigley. For him (Wrigley), the crucial change was the switch from wood to coal and iron. Although this is an interesting view, yet it lacks an analysis of Industrial Revolution, since these change started long before 1750. And in the mining of coal proper there was comparatively little technical progress.

260. D.C. North, Structure and Change in Economic History, (New York, 1981), pp. 147, 156, 157, 158-170.

261. Joel Mokyr, op.cit., p. 12.

innovative activity and capital accumulation. North differentiated property rights from laissez-faire and points out that the former were more important because they reduced transaction costs and thereby allowed more integrated markets, higher levels of specialization and realization of economics of scale.

The starting point of North's analysis of the efficient specification is from the victories of parliament over the Stuarts in 1650 and again in 1688.<sup>262</sup> Parliament implemented regulations to stop the crown from taxing the population in an arbitrary and unpredictable fashion. Parliament also granted monopolies and taxing privileges to individuals.<sup>263</sup>

Mancur Olsons' theory of Britain's Industrial Revolution is based on the idea that political bodies are subject to pressure groups. Olson has viewed British society of industrial revolution as relatively free of class differences and comparatively a socially mobile society. Hence, loyalty to a particular pressure group was not yet very strong. According to him "the Civil Wars of the 17th century, moreover, had created a stable nationwide Government, which made Britain into a larger jurisdictional unit,

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262. D.C. North, loc. cit., p. 156.

263. North writes that "Had such a shift (of power from the crown to Parliament) not occurred, the economic history of England would have been much different." But North's this views will not remain un-challenged. The development of efficient property rights in Britain was closely related to the gradual development of common law, and the role of political change in it is debatable. After 1688 British parliament taxed arbitrarily and at times imposed highly unpopular taxes such as the income tax of 1799. See Joel Mokyr, op. cit., p. 47.

in which it was more difficult to organize pernicious pressure groups.<sup>264</sup>

Compared with Prussia, Spain or the Habsburg Empire, Britain's Government generally left its business men in peace to undertake their enterprises. Government itself rarely ventured itself into commercial and industrial enterprises. In France and Prussia state simply saw private enterprise to be incompetent and stepped in to do its job—generally without success. During the hey day of the Industrial Revolution most of the social overhead projects which in most other societies were considered to have enough public advantages to warrant direct intervention of the State were in Britain left to private enterprise.<sup>265</sup> Turnpikes, canals and railroads were built in England

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264. See Joel Mokyr, Ibid, p. 12. For details about above theory see Mancur Olson Jr. The Rise and Decline of Nations, (New Haven, 1982), pp. 78-83, 128. But some of Olson's historical statements are controversial. He writes that the English Civil Wars "discouraged long-run investment." Mokyr holds that it was an undocumented inference, "within a few decades after (the Civil War) it became clear that stable and nationwide Government had been re-established in Britain (and) the Industrial Revolution was underway," "underway" is of course, an ambiguous phrase, but between the restoration and the beginning of the Industrial Revolution, as commonly defined, a century of more (and not "a few decades") had passed. Hence, Olson's Model of the Industrial Revolution might require some further research.

265. Joel Mokyr, op. cit., pp. 12-13. Regulations and rules most of them relics from Tudor and Stuart times, remained on the books. Recent historians believe that these regulations were rarely enforced. Ashton argues that with the increase in the sophistication of the economy and with the increase of Market complexity, the capability of the Central Government to control such matters as the quality of bread, or the length of apprentice contracts effectively vanished. The central government undoubtedly controlled the foreign trade, but most other internal administration was governed by local authorities.

without direct state support. The usury laws, the Calico Act passed in 1721 and repealed in 1774 were implemented by the government but with partial and little success.

Government intervention in the poor relief was important in Britain. Britain had a well organized, mandatory poor relief, system absent in case of other European countries. Old poor laws had some overall positive effect on the Industrial Revolution. The social safety net provided by the poor Laws allowed English individuals to take risk. Mokyr holds "in Societies without such laws, self-insurance in the form of large Families and liquid assets were widely held, whereas in England even the "worst case" rarely implied actual starvation. The Speenhamland system assured a supply of regular labour force during the busy seasons in agriculture. A similar set of argument may be made for manufacturing. During business slumps workers were laid off without fear of having the labour force emigrate or starve. The practice of pauper apprenticeships and the recruitment of factory workers from work-houses run by local poor Law Guardians provided a significant source of labour force to the factories especially in rural and small-town mills before 1800.

Britain was also differed from that of continental Europe so far as the degree of centralization of political power is concerned. London played relatively an unimportant role as an administrative and cultural centre compared to Madrid, Paris or Vienna.

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266. Ibid., pp. 13-14. The old poor law, sometimes erroneously referred to as "Speenhamland." The Speenhamland system of allowances in aid of wages was used in a minority of counties. The old poor law was responsible for the creation of an army of able bodied paupers in still unclear. Sidney Pollar and George Boyer hold this view.

Paris drained large number of talent from provinces and local centres of learning and technology. France, Holland, Spain and other European societies did not have the local academic institutions like Britain's the Manchester Literary and Philosophical Society or the Universities of Glasgow and Edinburgh. These educational institutions were centred near centres of industry. This rural urban brain drain hardly mattered when industrialization could have been concentrated near the capital of the country. Surprisingly enough, this seems to have happened nowhere. Neither Brussels, nor Paris, nor Berlin, nor St. Petersburg, nor any other major capital city in Europe became a centre of modern industry. Though some manufacturing activity developed around the capitals, the main centres of modern industry usually were elsewhere. Hence in a highly centralized state capital city drained the rural regions of talented, ambitious and able men is at a disadvantage compared to a decentralized state like Britain. Thus Mokyr rightly observed

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"To summarize, most economic historians would agree that politics was a positive factor working in Britain's favour, although the exact magnitude of the effect as well as its modus operandi is still in dispute. The appropriate standard of judgement should be a comparative one and it seems hard to disagree with the proposition that the form of government in Britain created an environment which was more conducive to economic development than elsewhere."

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267. But Wrigley holds an opposite view. He ascribed to London a major role in creating the condition favourable to the Industrial Revolution. The size of London, its enormous needs in terms of food, fuel and other products seem to support his claim, but sheer size, however, is not necessarily an advantage.

268. Joel Mokyr, loc. cit., pp. 15-16.

The role of international trade in the industrial revolution has two important aspects. The first and most significant is that foreign trade made it possible for Britain to import certain commodities. Foreign demand also provided the necessary markets for industrial output.<sup>269</sup>

The traditional conclusion that foreign trade was an engine of industrial growth (revolution) has been refuted by political economist and historians in recent times.<sup>270</sup> But the foreign trade of now developed countries and their contemporary colonial policies were productive of underdevelopment and backwardness. Historical researches display that "contemporary underdevelopment is in large part the historical product of past and continuing economic and other relations between the satellite under-developed and the now-developed metropolitan countries."<sup>271</sup>

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269. Ibid., p.22.

270. Donald McCloskey, "The Industrial Revolution 1780-1860: A Survey," Joel Mokyr (ed.), The Economics of the Industrial Revolution, (London, 1985), p.54. See for detailed descriptions of the role of trade in the Industrial Revolution, R. Davis, The Industrial Revolution and British Overseas Trade, (Leicester University Press, 1979), p.55. Fimintore Fanfani also have done some commendable work in this direction. See his, "Considerations on the Industrial Revolution," Moncelle Kooy (ed.), Studies in the Economics and Economic History, Essays in honour of Prof. H.M. Robertson, (Macmillan, 1972), pp.220.221. Also see R.P. Thomas, "Overseas trade and empire 1700-1860" R. Floud and D. McCloskey (eds.), The Economic History of Britain since 1700, Vol.1, pp.90-91. These writers recognise trade as the child of industry. R. Findlay also holds similar view. See his, "Trade and Growth in the Industrial Revolution," Charles P. Kindleberger and Guido di Tella (eds.), Economics in the long view, Essays in Honour of W.W. Rostow, Vol. I, Models and Methodology, (Macmillan, 1982), p.178.

271. Andre Gunder Frank, "The Development of Under Development," Robert I. Rhodes (ed.), Imperialism and Underdevelopment: A Reader, (New York, 1970), p.5. For detailed study see, Andre Gunder Frank, Capitalism and Underdevelopment in Latin America: Historical Studies of Chile and Brazil, (London, 1969), p.3. Samir Amin, Accumulation on a world scale: A Critique of the theory of Underdevelopment, Vols.1 and 2, (London, 1974), p.269, pp.360, 361. Paul M. Sweezy, Modern Capitalism and Other Essays, (New York, 1972), p.6.

According to Gilboy "The factory could not become typical until demand had been extended.....throughout the entire population to consume the products of large scale industry..... In order that a shift in the demand schedule may occur, individuals must be able to buy more units of a commodity at the same price, or the same amount of the commodity at a higher price... the entire schedule must shift upward, indicating a greater buying power."<sup>272</sup> It could be well that a rise in the demand of a particular type of commodity, allowed the industry to exploit economics of scale, to train a highly differentiated and specialized work force to support specialized sub-industries.

It is that disproportionate increase in the demand for one or another product induced technological change. Ignorance has not fore-stalled confident assertion that it was or was not significant. Earlier line of argument comprehends that if technological change is costly then one can expect technological change to occur in those industries in which demand is increasing rather than falling. Thus, the demand for technological progress becomes essentially a derived demand, dependent on the demand for the final goods. A rise in the demand for the consumption good will generate more invention. Therefore, there is a market for invention.<sup>273</sup>

Moreover formidable doubts have been expressed concerning the "market" for inventions. If such a market existed at all, it was plagued by atleast three sources of market failure, namely the preponderance of externalities, the uncertainty surrounding

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272. Quoted by Joel Mokyr in his "Demand Vs. Supply in the Industrial Revolution," Joel Mokyr (ed.), op.cit., pp.97-98.

273. Ibid., p.102.

all stages of innovative activity, and the, however, to the fact that, often, new knowledge rapidly becomes a public good. "In any case, the notion of technological ripeness turn attention back to supply, to the initial supply of technological knowledge and the supply of vigour to exploit it."<sup>274</sup>

The improvement in the earning of the workers was consumed through leisure; the alternative to working, which provides pleasure directly to the workers involved.<sup>275</sup>

The market for labour, therefore, is unlike the market for other factors of production. Competing against the various 'productive' uses of labour is the additional demand for time for leisure. In general, when the price of commodity rises, it becomes profitable for firms to substitute the production of the now higher-priced commodity for other production. But when the price of labour increases, workers are inclined to substitute labour for leisure. A higher wage for the same amount of work increased the tendency among the workers to consume all or part of it in increased leisure.<sup>276</sup> Here, "backward-bending" supply curve of labour is observable, because the quantity of labour supplied falls as the price rises. A backward-bending supply curve can be an obstacle to industrialization.

Religious ritual appears as a leisure time activity in modern life, but it had a far more serious and different connotations in

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274. Donald McCloskey, "The Industrial Revolution, 1780-1860: A Survey," Joel Mokyr (ed.), Ibid., p. 70.

275. Robert M. Solow and Peter Temin, "The Inputs for Growth" Joel Mokyr (ed.), Ibid., p. 82.

276. Ibid., p. 82.

pre-modern society. It is doubtful whether men who believed in the active intervention of supernatural beings in human affairs viewed religious observances as recreation. In a similar way, the domestic producers have been hard pressed when the productive activity stopped and the duties of being a housewife or the recreation of sitting and talking began.

Thus, a balanced, and detailed politico-socio-economic and historical study of various simple and complex characters of proto-industrialization bounds us to view the development of proto-industrialization as the most important; sufficiently pervasive and dynamic engine on the road to early modern socio-economic change, leading to factory production and wage labour at a later date.<sup>277</sup> In proto-industrial system agriculture remained the dominant sector, while the craft commodity production as subsidiary or supplemental sector and its growth were heavily dependent upon agriculture. The seasonal rhythms of agriculture formed a condition of proto-industrialization.<sup>278</sup> Complementary agrarian development entailed increasing regional differentiation between arable and pastoral regions. A regional symbiosis based on comparative advantage ensued. But the concept of the 'region' seems somewhat aprior and crude.<sup>279</sup> In very concrete,

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277. Maxine Berg, Pat Hudson and Michael Sonenscher, "Introduction," See M. Berg, Pat Hudson and Michael Sonenscher (eds.), Manufacture in Town and Country before the Factory, (Cambridge University Press, 1983), p. 17. Also see M. Berg, The Age of Manufacture: Industry, Innovation and Work in Britain, 1700-1820, (London, 1985), p. 78.

278. Lennart Schon, "Proto-Industrialization and Factories: Textiles in Sweden in the Mid-19th Century," Scandinavian Economic History Review, Vol. XXX, No. 1, (1982), p. 57.

279. Ove Hornby and Eric Oxenboll, "Proto-Industrialization before Industrialization? The Danish Case," Scandinavian Economic History Review, Vol. XXX, No. 1, (1982), p. 3.

coherent and simple form the causes of the growth of proto-industrial system have been sought in two main directions: firstly, in a growth of agricultural production that boosted incomes and the demand for industrial products, and secondly, in an increased proletarianization of population that made it necessary for large groups of people to seek their subsistence for part of the year by working outside agriculture. The former of these conditions by implication implies economic advancement while the latter tends rather to imply a form of specialization and regional industrial development that even could be associated with a general deterioration of living standards.<sup>280</sup>

The more the small industrial producers lost their basis in agriculture, the more proto-industrialization pushed ahead the demand for food and in addition to that, for industrial raw materials. This conflicted with village collectivism as well as with the nexus of feudal extractions.<sup>281</sup> Changes also occurred in respect of agricultural farming. Therefore, an extensive agriculture was adopted in some areas paralleled by a move towards more intensive cultivation elsewhere.<sup>282</sup>

One of the most significant characteristics of 'proto-industrial phase' was associated with the extension of the world

280. Lennart Schon, *op.cit.*, pp.57-58.

281. Peter Kriedte, Hans Medick and Jurgen Schlumbohm, "Proto-industrialization on test with the guild of Historicians: Response to some critics," trans. by Leena Tanner, *Economy and Society*, vol. 15, No. 2, (May, 1986), p.266.

282. Peter Kriedte, *Peasants, Landlords and Merchant Capitalists: Europe and the World Economy, 1500-1800*, (Cambridge University Press, 1983), pp.65-66. On the one hand, fields were turned into pasture and grass land. Along the Alps where grain-growing had been expanded to considerable altitudes in the mountains in the 16th century. On the other hand, there were intensive cultivation in parts of Spain and in the South of France where the vineyards were extended at the expense of agriculture. The wine growing area around Sete and Montpellier increased by some 20% between 1676 and 1734. In Flanders, Zeeland and Frisia grain growing reduced in favour of Flax, hops, rape and other crops.

market for mass-produced goods from the 16th century. This market grew at such a speed that traditional urban production could not efficiently respond and match, and was finally hampered by guild restrictions and high labour costs. Manufacturing which took place in the peasant household was generally organized by merchants residing in nearby urban centres and it encapsulated a vast variety of organisational forms some arising directly from technological dictates, others not. Most important among these were Kauf system and putting out system. The 'interrelationship between the peasant family economy and merchant capital was a major characteristic of the proto-industrial phase, isolating it from earlier and later periods. Circulating capital dominated the production process. The consumption of the proto-industrial family determined aims, the methods of production, the use of family labours, the low marketability of the product and the lack of checking and controlling, mobility, marriage etc. In some other societies, proto-industrialization did not develop in association with either Kauf System or Putting out or Verlag system. For these societies, proto-industrialization model has to be modified. Thus, the special circumstances prevailing in Bengal make it necessary for us, firstly, to modify somewhat the requirement for intermediary action by mercantile capital, especially after 1740, as an ingredient of our definition of proto-industrialization. More detailed and systematic examination of

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283. M. Berg, Pat Hudson and M. Sonenscher, op.cit., p. 17.  
 284. Pat Hudson, "From Manor to Mill: the West Riding in Transition," M. Berg, Pat Hudson and Sonenscher (eds.), Manufacture in Town and Country before the Factory, (Cambridge University Press, 1983),  
 285. Teodor Shanin, The Awkward Class, Political sociology of peasantry in Developing Society: Russia 1910-1925, (Oxford at the Clarendon Press, 1972), p. 30.  
 286. Lars Magnusson and Maths Isacson, "Proto-industrialization in Eskilstuna and Southern Dalecarlia," Scandinavian Economic History Review, Vol. XXX, No. 1, (1982), p. 74.

such issues would probably be pertinent in the expected debate during the next few years over the question of whether the development of proto-industry was principally caused by demand pull, from overseas market for example, or by supply-push arising out of an abundant supply of cheap indigenous labour in cer-

tain regions. <sup>287</sup> The researches concluded in recent years into the question of proto-industrialization generally assigned the most weight to the later factor, finding the most regular development in regions of failing agriculture and consequent risk to the reproduction prospects of the inhabitants. <sup>288</sup>

Recent researches have begun to examine in detail the effects of proto-industry on the household and family, gender

differentiation and gender segregation, <sup>289</sup> sexual freedom and awareness, demographic imperatives, plebeian culture, attitudes

to work and leisure, <sup>290</sup> crime, <sup>291</sup> consumption patterns and horizons

287. Ove Hornby and Erik Oxenboll, op.cit., p.3.

288. Ibid., p.3.

289. Alison Macewen Scoff, "Industrialization, Gender segregation and stratification theory," Rosemary Crompton and Michael Mann (eds.), Gender and Stratification, (London, 1984), pp.154-166. Other articles of the same book have been dedicated to gender differentiation see for example Leonore Davidoff, "The Role of gender in the 'First Industrial Nation Agriculture in England (1780-1850)," pp.189-192. etc.

290. E.P. Thompson, "Eighteenth Century English Society: Class struggle without class?" Social History, Vol. 3, (1978), p.134-159. A Also see his, "Patrician Society, Plebeian Culture," Journal of Social History, Vol. 7, No. 4 (Summer, 1974), pp. 396-397.

291. A.J. Fletcher and J. Stevenson, "Introduction," A.J. Fletcher and J. Stevenson (eds.), Order and disorder in Early Modern England, (Cambridge, 1985), pp.9-33. The whole issue is devoted to order and disorder in Early Modern England participated by J.D. Amussen, J.S. Morrill and J.D. Walter, D.F. Underdown, M. Spufford etc. Other books were also written on crime. See J.A. Sharpe, Crime in the 17th Century England: A County Study, (Cambridge, 1983).

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and forms of protest, etc.

Thus, Maxine Berg defined proto-industrialization in following terms:

- (1) "The higher incomes derived from handicraft production led to population growth, breaking the balance between labour supply and local subsistence; that is handicraft generated the labour supply of the Industrial Revolution.
- (2) Population growth and proto-industrialization soon generated diminishing returns, prompting changes in organization as well as new techniques which saved labour. In other words, proto-industrialization created pressures leading to the factory system and to a new technology.
- (3) The profits from proto-industry accumulated in the hands of merchants, commercial farmers and landlords; that is proto-industry led to the accumulation of capital.
- (4) Proto-industry required and generated specialist knowledge of manufacturing organization and commerce; that is proto-industry provided training ground for and a new supply of entrepreneurs.
- (5) Proto-industrialization and regional agricultural specialization go hand in hand; that is proto-industrialization leads to agricultural surpluses and reduces the price of food." 293

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292. John Bohstedt, "Gener, Household and Community Politics: Women in English Riots, 1790-1810," Past and Present, No. 120 (August, 1988), pp. 88-108. John Stevenson, Popular disturbances in England 1700-1870, (London, 1979), pp. 35-45 and also of Nicholas Roger, "Popular protest in Early Hanoverian England," Paul Slack (ed.), Rebellion, Popular protest and the Social Order in Early Modern England, (Cambridge, 1984), pp. 278-280.

293. Maxine Berg, op.cit., pp. 79-80.

CHAPTER - II

ORIGIN AND DEVELOPMENT OF PROTO-INDUSTRIALIZATION IN BENGAL

Before we embark on to explore the development of proto-industrialization based on 'agro-crafts', it is pertinent to analyse the important pre-conditions that lead to its spread in Bengal.

During late 17th and 18th centuries the present day districts of Rājshāhi, Dinajpur, Jalpaiguri, Bogra, Pabnā, Dacca, Chittagong, Mymensingh, Rangpur, Noakhali, Faridpur etc. were the regions producing most of the cotton, jute, rice, sugar, rape-seed and mustard, and tobacco etc. Tobacco was introduced by Portuguese in Bengal about the year 1605.<sup>2</sup> The weather and seasons are particularly favourable to create conditions for intense proto-industrial activities within these regions.

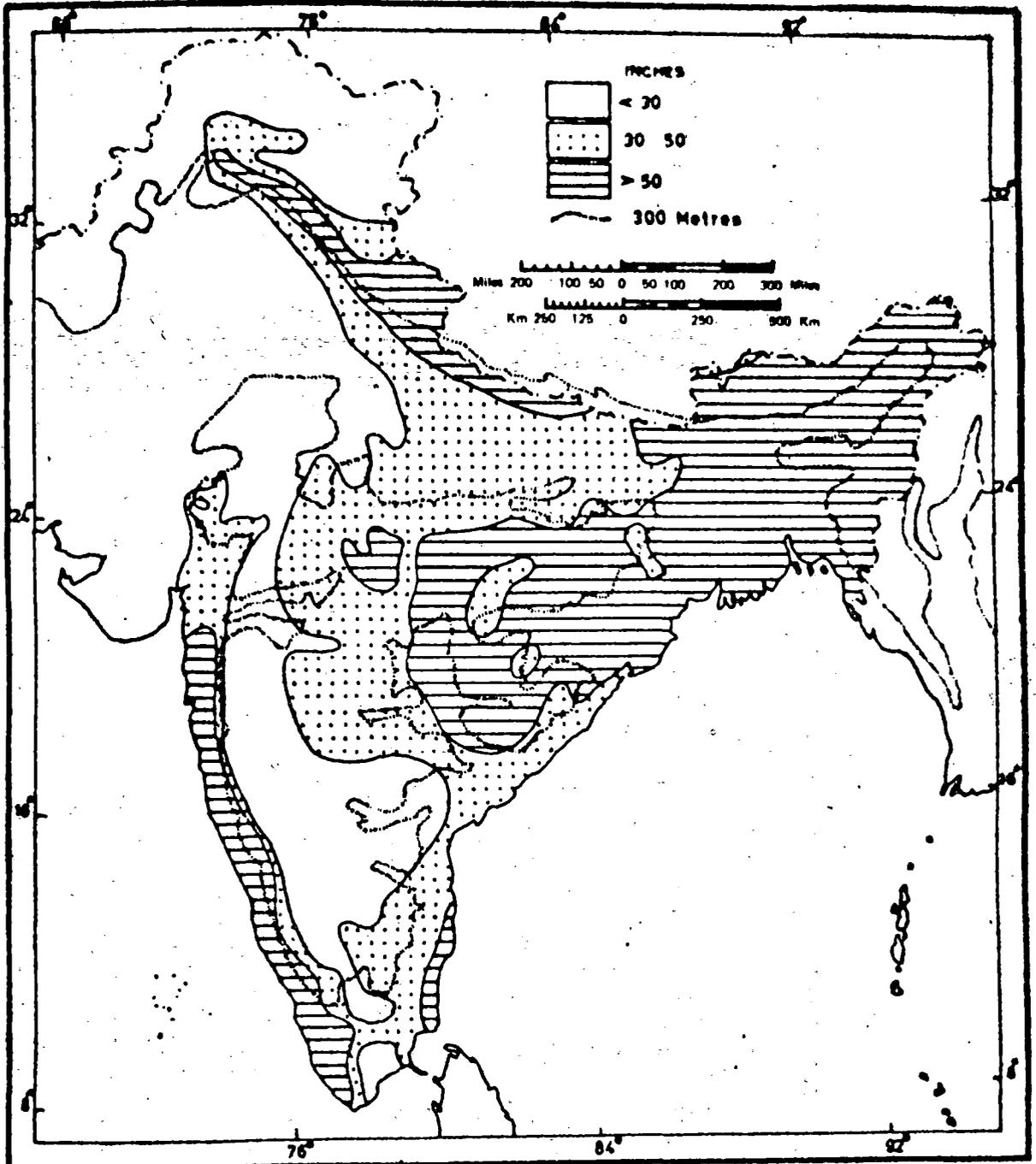
The climate of Dacca and its environs was especially suited to the culture and manufacture of cotton, jute, sugar and sugarcane etc., because of its humidity, its relatively low temperature and medium rainfall.<sup>3</sup> The mean maximum temperature of May and September was deduced from ten years observations (during the first half of the 19th century), 87.39 degrees in the former, and 88.34 in the later month. Humidity was the characteristic of the climate. The average annual quantity of rain during 8 years (recorded in the first half of the 19th century) was 70.3

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1. B.C.Allen, E.A.Gait, C.G.H.Allen, H.F.Howard (etc.), Gazetteer of Bengal and North Eastern India, (Delhi, 1979), pp. 203-337, 338.

2. The Imperial Gazetteer of India, the Indian Empire, Vol. III, Economic, (Oxford at the Clarendon Press, New edition, 1908), p. 49. Five or six species of Nicotiana were cultivated, but only two were grown in India, namely N. Tabacum and N. Rustica. The former is a native of South Africa or Central America and was the common tobacco of India. N. Rustica was also grown in Bengal.

3. M.P.Gandhi, The Indian Cotton Textile Industry, its past, present and future, (Calcutta, 1930), p. 11.



MAP. 1. AVERAGE ANNUAL RAINFALL

inches. The greatest fall in any year during that period was 93.9<sup>4</sup> and the least 46.8 inches.

It was due to high rainfall and availability of extended river system that most of the areas mentioned earlier were inundated almost every year to a depth varying from 2 to 12 feet during monsoon.<sup>5</sup> The low lands of these regions were hardly cultivable even during winter. Only on high lands cultivation was possible. Thus, the possibilities of employment available in agriculture especially during monsoon was very meagre and fluctuating throughout the year. Consequently, people failed to earn minimum possible subsistence. The compulsion to earn minimum subsistence impelled the people to work in proto-industries depending on the availability of agricultural employment.

An extensive, intensive, macro and micro level economic and geographical study of the wide spread of proto-industrial system in Bengal vis-a-vis in India is only possible by dividing Bengal as well as whole of India into four areas: Pull areas, Push areas, neutral areas and corridor areas.<sup>6</sup>

'Pull areas' are characterised by the strip of coastal land, accessible by sea and large and small rivers. Internal communications and travel network through road was available on a wide

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4. James Taylor, A Descriptive and Historical Account of the Cotton Manufacture of Dacca in Bengal, (London, 1851), pp. 2-3.

5. Ibid, p. 2.

6. Jan Lucassen, Migrant Labour in Europe, 1600-1900, (London, 1987), pp. 5-31. Lucassen has applied this model to study the pattern of migration, industrial development, agricultural pattern etc. for most of the regions of Europe.

scale during 17th and 18th centuries. Extensive canal networks only existed in the later half of the 18th century.<sup>7</sup> The 'Pull areas' are also characterised by capital-intensive agriculture, especially cultivation of industrial crops, by trade, industry and shipping. Domestic industry did exist in most of the parts of 'pull areas'. Transport and trade played a subordinate role<sup>8</sup> only in conveying manufactured commodities to market places important for coastal, national and international trade. In Bengal Sonārgāon, Rajbari, Rajshāhi, Gaur, Dacca, Chittagon, West Dinajpur, Pabnā, Mymensingh, Rāngpur, Māldā, Murshidābād, Bogra, Chinsura, Hughlī, Howrah, Calcutta, Qāssimbāzār etc. comprised the 'pull areas.' These regions were inter-connected by road network as well as by river transport during our period. 'Pull areas' were highly infected by proto-industrialization and provided employment to a large number of people because the raw materials required for a particular proto-industrial activity were easily available with easy access to a central market. Thus, different 'Pull areas' of Bengal had their speciality in producing their special goods: Dacca specialized in producing various qualities of cotton textile. Malda, Shantipur, Qāssimbāzār, Murshidabad and various other 'pull areas' specialized in silk industry. Shipping industry flourished in some other regions of 'pull areas! These activities led these regions to incline towards much more urbanization. And, finally, it is remarkable how wages along the coast and along the river were far higher compared to regions further inland.<sup>9</sup>

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7. For Canal System in Bengal see the section devoted to Ship Building Industry.

8. Jan Lucassen, op.cit., p.28.

9. Ibid, p.28.

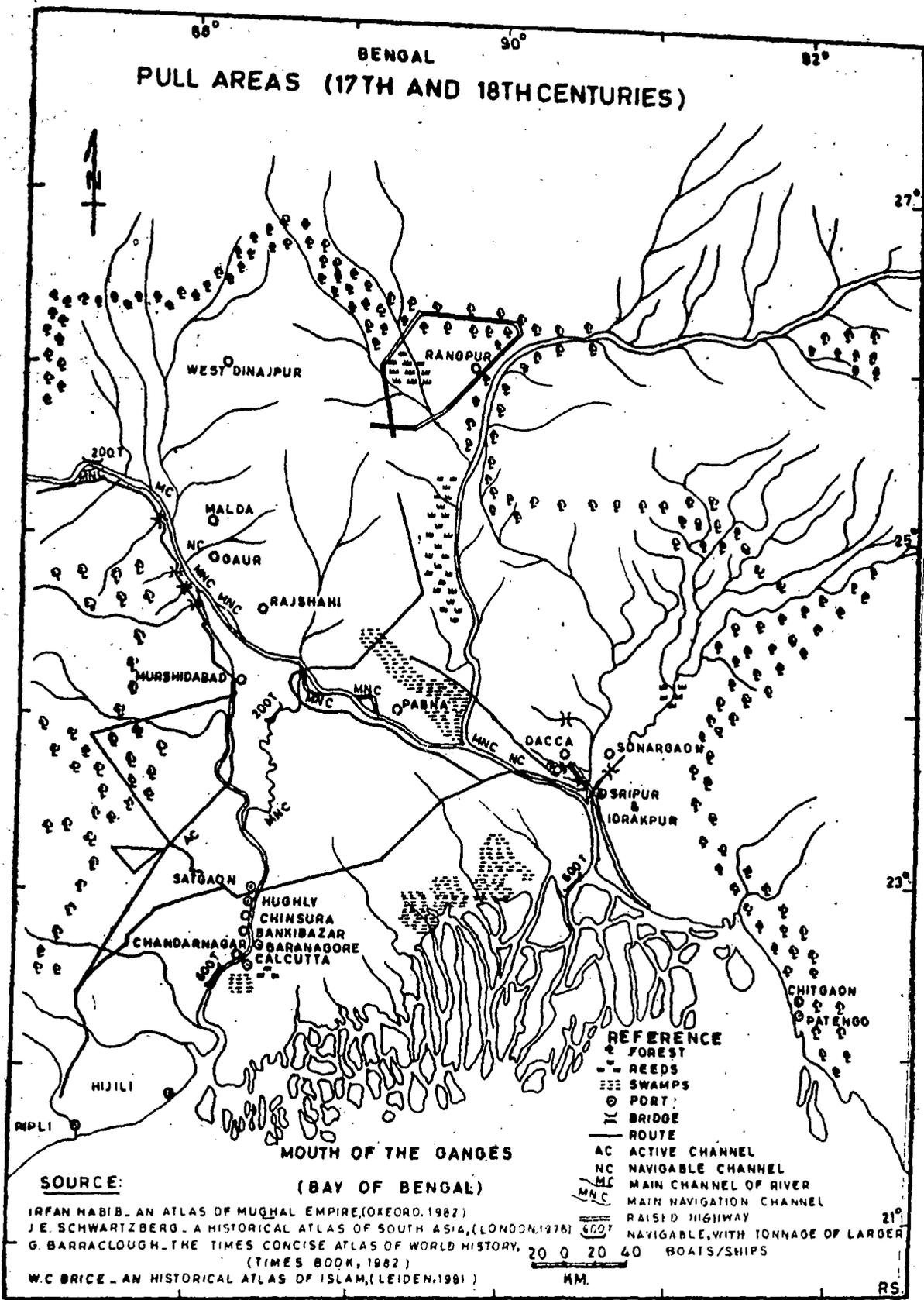


FIG.

Soil typology appears to be a fact of determining importance. The locality most celebrated for the manufacture of the softest quality of cotton was a tract of country near the confluence of the Ganges, Brahmaputra and Meghnā, which exclusively covered Dacca and Jalore consisting of approximately 1960 square miles.<sup>10</sup> It consists of two portions which differ in regard to physical aspect and soil. It forms a part of a similar tract about 70 miles in length, which extends in the Mymensingh district and overran with dense forest. The other portion occupied more than one half of the area of the district and is of alluvial formation and physically suitable for cotton cultivation. These extensive fertile plains are intersected by branches of the rivers Ganga, Brahmaputra and Meghnā.<sup>11</sup>

Some of the 'pull areas' of Bengal like Rāngpur, Rajshahi, Mymensingh, Bogrā etc. contain light alluvial soil, admirably suitable for jute cultivation.<sup>12</sup> Most of these areas received annual deposits of silt from the floods which covered it and the soil was friable and grew excellent crop of jute. 'Pull areas' like Hughli, Qasimbāzar, Howrah, Calcutta etc. consisted of rich marine soil.

The 'push areas' are recognised as the hinterland of the various parts of coastal areas. These areas are characterised by availability, in general less-fertile soil, less favourable shipping possibilities and a far less developed infrastructure.<sup>13</sup>

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10. James Taylor, A Descriptive and Historical Account of the Cotton manufacture of Dacca in Bengal, p.2.

11. Ibid., p.2.

12. B.C.Allen, E.A.Gait, C.G.H.Allen, H.F.Howard, Gazetteer of Bengal and North-East India, (Delhi, 1979), pp.266-277.

13. Jan Lucassen, loc.cit., pp.29-30.

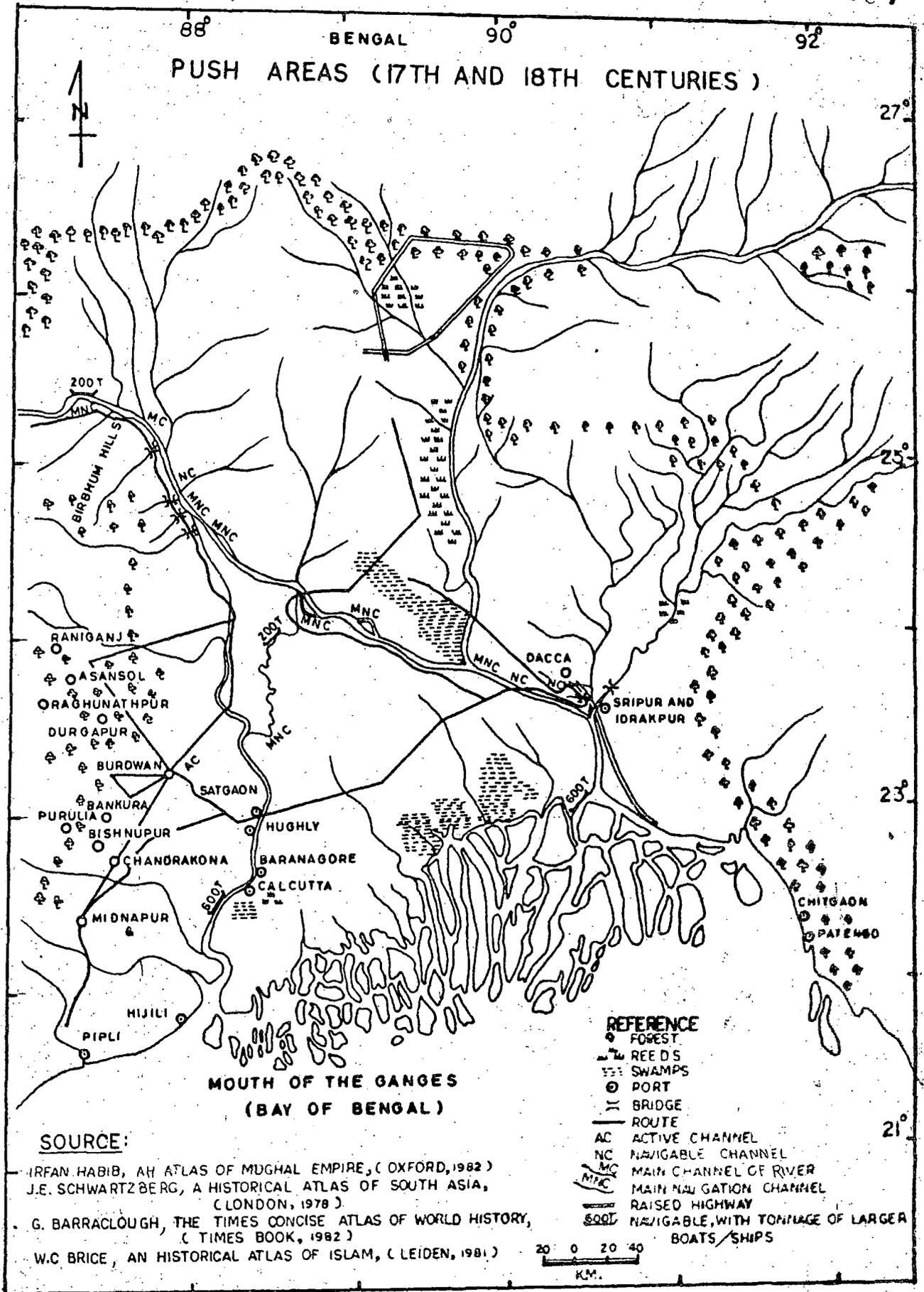
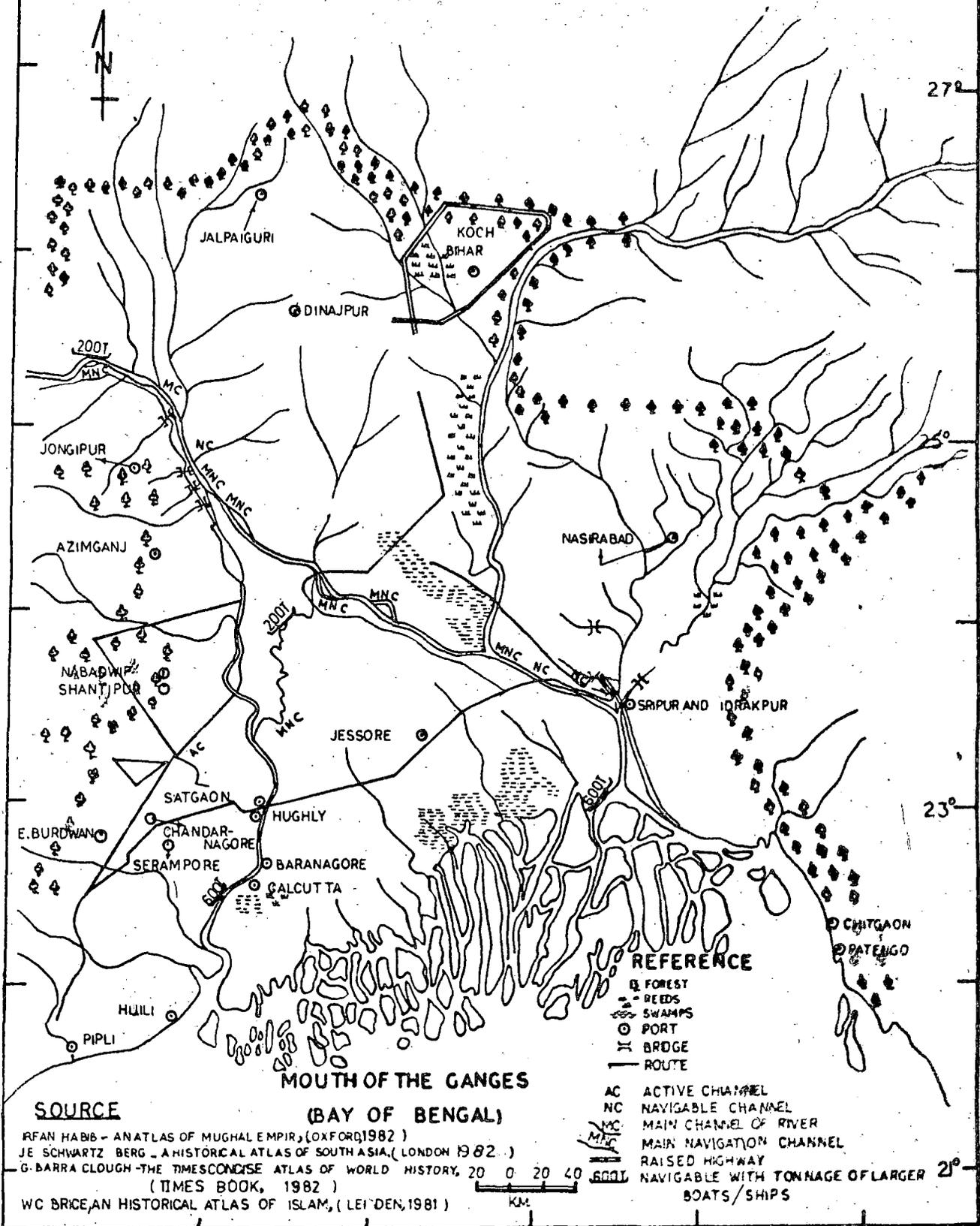


FIG.

# BENGAL NEUTRAL AREAS (17TH AND 18TH CENTURIES)

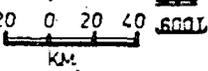


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### REFERENCE

- FOREST
- REEDS
- ~ SWAMPS
- PORT
- || BRIDGE
- ROUTE
- AC ACTIVE CHANNEL
- NC NAVIGABLE CHANNEL
- MNC MAIN CHANNEL OF RIVER
- MNC MAIN NAVIGABLE CHANNEL
- RAISED HIGHWAY
- NAVIGABLE WITH TONNAGE OF LARGER BOATS/SHIPS



MOUTH OF THE GANGES  
(BAY OF BENGAL)

The level of wages in 'push areas' was appreciably lower than it was in the 'pull area'. 'Push areas' of Bengal during 17th and 18th centuries consisted of Bīrbhūm, Burdwān, Raniganj, Gondwānā hills, Medinīpur, Chandrakona, Bishnupur, West Burdwān, Purūlia, Bānkura, Durgāpur, Raghunāthpur, Āsansol, etc. Soil typology of these areas were recognised as sandy, rocky etc. The pattern breaks down especially in the region of the great rivers. There, in the midst of highly fruitful marine and river clay soils, 'neutral areas' suddenly crop up, places to which and from which no appreciable migratory labour occurred. 'Neutral areas' occurred in some of the parts of 'pull areas' in eastern as well as Western Bengal. Those parts of 'pull areas' were not adjacent to the sea or to the rivers. In 'Neutral areas' itself there were even limited

14

'push areas! The following areas formed the important part of 'neutral areas' of Bengal during 17th and 18th centuries: Chandarnagore, East Burdwān, Serampore, Shāntipur, Nabadwīp, Azīnganj, Jōngipur, Dinājpur, Koch Bihār, Jessore, Jalpaiguri, Masirabād, etc.

Between 'neutral areas' where 'pull areas' and 'push area' prevailed, there we identify the 'corridors' which occupies a special, 'joint place' in economic history. Within the 'corridors' there were some 'push islands, but for the most part the whole was characterised by an absence of migrant labour. Broadly speaking, the 'corridors' appears to exist into two kinds of regions, namely, the 'push corridors' and the 'pull corridors! The 'Push corridor' was characterised by proto-industrial activities concentrating

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14. Ibid., p.29.

15. Ibid., p.30.

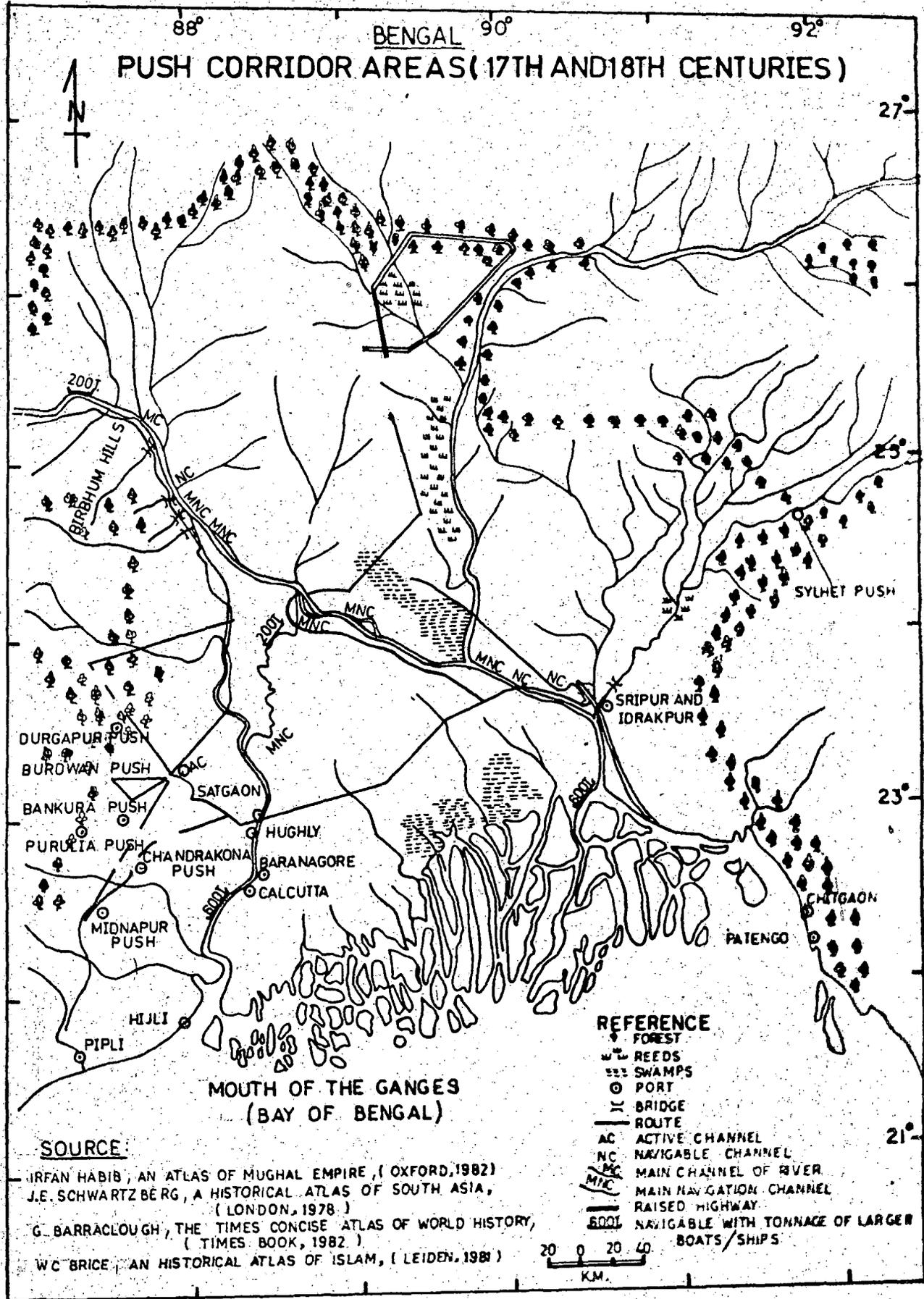
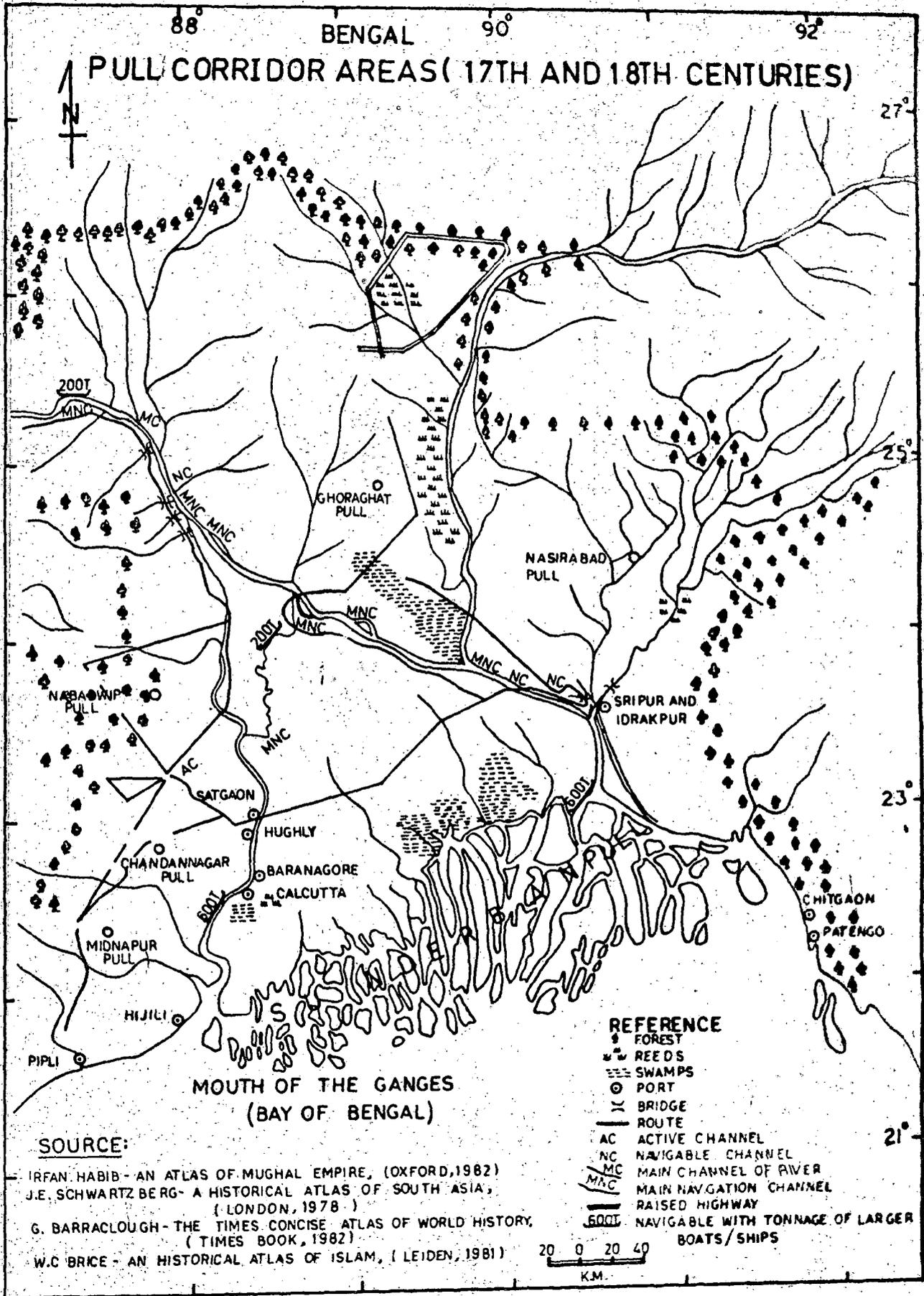


FIG.



Fig

mainly on silk textile industry, gum lac production, resin production, honey bee husbandry and metal's products.<sup>16</sup> But the textile industry as well as working with metals formed the main domestic industry of this region. It was only during the later half of the 18th and the first half of the 19th centuries that projects were undertaken to improve the mineral wealth of the districts as well as to introduce various cash crops like indigo, sugar, jute, etc.<sup>17</sup> Coal and iron mining were introduced in Raniganj, Burdwan and other coalfield regions of western Bengal. Some bad quality of coal was also found in the Dacca district. Here, the prevalence of proto-industrialization, mining and metallurgy may provide an explanation for the lack of migrant labour. Sylhet Push, Mednipur Push, Chandrakona Push, Burdwan Push, Bankura Push, Birbhum Push, Puruliya Push, Durgapur Push etc. formed the most important part of the 'Push Corridors'.

The 'Pull corridors' comprised of Sunderban Pull, Shaistaganj Pull, Jamalpur Pull, Nasirabad Pull, Nabadwip Pull, Chandannagar Pull, Birbhum Pull, Medinipur Pull, Kharagpur Pull etc. These 'Pull corridors' are recognised by the dominance of agricultural activities. But proto-industrial activities were not alien to these regions. The forms of agrarian activities in these regions along with proto-industrial activities were shaped and determined by the social distribution of the landed property, size of the farms, social power system etc.

It is evident from the following study that migratory labour took place from 'push areas' to either 'pull area' or 'neutral areas' or 'corridor areas'. Peasant migration and labour migration also depended on the forms of land ownership, social power system and other property systems etc.

16. W.W. Hunter, The Annals of Rural Bengal, (London, 1868), pp., 2, 352-361.

17. Jan Lucassen, op. cit., p. 30.

Having identified the zones, it is necessary to have a look at the structure of the village society that shaped the spread of proto-industrial system in 'pull', 'corridor' and 'neutral' rural areas of Bengal. Village society during our period is broadly classified into following groups. The dominant element in the village or a group of villages were the khud-kasht, who formed a privileged group in village society with well-defined and recognised hereditary rights and duties. The local officials (muqaddam, chaudhuri etc.) and intermediary zamindars during Mughal Period were often recruited from this section. This section of the local magnates paid land revenue at a concessional rate fixed by custom.

The second significant segment of the rural society was the

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18. The term khud-kasht is self explanatory, being the Persian version of resident cultivator. This implies cultivation by peasants themselves, evidently with the help of their family labour, of lands which they owned. They also owned oxen and other means of cultivation. A normal peasant paid 2/5 of the produce as land-revenue, whereas these section paid 1/3rd and in some cases over 1/4th. When the khud-kasht defaulted, his dues would fall on the others and if he left his villages due to non-payment of his dues, his fields could be leased out to someone else, generally not exceeding three years till the expiration of which he could not claim restitution. See Satish Chandra, "Some Aspects of Indian Village Society in Northern India during 18th Century: the Position and Role of Khud-Kasht and Pahi-Kasht", Indian Historical Review, (hereafter cited as IHR), Vol. 1, No. 1, (1974), pp. 51-64. Also see his, Parties and Politics at the Mughal Court, 1707-1740, (New Delhi, 1972), p. Lii. The British found in Bengal that khud-kasht generally held more land than was shown in the village register. They paid land-revenue only for assessed land. But it would be difficult to maintain that this was a normal feature under Mughal administration, though its prevalence in some areas cannot be denied. See Satish Chandra "Some institutional factors in providing capital inputs for the improvement and expansion of cultivation in Medieval India", IHR, Vol. III, No. 1, (July, 1976), pp. 85-86.

pāhi kāsht or pā'ikāsht<sup>19</sup>, those peasants who came to the village from outside the zamindari and regarded as the outsiders although they may have their habitation in the village. Satish Chandra has categorised pāhi-kāsht in two classes: the first, and more valued were the peasants who owned their ploughs and oxen. These pāhis moved from village to village for favourable terms. The second were those who held no implements and were recognised as untouchables. They were hardly distinguishable from muzariān or share croppers.<sup>20</sup> The third and the larger segment of rural society consisted of muzariān who tilled the land of khud-kāsht peasants or the zamin-dars. There was also a small class of landless peasants placed at par with the village servants, the tanner, the potter, the washerman, the carpenter, the lohār, the barber, etc.

And finally, there were menial castes, who must have formed a

19. Irfan Habib recognises pā'ikāsht or pāhi-kāsht as those who did not belong to bhaiyāchāra (fraternity) and did not live in the village, but cultivated land belonging to it. See his, The Agrarian System of Mughal India, p. 123. See Satish Chandra, "Some Institutional Factors in Providing capital inputs for the improvement and Expansion of cultivation in Medieval India," IHR, Vol. III, No. 1, (July, 1976), p. 86. Also see Satish Chandra, "Some Aspects of Indian Village Society in Northern India during 18th Century: the position and Role of khud-kāsht and pāhi-kāsht," IHR, Vol. 1, No. 1, (1974), pp. 51-64.

20. Satish Chandra, "Some Institutional Factors in Providing Capital inputs for the improvement and expansion of cultivation in Medieval India", IHR, Vol. III, No. 1, (July, 1976), pp. 86-87. The word Pāhi, an ancient Indian term signifies that rural nobility was not a new phenomenon. The number of Pāhis in Bengal under British rule increased substantially that signifies the sign of a crisis in the working of the system.

fifth or a quarter of the rural population. They could not hold land or cultivate it on their own,<sup>21</sup> except for very small fields or plots which were allotted to them as village servants (e.g. balāhars, the village sweepers). The 'menial' population formed a reserve to be utilised to work in the fields during harvests, uniformly liable to forced labour (begār), for carrying baggage, etc. of the higher classes.<sup>22</sup> It would not, indeed, be amazing if the status of some of them was semi-servile, involving a kind of bondage to a particular community of caste peasants or zamīndārs. It was this section of the village society who failed to yield bare subsistence. During emergency followed by failure of cultivation due to flood, excessive rain and draught etc., their hardships knew no bond. It was this class of people of the rural society of Bengal who were in absence of any supplemental occupation other than proto-industrial system were much more prone to different kinds of proto-industrial activities depending upon the availability of raw materials, (emphasis added).

These unavoidable circumstances and the compulsion of expenditure on special social occasions compelled the people on the

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21. Since cultivable land remained available, the relative numbers of landless labourers could never have been large. This is because, there were always possibilities to move off and settled on virgin soil. But despite of this, the landless labourers in the Mughal period were traceable. Irfan Habib explains it in following manner. Since land was not scarce during our period, a peasant's average holding was much larger, consequently, the larger farm holders required temporary hands to supplement its own labour at harvest and sowing times. These hands could come only from the non-peasant rural population. The chanar and chanuks etc. worked as agricultural labourers. They also came from depressed castes. See Irfan Habib, The Agrarian System of Mughal India, p.121.

22. Irfan Habib, "Agrarian Relations and Land Revenue: Northern India," Tapan Ray Chaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (Orient Longman, 1982), p.249.

lowest rung of the society to borrow loans on interest on short term basis from village mahājans.<sup>23</sup> The rate of interest varied from region to region. In addition to interest they also charged offering called salāmi. In case of peasant's failure to pay the debt within the fixed time, the money-lender had increased the pressure on the debtor arbitrarily by charging compound interest which proved disastrous to the debtors. The payment of loan in the form of grain also prevailed; the rate of grain was fixed by the mahājan at the time of lending.<sup>24</sup> Under this servitude circumstance the pāhi-kasht, the muzār iān, the landless peasants and untouchables had no other substitute but to engage themselves in proto-industrial system. This led to an increased exploitation of the family labour even on very low wage because the main motive

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23. Satish Chandra, "Some Institutional Factors in Providing capital inputs for the improvement and expansion of cultivation in Medieval India," IHR, Vol. III, No: 1, (July, 1976), p. 89.

24. The Faqīrs gave loans at the rate of  $1/2$  āna per rupee, in addition to salāmi and obtained from the borrower a written undertaking for the payment of debt in two or three months. Each rupee of the given loan was less in weight by more than one pie, but at the time of repayment one pie per rupee was deducted as discount although the money received by the mahājan was of good quality. Thus, he gained a net profit of more than two ānas per rupee every month. The compound interest is regarded as the interest charged by the mahājan on the combined money that is principal (asāl) and accumulated interest, as the principal money. The money-lender deducted only 1.5 maunds instead of 2 maunds, when the peasant brought his grain to him to clear of the debt. See Z.U. Malik, "Agrarian Structure of Bengal at the Beginning of British Conquest: A Contemporary Persian Account," Medieval India: A Miscellany, Vol. IV, (AMU, 1977), pp. 187-188.

behind the exploitation of the family labour was to earn an extended income to preserve family's subsistence. There was danger to the preservation of family's subsistence of the proto-industrial producers in the 'push' areas, which was productive of family as well as individual mobility usually from 'push' and 'corridor push' areas to 'pull' and 'corridor pull' areas. Small distance mobility also occurred from 'neutral areas' to 'corridor pull' and 'pull' areas.<sup>25</sup> This further intensified the proto-industrialization in the 'pull' as well as 'corridor pull' areas.

A state with centralization in administration, stability and peace with certain minor and local exceptions like the Mughal empire with well institutionalized Mughal nobility<sup>26</sup> had a vital role to play in the direction of proto-industrialization. From contemporary chronicles and recent researches it is possible to postulate that zamindars secured sanads for making the country industrially, commercially and agriculturally prosperous.<sup>27</sup>

25. The wages in the 'pull' and 'corridor pull' areas were higher due to various physical, natural, economic reasons. The transportation from one place to another place was easily available. Job opportunities were also available in the 'pull' areas due to intense proto-industrial activities.

26. S. Nurul Hassan, "The Position of the Zamindars in the Mughal Empire," The Indian Economic and Social History Review, (hereafter cited as IESHR), Vol. 1, No. 4, (April-June, 1964), p. 107. The Mughal nobility was comprised of mansabdars, jaqirdars, zamindars etc. Satish Chandra views Mughal nobility as the product of a long process of historical evolution originated from the political and economic developments in West Asia, influenced by the socio-economic conditions of India, the experience of the Turkish Sultans in India, the Turko-Mongol traditions and finally, the political genius of Akbar and the circumstances shaping his reign. See his, Parties and Politics at the Mughal Court, 1707-1740, p. XVIII.

27. S. Nurul Hassan, "Three Studies of the Zamindari System," Medieval India: A Miscellany, Vol. 1, (AMU, 1969), p. 233.

Therefore, zamīndārs in collaboration with jāgīrdārs maximized the total income of the Mughal state together with their personal illegal gains.

All kinds of zamīndārs<sup>28</sup> generally comprised of primary, intermediary and autonomous chiefs,<sup>29</sup> in collaboration with manṣabdārs

28. The term zāmīndār is a Persian compound meaning keeper or holder of land (Zamīn). The suffix -dār implies a degree of control or attachment but not necessarily ownership. In the 14th century, as Irfan Habib believes, the word zamīndār seems to have been used to denote the chief of the territory, Zamīn, like, land, having also the wider meaning of a district or country. In Mughal India, this usage continued, the chiefs being so designated. From the time of Akbar onwards, the term Zamīndār used for any person with any hereditary claim to a direct share in the peasants produce. It was the later sense that became predominant during the 17th century. See Irfan Habib, "Agrarian Relations and Land Revenue: Northern India", Tapan Ray Chaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-1750, p. 244. For the province of Bengal, the term Zamīndār was a Mughal innovation introduced for the first time by Akbar to denote all categories of existing landholders. Before Mughal system, it were the independent bhūiyas who controlled the land revenue system. See Ratnalekha Ray, Change in Bengal Agrarian Society, C. 1760-1850, (New Delhi, 1979), pp. 14-15.

29. S. Nurul Hassan, "The Position of the Zamindars in the Mughal Empire", IESHR, Vol. 1, No. 4, (April-June, 1964), pp. 105-107. Also see his, "Zamīndārs under the Mughals", Eric Frykenberg, Land Control and Social Structure in Indian History, (N. Delhi, 1979), pp. 7-17. The primary Zamīndārs were the holder of proprietary rights over agricultural as well as habitational lands with hereditary and alienable rights. See Irfan Habib, The Agrarian System of Mughal India, (Bombay, 1963), p. 174. Intermediary zamīndāri was not a proprietary right and is described as khidmat. They maintained detailed records of production, land rights, the revenue paid and the crops sown. They enjoyed the right to various types of perquisites such as commission, deduction, revenue free land etc. Ijāradārs and ta'alluqdārs were often belonged to this class of Zamīndārs. See B. R. Grover "The Nature and the Evolution of Talluqdari System during the Mughal age", IESHR, Vol. II, No. III (July, 1966), p. 269. Also see his "Nature of Land Rights in Mughal India", IESHR, Vol. 1, No. 1, (1963), p. 9. For ijāra system see S. P. Gupta, "Ijara System in Eastern Rajasthan, (C. 1650-1750)", Medieval India: A Miscellany, Vol. 2, (AMU, 1972), Also see Noman Ahmad Siddiqui, Land Revenue Administration Under the Mughal, p. 73. The hereditary ruling chiefs after their submission to Mughal Government, were enrolled as zamīndārs. They rendered military service were usually enrolled as manṣabdārs and were awarded jāgīrs. Their zamīndāris consisted of two portions namely, hereditary (waṭan) jāgīr and others as tankhwāh jāgīr.

increased the extortions of small holder peasants, compelling them to supplement their income from proto-industrial activity. Among such zamīndārs, ta'allūqdārs and ijāradārs were most important. The ta'allūqdārs in Bengal and Awadh were freely associated with the territories of the tankhwāh jāgīrs, khalisa offices, zamīndārī territory etc. In the 18th century ta'allūqdārs were regarded as 'revenue farmer'. The ta'allūqdār paid the land revenue to the Mughal state directly as well as indirectly and were called huzūrī and muskūrī respectively.<sup>30</sup> The ijāradārs were concerned with the farming out of the revenues of a maḥal on contract basis. Thus, it were the big zamīndārs and in some cases even the merchants in collaboration with local magnates, who purchased numerous tracts on ijāra either from Mughal government or from individual grantees.<sup>31</sup> Since these zamīndārs were allies of high castes in the rural regions and since bhaiyāchārā relationships among these groups of the rural society was very strong, zamīndārs always treated them with leniency. The upper castes like Brahmins, Kshatriyas and Vaiśyas were regarded

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30. B.R.Grover, "The nature and the evolution of Taluqdari system during the Mughal age", IESHR, Vol. II, No. III, (July, 1966), p. 269. Also see his "Nature of Land Rights in Mughal India", IESHR, Vol. 1, No. 1, (1963), p. 9.

31. S.P.Gupta, "Ijara System in Eastern Rajasthan, (C. 1650-1750)", Medieval India: A Miscellany, Vol. 2, (Bombay, 1972). Also see Satish Chandra and S.P.Gupta, "The Jaipur Pragana Records", IESHR, Vol. III, No. III, (Sept. 1966), p. 305. The agreement bond was regularly stamped by the Qāzī, showing the assessed land revenue alongwith the regular biannual or yearly instalments to be paid by the zamīndārs. He was helped by village and pragana officials. See, Ratna-lekha Ray, "The Bengal Zamindars: Local and the state before permanent Settlement", IESHR, Vol. XII, No. I, (Jan, March, 1975), p. 265.

as concessional revenue payer by the Mughal government. Their burden of land revenue was paid by the smaller peasants. The smaller peasants, were, therefore, bound to pay more than due share of the revenue in order to make up the total.<sup>32</sup>

Now, it is possible to refute the opinion of 18th century observers that Rājput̄s had always controlled almost all the land. But, there is no doubt that they controlled the bulk of the land (i.e. 65%). From a recent research it is evident that Rājput̄s were responsible for payment of 50% of the total revenue demand and shared responsibility with Brahmins or Muslims for an additional 15%. The 30% of the land revenue was paid by Brahmins and Bhūmihars.<sup>33</sup> The zamīndārs also levied the poll tax, tax on marriage and births, house tax and other cesses. Despite this, the zamīndārs were sometimes entitled to unpaid labour services from certain classes of persons. If the zamīndārs failed in performing duties, he would be excluded from the land, but be paid 10% of the land revenue as mālikāna apparently in compensation for imposts and perquisites lost by him.<sup>34</sup> This means an extra-burden on the

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32. The oppression of the smaller peasantry increased substantially throughout the Mughal Period. See Irfan Habib's, "Agrarian Relations and Land Revenue: Northern India", op. cit., p. 249. He brought examples from Rajasthan and Maharashtra. See also his, The Agrarian System of Mughal India, pp. 319-324. Here he has brought the example of Kashmir.

33. Bernard S. Cohen, "Structural Change in Indian Rural Society (1596-1885)", Rober Eric Frykenberg (ed.), Land Control and Social Structure in Indian History, (New Delhi, 1979), pp. 56-57. The Muslims paid 3% land revenue for those paṛḡanas which they controlled in entirety and 4% for those which they shared with Rājput̄s. This indicates the hold of upper castes on Mughal land revenue system.

34. Irfan Habib, "Agrarian Relations and Land Revenue: Northern India", Tapan Ray Chaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 245. He holds that in Gujarat the allowance went upto a fourth of the total revenue collected.

on the existing land, which in its turn, transferred her burdens on the smaller peasants. Now, the need to earn supplemental income from outside agricultural seasonal employment had been greatly increased and proto-industrialization was the only source of employment for such labourers on part-time basis.

The thesis that frequent transfer to jāgīrdārs during 17th and early 18th centuries led inexorably to a reckless exploitation of the peasantry for their personal interest at the cost to ruin the peasantry and so to destroy the revenue-paying capacity of that area for all time.<sup>35</sup> But Satish Chandra rejects any such assumption in the case of frequent transfer of bigger manṣabdārs who held more than 3/4th of the revenue yielding territories.<sup>36</sup> But, the bigger jāgīrdārs were backed by standing administrative machinery as well as by large military forces to collect revenue and "their status and authority usually rendered futile any complaints against them in the Court".<sup>37</sup> Therefore,

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35. Irfan Habib holds this view. Contemporary Indian writers like Bhimsen, Sadiq Khān, Khafi Khān etc. also discussed the exactions of peasantry by the agents of the jāgīrdārs. Khafi Khān regarded this act of the agents of jāgīrdārs as 'no better than common robbers'. Bernier, St. Xavier, Hawkins, Manrique etc. were the foreign writers and travellers who believed in the oppression of peasantry by agents of jāgīrdārs due to jāgīr transfer. See his Agrarian System of Mughal India, pp. 320-321. But Satish Chandra believes that "Bhimsen's remarks that a manṣabdar was uncertain whether he would remain in the jāgīr the following year due to exactions of the royal mutasaddis and the practice of taking a large qabz from amils and that this was ruinous for the peasants. Possibly, Bhimsen who was himself a small manṣabdar, has generalised the experience of small manṣabdars who were at the mercy of royal mutasaddis". See his, Parties and Politics at the Mughal Court, 1707-1740, (N. Delhi, 1972), p. 1, IV.

36. His assumption was based on the findings of A.J. Qaiser. See Qaiser, "Distribution of the Revenue Resources of Mughal Empire among the Nobility", Proceedings of Indian History Congress, XXVII, (1965) p. 240.

37. Irfan Habib, "Agrarian Relations and Land Revenue: Northern India", op. cit. p. 245.

in the 17th and early 18th centuries the system of jāgīr transfers led inexorably to a reckless exploitation of the peasantry. This ruthless exploitation of the peasantry was also the result of the imperial regulations that left a considerable field to the discretion of the jāgīrdārs. The failure and default in the payment of land-revenue was productive of various kinds of oppression viz. selling their women, children and cattle, enslavement etc. They were beaten mercilessly for refusing payment and the peasants finally rose into armed resistance.<sup>38</sup>

In the course of 17th and 18th centuries, peasants were continuously pressurized to cultivate and produce more cash crops partly because it yielded more income to the state. These crops were more important for manufacturing goods of various kinds, for the growing foreign markets and for expanding city populac<sup>39</sup>. As a result, sugarcane, cotton, oilseeds, indigo, tobacco, maize, opium, jute etc. were

38. Khafi Khān, Manrique, Manucci, Badauni, Pelsaert, Bernier, Mundy etc. were the important 17th and early 18th century writers who held such views. Manrique said that "They (the peasants) are carried off, attached to heavy iron chains, to various markets and fairs (to be sold), with their poor, unhappy wives behind them carrying their small children in their arms, all crying and lamenting their evil plight". See Irfan Habib, The Agrarian System of Mughal India, pp. 322-323.

39. Satish Chandra, "Some institutional factors in providing capital inputs for the improvement and Expansion of cultivation in Medieval India," IHR, Vol. III, No; 1, (July, 1976), p. 84.

encouraged to be cultivated. Among the spices, pepper was commercially the most important article of Indian produce. Long pepper grew chiefly in Bengal and could only have been used by the rich. Capsicum or chilli, unknown to Mughal India, was acclimated only about the middle of the 18th century.<sup>41</sup> Horticulture, too, witnessed some important developments during Mughal Period. The technique of grafting and its application enabled an improvement in the quality of fruits. The technique of grafting was introduced into Indian horticulture about A.D. 1550 by the Portuguese. The Portuguese produced the well-known grafting variety of mango, the Alphonso; but it seems quite probable that mango grafting have reached northern India only in the 18th century. The pineapple, papaya and cashew nut and later guava were introduced into Bengal

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40. See S. Nurul Hassan, "Zamindars under the Mughals," Robert Frykenberg (ed.), Land Control and Social Structure in Indian History, (New Delhi, 1979), p. 23. Also see Vyuptakesh Shama, India and Britain: A Study of Economic Relations, (Patna, 1980), p. 3. For Opium see Om Prakash, "Opium Monopoly in India and Indonesia in the 18th century", IESHR, Vol. XXVI, No. 1, (1987), pp. 64-66. For a detailed study of the cultivation of Cash crops in Bengal during later 18th century see B. B. Chaudhari, The Growth of Commercial Agriculture in Bengal, Vol. 1, pp. ii-iv. Also see Irfan Habib, Agrarian System of Mughal India, pp. 38-48. For growth of Opium in Bengal, see H. T. Colebrooke, Remarks on the Husbandary and internal commerce of Bengal, (Calcutta, 1804), pp. 72-74. It is generally believed that maize was introduced in India only in 18th century, but Gode holds that maize was cultivated in Maharashtra during 17th century.

41. Irfan Habib, Agrarian System of Mughal India, pp. 46-49. Also see his, "The System of Agricultural Production: Mughal India", Tapan Chaudhuri and Irfan Habib (ed.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (New Delhi, 1982), p. 218.

from the new world. Potato, a native of highlands of Chile and Peru, was introduced into India by the Portuguese in the 17th century. The first mention of potato in India was made in Terry's account of banquet given by Asaf Khān to Sir Thomas Rao in A.D. 1615 at Ajmer. The practice of grafting by masses improved the quality of the oranges, the sangpara, koloi, nārangi and mangoes in Bengal. Vegetables were widely cultivated in Mughal India near the towns because urban demand put a premium on their cultivation. Ordinary and sweet tomato was introduced in Mughal India.<sup>43</sup>

These high-grade cash-crops required much more capital to be invested in irrigation projects; labour requirements etc. Poor peasants could not afford this high expenditure. The ruling class invested capital in orchards for producing for the markets.<sup>44</sup> Although, the shift to cultivate new crops provided poor peasants a

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42. For the technique of grafting, see M.S. Randhawa, A History of Agriculture in India, Vol. II, (ICAR, N. Delhi, 1982), pp. 189-190. Pineapple was grown in the beginning of Portuguese possession on the Western Coast but familiarized in Bengal and Gujarat only at the end of the 16th century. In the sixties of the 17th century, very good quality of pine-apple was found growing in Assam. Portuguese also introduced Papaya and Cashew-nut but a bit latter. Till the time of Shāhjahān, the practice of grafting was restricted to imperial gardens. It was Shāhjanān who lifted this ban. See Irfan Habib, The Agrarian System of Mughal India, pp. 50-51. Also see his, "The System of Agricultural Production: Mughal India," Tapan Raychaudhuri and Irfan Habib (ed.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 218.

43. Irfan Habib, The Agrarian System of Mughal India, p. 48.

44. Tapan Raychaudhuri, "The State and the Economy: The Mughal Empire," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (New Delhi, 1982). Also see Satish Chandra, "Some Institutional factors in providing capital inputs for the improvement and expansion of cultivation in Medieval India," IHR, Vol. III, No. I, (July, 1976), p. 84.

new source of seasonal employment, but most of the cultivators were either nobles or rich khūd-kāsh, the possibility to earn a stipulated income was very meagre. And even if they received, it was for a very small span of the period. These developments led them to go for proto-industrial system.

These developments together with noble's demand in cash boosted the internal commerce between the town and the country and finally, the accumulation of capital in the cities. These functioned in the form of a chain between the villages and the centres of grain mandīs, leading to the development of bigger mandīs, thereby increasing the number of urban centres and circulation of money. Consequently, a class of specialized grain merchants grew. Thus, the nobles and zamīndārs have forced in some ways, the pace of medieval commercial development.<sup>45</sup>

The immense drain of a substantial part of rural produce to the towns, helped to create large town population. Town crafts also grew: so great was the demand of the nobility that slaves were trained to be artisans in large number. Imperial kārkhānas were established. Nobles also maintained large workshops where free and servile artisans worked to meet their demands. Thus, Mughal administration at its best promoted the commerce of the country. These factors together with the existence of considerable

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45. The intermediaries levied a poll tax, cesses on marriage, births, house tax. They also collected sā'ir which was imposed on hāts, ganjs, bazārs, gasbas etc. The autonomous chieftans had become free to manage their internal affairs, to levy cesses and duties on trade passing through their principalities. See Ratnaleda Ray, Change in Bengal Agrarian Society, (C. 1760-1850), (New Delhi, 1979), p. 22. Also see Irfan Habib, Agrarian System of Mughal India, p. 185.

regional and local variations affected the internal life of villages.<sup>46</sup> Some of the villages specialised in certain crafts and produced not only for local markets but for broader market. The industry was organised on house-hold basis but it was closely controlled and financed by big merchants and their agents. The second important investment of these hoarded capital was in the urban property such as shops, markets, sarais, etc. Almost for the first time, an urban leisured class living on rents from urban property was coming into existence. Land, too, was beginning to be an object of sale and purchase.<sup>47</sup> A considerable growth of small township is visible during later Medieval period. These qaṣbas apparently played the role of regional centres for the collection of grain. These centres also functioned as the resident centres for the rural gentry.<sup>48</sup> And finally, these grain merchants also functioned as money lenders and ṣarrāfs.

There were other factors which promoted proto-industrialization.

During the later half of the 17th century the jāgīrdārī crisis took a acute shape which arose precisely as a result of

46. Satish Chandra, "Some Aspects of the Growth of Money economy in India during the 17th Century," IESHR, Vol. iii, No. iii, (Sept., 1966), pp. 321-328.

47. Ibid., p. 321.

48. Ibid., pp. 321-328. Also see his, "Commercial Activities of the Mughal Emperors during the 17th Century," Bengal : Past and Present, vol. LX XVII, pt. II, S.No. 146, (1959), pp. 93-99.

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be-jāgīr phenomenon. Adjustment for low receipt was not made by the government either by way of additional jāgīr assignments, or by cash payment or by way of compensation. Actually, the Mughal government left the jāgīrdārs to bear the risks of fluctuations in the recovery of the pay from the hāsils of the jāgīrs assigned to them. Consequently, there were inordinate delays in the grant of jāgīr and when finally granted they yielded only a fraction of the sanctioned emoluments. There was no other alternative but to realise the full value of their jāgīr by applying any method. The system of jāgīr transfers led inexorably to a reckless exploitation of the peasantry. The evil was worse when jāgīrdārs, instead of collecting revenue through their own agents, farmed out the jāgīr, through ijārādārs and ta'allūqdārs. This reckless exploitation of peasantry reached a high magnitude at the end of Aurangzeb's reign, (1707). From Bengal alone an yearly rent of Rs. 131 lakhs in the treasury books was entered; it reached

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49. At the time of assignments to high military officers, it became necessary that in view of the scarcity, pā'ibāgī was encouraged, that is the jāgīrs of some of the nobles be resumed and given to others. The emperor cancelled the assignments of very large number of officers. This was the direct consequences of the influx of the large numbers of Deccani nobles during Aurangzeb's reign. Secondly, the practice of matching the jama with the pay of the jāgīr was not adopted in all cases of revenue assignments. There were cases recorded in original documents when the rank and pay of a jāgīrdār were enhanced without additional jāgīr. Sometimes Mughal government made cash payments to jāgīrdārs to maintain their animals. The jāgīrdārs of the same rank and same military obligations did not secure the same salary and disparity existed in the amount of hāsīl.

50. Irfan Habib, Agrarian System of the Mughals, (Bombay, 1963), pp. 319-323. Also see Satish Chandra, Parties and Politics at the Mughal Court, 1707-1740, (PPH, New Delhi, 1979), pp. iv.

sicca Rs.150 lakhs. This included the taxes collected out of foreign trade.<sup>51</sup>

Although, the jama'dāmi statistics considerably increased in the 17th century, but it was entirely cancelled by the great rise in prices. Since, the jama'dāmi remained static, when adjusted to the rising price-level, one can only assume that there was only insignificant extension of cultivation.<sup>52</sup> As a result of intolerable exploitation of the peasantry, peasant migrations were probably a general feature of the agrarian life of our period.

In the first half of the 18th century i.e. the reign of Muhammad Shāh (1719-48), the Mughal empire passed through one of its most disastrous phases. Internal, political, economic and administrative crisis made frontiers and Indian sea defenceless. The politics which emerged during this period was of two kinds: in one class were the succession states like Hydrābād, Awadh, and Bengal, that had to stand upon their own feet and became powerless to assist or assert. In the second category were the Marāthā confederacy, the jāts, the sikhs, and the Afghāns.<sup>53</sup>

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51. General Remarks on the System of Government in India, (London, 1769), p.72.

52. Ibid., p.321.

53. M.N. Pearson, "Political participation in Mughal India," IESHR, Vol. IX, No. 2, (1972), p.114. Irfan Habib, The Agrarian System of Mughal India, pp.339-346. Also see Satish Chandra, Parties and Politics at the Mughal Court (1707-1740), pp. XXXVI-XXXVII. For Marāthā Problem see Satish Chandra, "The Maratha Policy and its Agrarian Consequences" Bisheshwar Prasad (ed.), Ideas in History, (Bombay, 1968), p.173. Also see his, "The Deccan Policy of the Mughals-A Re-appraisal II," IHR, Vol. V, No. 1-2, (July, 1978-Jan, 1979), p.150. For over all crisis of the 18th century see Brijen K. Gupta, Sirajuddaulah and the East India Company, 1756-1757, (London, 1962), pp.20-21. The Marāthās invaded Bengal in 1742, 1743, 1744 and 1745. Alivardi was compelled to pay Rs.12 lakhs annually as Chauth of Bengal and ceded the province of Crissa to them. Also see M. Athar Ali, "The 18th century-An Interpretation", IHR, Vol. V, No. 1-2, (July, 1978-Jan, 1979), p.181.

As a result of above crisis, insecurity increased on the trade routes and at centres closer to the centres of operation of those rebellions.<sup>54</sup> Thus, the position of the European traders had become insecure.<sup>55</sup> Due to these local and regional rebellions transport of Bengal's raw materials to different provinces and raw materials and commodities from these regions to Bengal had been hindered. The Mughals, now, welcomed the establishment of fortified commercial settlements in Bengal, and permitted the building of Fort William in Calcutta, Fort Orleans at Chandranagore and Fort Gustavus in Chinsura.<sup>56</sup>

A micro and local investigation of the impact of these regional rebellions displays that the transportation of the raw materials as well as finished goods must have been delayed and internal trade of Bengal had been negatively affected somewhat, but the loss of the inland trade was not sensibly realized.<sup>57</sup> This, however, did not hinder the wide spread of the proto-industrial system in Bengal. The proto-industrial centres of 'push areas'

54. M. Athar Ali, "The Eighteenth Century-An Interpretation," IHR, Vol. V, No. 1-2, (July, 1978-Jan, 1979), p. 182.

55. Harihar Das, The Norris Embassy to Aurangzeb, (1699-1702), Calcutta, 1959), p. 15.

56. S. Bhattacharya, The East India Company and the Economy of Bengal From 1704 to 1740, (London, 1954), p. 11.

57. General Remarks on the System of Government in India, (London, 1769), p. 82. It is evident from following quotation, "As the Foreign Trade at that time was rather increased, the loss of the inland trade was not so sensibly felt; for though by that loss the interior parts declined, the country nearer the marts of Foreign trade continued to flourish, but had the tribute been constantly exacted, during the loss of inland trade, all the specie would have been long ago exhausted".

(interior parts) might have experienced decline due to road blockade, the marginal handicraftsmen might have migrated to 'pull areas' and 'corridor pull areas', thereby intensified the proto-industrial activities in "pull" as well as 'corridor pull areas! The proto-industrialization of these areas was further intensified by international, national, coastal, multilateral trade and easy availability of transportation system.<sup>58</sup> The increased volume of supply was satisfied by a concentrated increase in production of proto-industry in comparatively small areas for which the quantitative changes involved might have proved significant.<sup>59</sup> The production of proto-industry of these regions was actually and largely dependent on the demand in the markets overseas. This was particularly true of areas where the growing demand of the European Companies led to a localization of production.<sup>60</sup> This process

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58. Tapan Raychaudhuri maintains that even during these periods certain proportion of the exports were procured from territories even far inland, the bulk of the supply was obtained from areas around the centres of export. See his, "European Commercial Activity and the Organization of India's Commercial and Industrial Production, 1500-1750", B.N. Ganguli (ed.), Readings in Indian Economic History: Proceedings of the First All India Seminar of Indian Economic History, 1961, (New Delhi, 1964), p.70.

59. Ibid., p.70.

60. Ibid., p.71. Tapan Raychaudhuri opines that "For there was little or no economic integration as between different parts of the country: economically, Surat had probably closer links with the Persian Gulf area than, say, with the coast of Coromandel". Production in Bengal around the centres of export must have increased in response to the expanding export market. The localization of production was not entirely a new phenomenon generated by the impact of European merchant capital. There were groups of villages around the centres of export in Bengal which had developed highly specialized skills to meet the equally specialized demands in particular markets in Southeast Asia long before the formation of the European Companies. This was not a static process and the 17th century Bengal witnessed an intensification of the tendency towards localization.

(localization of production) was partly spontaneous and partly a result of the initiative taken by the European Companies. New centres were opened: Māldāh, Shāntipur, Chandarnagar, Chinsura etc. were important examples. The investments of the European Companies around the centres of export encouraged proto-industrial system. In order to facilitate their purchases, the Companies also deliberately attracted proto-industrial weavers to the factory towns.

Further promotion to the organization of high stages of proto-industrialization in Bengal was provided by the introduction of a more important innovation in the trade of semi-finished products and the final processing like dyeing or painting etc. These trades were carried out in the factories by craftsmen working on a wage basis.<sup>61</sup> The non-occurrence of this form of indigenous enterprise in Bengal is comprehensively explained by flexibility of supply. The increase in production was achieved without any improvements in technique by primarily utilizing previously idle labour force. The Company's investments (purchases) provided them opportunities to access the market, thereby an incentive to produce more. If the existing means of production (machinery) could thus cope with the increasing demand the Indian merchant or middleman had no

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61. Ibid., p.72. If this particular form of enterprise had been emulated by the Indian merchants with their considerable command over capital, revolutionary changes in the production of manufactured goods might have taken place. Why this did not take place? The answer is speculative. "The prices of the commodities, despite short-term fluctuations produced often by non-economic causes, appear to have been more or less stable in the long-term period. In view of the steadily expanding demand, this may imply either that the volume of export was not large enough to affect the price level or that the supply was highly flexible. As in several instances the procurement was from very limited areas, the first explanation cannot probably be accepted, for in these areas the exported commodities must have accounted for a very substantial proportion of the local produce."

to control production process or introduce innovations in production. Even the European companies found it necessary to introduce changes in organization only on a very limited scale.

Within the areas of proto-industrial organization in Bengal during late 17th and throughout the 18th centuries, one important quantitative organizational change did take place.<sup>62</sup> Though the merchant capitalists remained largely or entirely outside the machinery of production so far as direction or control of production process beyond specifying their requirements as purchasers is concerned, a channel for the penetration of capital into a significant sector of production had been found. This extension of a system already known must have meant an increase in productivity, a fact which partly explains the flexibility of supply. In other words, the expanding demand could not be met without certain changes in the technology. The production of highly standardized and fashionable commodities during the 17th and 18th centuries of Bengal is explained by the demand factor. Thus the thesis propounded by Mokyr and McCloskey to explain industrialization through supply

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62. Ibid., p. 79. If the bulk of the production in the country, meant for immediate use, was carried on with the producer's own meagre capital resources, at least certain part of the production for the market was traditionally dependent on capital supplied by merchants in the form of advance payment. The Asian, European and Bengali merchants depended entirely or largely on capital supplied from merchant capitalists, foreign and native except when production was organized under their supervision in the factories. The penetration of merchant's capital in the production process did occur. But, throughout these years, the initiative in the direction of mechanical innovation remained in the hands of certain foreign Companies of monopolistic merchant capital whose interest in re-organizing production was necessarily limited. The lack of interest on the part of foreign Companies in the direction of mechanical innovation was largely responsible for making Bengal backward industrially.

factors does not seem adequately to be applicable in case of 17th and 18th centuries Bengal.<sup>63</sup> Theoretically, in this changed production relations, proto-industrialization catalysed the origin of these new relations of production, their complete and exhaustive development in all areas of production, the prelude to industrial capitalism. But, proto-industrialization could make transition to industrialization only where certain favourable politico-socio-economic and institutional conditions existed. In absence of these pre-conditions stagnation or de-industrialization did occur. In case of Bengal this did not happen.

The nature, function and demand of Mughal towns, cities and urban centres<sup>64</sup> were markedly different as compared to the European cities of the 17th and 18th centuries. In the Mughal Bengal, guild cities as such, which prevailed in Europe did not exist. Under Mughals, the cities and towns of the subcontinent fulfilled diverse and overlapping roles.

Persian historians of the period present very simple classification of the towns based primarily either on size and population

63. For detailed study of the supply factor to explain the industrialization in 18th century Europe see Donand McCloskey, "The Industrial Revolution 1780-1860: A Survey," Mokyr (ed.), The Economics of the Industrial Revolution, (London, 1985), pp. 53-74. Also see Joel Mokyr, "Demand Vs Supply in the Industrial Revolution," Joel Mokyr (ed.), The Economics of the Industrial Revolution, (London, 1985), pp. 97-118.

64. <sup>See</sup> Govin R.G. Hambly, "Towns and Cities: Mughal India," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 434 for a proper connotation of the term 'urban' loosely. Regardless of exact proportion (which can never be known), the urban population of Mughal India possessed an economic and cultural significance far exceeding its actual size.

or on administrative status.<sup>65</sup> But a functional classification of the towns of Mughal India categorises it into various categories.

The first category of Mughal town was the administrative centre including the imperial and provincial capitals etc. primarily meant for administrative purposes and secondly, meant for busy centres of proto-industry and commerce. The need of the Imperial Court, large number of nobles, the army and the administrative staffs<sup>66</sup> in these administrative centres must have increased the town population. The bulk of these (26 million) people were maintained at a level of bare subsistence or even below that. They were in earnest want of an additional occupation to earn a supplemental income. Their children, too, were in search of extra-occupation in the nearby townships. The temporary nature of some of the employments

65. Persian writers mention only two kinds of towns during Mughal India. These were big and small. The term balda (occasionally Shahr) is generally employed to denote a big town and qaşba or a township. For the big and small ports in Gujarat the terms bandar or bara were respectively used. There was a permanent bāzār (market) and the inhabitants were largely non-agriculturists. See for a detailed examination, M. P. Singh, Town, Market, Mint and Port in the Mughal Empire, 1556-1707, (Adam Publishers and Distributors, New Delhi, 1985), p. 1.

66. To these official staffs, one has to add nearly 4.7 million retainers including 300,000 horsemen in the employ of the zamīndārs. Thus, the number of non-military personnel in the service of the army, the nobles and the imperial establishment and the families of all the people, so employed, the total number dependent for their livelihoods on employment in the armed services and associated activities, must have increased enormously. One source estimated it at some 26 million out of a total estimated population of 100 million. The plentiful supply of cheap labour for these services was maintained largely by the flight of over-harassed peasants from agricultural occupations. The pay of the foot-soldier ranged from 100 to 400 dāms a month. See, Tapan Raychaudhuri, "The State and The Economy: The Mughal Empire," Tapan Raychaudhuri and Irfan Habib, (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, pp. 179-180.

compelled such persons to depend largely on proto-industrial occupations. As a result of the necessities of these lower classes of population in the administrative cities with large demand of luxury goods encouraged the proto-industrial system to develop. "The import of horses for the army paid for with exports-mainly manufactured goods"<sup>67</sup> also had the effect of indirectly stimulating the proto-industrial system.

The Mughal ruling elite's income expanded enormously for the maintenance of truly fabulous life-style. The import of luxury goods mainly from Iran and Central Asia and later from Europe indirectly stimulated exports, while the consumption of domestic products helped sustain a vast market for luxury commodities. The Mughal ruling elite's taste for high quality commodities encouraged the tendency to specialization which was a characteristic feature of India's manufactures. Therefore, the Mughal ruling elite had a direct contribution to the growth of luxury manufactures. The existence of kārkhānas (workshops) in different administrative cities of Bengal for the production of

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67. Ibid. p. 180.

68. Tapā Raychudhuri believes that a portion of the domestic manufactures was secured for the nobles partly through coercion on terms uneconomic for the petty producers but the bulk of these commodities were procured through normal exchange, stimulating proto-industrial production, see, Ibid., p. 180.

luxury commodities were parts of the imperial and noble's establishments.<sup>69</sup> These state kārkhānas acted as training grounds for skills, which eventually could be placed at the disposal of nobles and feudatories. Rich merchants were patronized by powerful manṅab-dārs, and the rich merchants paid higher wages to artists, which contributed significantly to the preservation of these high arts and thus the wages of skilled artisans working in the imperial kārkhānas were well above the subsistence level.<sup>70</sup>

The second category comprised of towns, which developed initially as commercial and proto-industrial centres and later on became administrative headquarters.<sup>71</sup> Calcutta, Murshidābād, Chinsura, Chandarnagore etc. were important such towns. The third category comprised manufacturing towns.

The next important category of cities or towns were those which acquired reputation for the agricultural and proto-industrial produce especially in 'neutral', 'pull corridor' and to a limited scale in 'push corridor' areas. These were particularly sarkār headquarters, where the presence of the faujdar, his staff and the

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69. Bernier held that state kārkhānas were maintained at Dacca, Sonargong, Junglebaree, Bazatpore etc. The imperial kārkhānas produced not only luxury goods but arms as well. Bernier wrote, "The arts in the Indies would long ago have lost their beauty and delicacy, if the monarch and principal Omrahs did not keep in their pay a number of artists, who work in their houses, teach the children and are stimulated to exertion by the hope of reward and the fear of the korrah." See his, Travels in India, (Oxford, 1914), pp. 102, 228, 229, 259. Also see Tapan Raychaudhuri, Ibid., p. 180.

70. Tapan Raychaudhuri, loc. cit., p. 180.

71. M. P. Singh, Town, Market, Mint and Port in the Mughal Empire, 1556-1707, (New Delhi, 1985), p. 3.

regular visits of State officials created great demands for manu-  
 factured commodities. These activities were bound to promote proto-  
 industrial activities.<sup>72</sup> In course of time, the commercialization  
 of Agriculture, the Government's insistence to collect land reve-  
 nue in cash and finally, the intensification of proto-industria-  
 lization based on agricultural production provided additional im-  
 portance to such localized economic activity. The market activity  
 was further stimulated in the qaṣbas by the establishments of  
 merchants there who brought the surplus produced in the surroun-  
 ding countryside. Money lending and money changing activities were  
 encouraged here by ṣarrāfs as well as by petty zamīndārs, jāgīrdārī  
 agents and the beneficiaries of waqfs or assignments of one kind  
 or another. The Mughal state also encouraged such activities by  
 permitting merchants to have commercial intercourse in the Mughal  
 territories. But the Governor and rank and file of the Mughal admi-  
 nistration hardly implemented these state policies for their own  
 personal pecuniary gains.<sup>73</sup> This lacuna of state policy was productive

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72. Such towns throughout the length and breadth of Akbar's empire were not less than 3200. But this was not a new development. In 16th Century, already, there were overgrown villages and burgeoning townships serving as granaries for the storage of government grain paid as revenue, as grain-distribution centres, as collection points for the banjāras etc. Banjāras specialized in the transportation of grain. See Govin R.G. Hambly, op.cit., p.442.

73. The merchants had also to secure the permission of a government official or authorized by the jāgīrdār to transport goods through or unpack marketable goods at any major administrative centre under the direct control of state or a jāgīrdār. Since nobles both high and low were involved in trade and commerce, they freighted their goods on the ships of others. They often interfered in the proper functioning of Mughal policies. The absence of legal ban on private trade by the state officials in the 17th century also compelled the Mughal nobles to go in for administrative interference. But this did not hamper the development of these market places. See Ahmad Raza Khan, "Mughal Administration and Trade in the Subah of Bihar," Proceedings of Indian History Congress, (Bombay Session, 1980), pp.2-3.

of all kinds of irregularities committed by state functionaries, particularly of monopolization of certain branches of trade, especially those which yielded them quick profits. Hence, this gave rise to sheer exploitation by those who were in power rather than fair commercial competition between the officers and merchants.

The fifth category of towns were those which were situated either on the banks of the navigable rivers or on imperial highways. The continuous inflow of merchant caravans contributed to their growth. Their proximity to trade routes induced the manufacturers and producers to bring their goods in the maṇḍīs (markets) of these towns where big merchants or qāfilas (caravans) might arrive to purchase the whole stock or proto-industrial system. The presence of large number of buyers encouraged competition thereby raising the prices.

Then, there were the port towns namely Stagāon, Hughlī, Srīpūr, Chittagong, Piplī, Harīpūr, Bālāsore etc. Hughlī was developed by the Portuguese and acquired prominence only after 1632 and eliminated the old Port Satgāon in its close vicinity. These cities were enlarged primarily due to proto-industrial activities around the environ of these Port towns.

And finally, there were religious towns. Most of them were situated on the banks of holy rivers. These natural advantages encouraged proto-industrialization around the surroundings of these cities.

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74. M.P. Singh, Town, Market, Mint and Port in the Mughal Empire, 1556-1707, (An Administrative-cum-Economic Study), New Delhi, 1985), pp. 7-11.

COMPANY PERIOD

From the analysis of the letter to Fort St. George, Dec 12, 1687, quoted in the preceeding pages, it is possible to postulate that the 'scent of dominion was already in the nostrils of the English Company,'<sup>75</sup> and during the first half of the 18th century, the Company was gradually concentrating their operations upon the Indian mainland rather than the profits of trade alone. The manifestation of this motive was becoming apparent in the imposition of heavy duties on goods imported into England during early 18th century. These impositions were laid on Indian products with a view to encourage English industrial products through supplying raw materials from India to England.<sup>76</sup> These policies of late 17th and early 18th centuries does not imply that proto-industrial system of Bengal suddenly collapsed because other European, Asian, African Countries, Coastal trade and inland trade had sufficient demand and supply of proto-industrial products of Bengal.

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75. Sir Alfred Lyall, The Rise and Expansion of British Dominion in India, (London, 1913), p. 49.

76. On 29th Sept, 1698, "the new subsidy of tonnage and poundage" doubled the general rate of duty charged under old subsidy of 1660. As a result of this new subsidy rule the Indian textile goods imported into England would have paid in that year 5% under the old subsidy; 5% under the imposts on linens and silks and further 5% under the new subsidy. The spices were liable to be paid 5% under the old subsidy, 5% under the duty of 1695 and 5% under the new subsidy; while other goods imported from this region had to pay in all 10% of subsidies. See C.J. Hamilton, The Trade Relations Between England and India (1600-1896), (Calcutta, 1919), pp. 102, 103 etc. Bengal products mainly consisted of silk, calicoes, painted, dyed, printed or strained, and muslins, were subject to a further duty of 15%. The duty on silks and painted calicoes was in force until 30th Sept, 1701 whereas the duty on Muslin continued upto 1787. Also see F. Russel (Compiled), A Collection of statutes concerning the incorporation, trade and commerce of the East India Company and the Government in India with the statutes of piracy, (London, 1794), pp., 93, 372, 373, 389. The prohibitory law against the wearing in England of silk, mixed with silk and cotton, Bengal's stuffs, calicoes, painted, dyed, printed or strained were implemented, with an additional duty of 15% on white calicoes.

The above policy of differential duties on finished products of India especially of Bengal became more apparent at home. Baines provided a statistical data to describe definitive degree and magnitude of duties imposed on cotton goods imported from India and especially from Bengal. His data displays a continuous and rapid increase in import duties on white calicoes, muslins and nankeens etc. of Bengal. Similar duty was imposed on sugar that amounted to 16s. 3d% imported from East India in 1790 which was designed as purely accidental and not prohibitory.

A deeper analysis of these imperial impositions appropriately indicates that these policies were designed to promote proto-industry

77. Edward Baines, History of the Cotton Manufacture in Great Britain, (London, 1835), pp. 73, 74. Rates of duty on cotton goods imported into England.

Year	East Indies White Calicoes			East Indies Muslins and Nankeens		
	Per Piece s - d	Per Ct. advalorem £ - s - d		Percent £	advalorem s - d	
1787	5 - 3	16	- 10	- 0	18	- 0 - 0
1797	5 - 9	18	- 3	- 0	19	- 16 - 0
1798	5 - 9	21	- 3	- 0	22	- 16 - 0
1799	6 - 8	26	- 9	- 1	30	- 3 - 9
1802	6 - 8	27	- 1	- 1	30	- 15 - 9
1803	_____	59	- 1	- 3	30	- 18 - 9
1804	_____	65	- 12	- 6	34	- 7 - 6
1805	_____	66	- 18	- 9	35	- 1 - 3
1806	_____	71	- 6	- 3	37	- 7 - 1

78. See, Three letters addressed to a Friend in India by a proprietor principally on the subject of Importing Bengal Sugars into England, (London, 1792-1793), pp. 8-11. Even then, the net profit fetched by the import of sugar in England during early 1790s amounted to about 27%.

of Britain to make transition into industrialization by converting Bengal into raw material producing province to feed British factory industries especially the cotton and silk. In India, in Bengal in particular, during later half of the 18th century, it was the British core who designed the pattern and structure of administration, land revenue system, demand of various proto-industrial products and its supply according to their industrial needs. In course of the 18th century the Company's administration provided possible promotion to the cultivation of those crops needed for the British industry. Therefore, important crops like indigo, opium, tobacco, jute, sugarcane, sericulture etc. were offered official encouragement and opportunities to be cultivated.<sup>79</sup> This motive of British industrialists did not necessarily result in the decline of the proto-industrial system of Bengal, but the process of de-industrialization in embryonic stage was gradually taking shape, and in the last decade of the 18th and first half of the 19th century de-industrialization took a definite shape. This is especially evident in the

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79. For detailed examination of indigo cultivation and facility for its cultivation in Dinajpur district, Saran district etc. see letter Nos. 4811, June 19, 1795, No. 15; 4812:4858-16 June, 1795, No. 49 and 4859, June 16 of W.W. Hunters, Bengal Ms Records: A selected list of 14,136 letters in the Board of Revenue, Calcutta, 1782-1807 with an introduction and Index, Vol. II, (London, 1894), pp. 131, 135. The Company's advances to the indigo manufactures between 1793 and 1795 were roughly varying between 11 lakhs and 14 lakhs of current rupees i.e. £ 110,389, ₹ 102,045 and £ 137,148 respectively for the years 1793, 1794 and 1795. See Amlesh Tripathi (ed.), Fort William-India House Correspondence; Vol. XII, 1793-95, (Delhi, 1978), p. 5. For importance of opium and cultivation of opium see letter No. 6767, August, 11, 1799, of W.W. Hunter, Bengal Ms Records: A selected list of 14,136 letters in the Board of Revenue, Calcutta, 1782-1807, with an introduction and index, Vol. II (London, 1894), p. 301. Also see Amlesh Tripathi (ed.), Fort-William-India House Correspondence, Vol. XII, 1793-95, pp. 8, 10 for monopoly and importance of opium for British trade triangle. Also see P.C. Gupta (ed.), Fort-William-India House Correspondence, Vol. 13, 1796-1800, (Delhi, 1959), XXI, XXII etc.

case of cotton textile industry. Despite bad qualities of Indian cotton, its import in England reached 1/6th of its total imports in the most favourable year 1799, but in rest of the years it amounted on an average to 1/25th of the total import.<sup>80</sup>

But, the Britisher's and their servant's goods were transported, bought and sold duty free in Bengal. Therefore, the inland trade of Bengal soon grew into a vast monopoly in the hands of the servants of the company and their gumāshtas.<sup>81</sup> The use of dastak as opined by K.K. Datta began in 1704. It caused great loss to the nawab's exchequer and the local merchants who had to pay customs

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80. The quality of Indian cotton was far inferior than American or Egyptian cotton, which formed most of the part of cotton import to Britain during the later half of the 18th century. American or Egyptian cottons were lightly attached to the seed, while most of the Indian cottons attached tenaciously to the seed. Bengal's most of the cottons were inferior to Gujarat cotton. The seed was also exposed to a rougher usage in such varieties and was more liable to be broken and crushed than in those in which it is easily separated from the seed. The experiment done during the early 19th century through trials showed that the deterioration observed during the trials in the quality of the lightly attached Egyptian cotton was at the most only 7% of the value of the best sample, it amounted to 32% in the case of Madras cotton. See Dr. Forbes Watson, Report on cotton jins and on the cleaning and quality of Indian Cotton, Part I, (London, 1879), pp. 2-3. For import of cotton in Britain see John Chapman, The Cotton and Commerce of India. (London, 1851), p. 64. For quality of Indian cotton and import of Dacca cotton see J.F. Royle, On the culture and commerce of cotton in India and elsewhere, (London, 1851), pp. 127, 128, 131. "The exports from Dacca to Europe of raw cotton amounted in 1789 to 12 lacs of rupees worth. In the year 1813, they did not exceed 3.5 lakhs and 1817 ceased entirely". Therefore, the increased demand of Indian cotton in Bengal increased the prices of cotton. Upon the commencement of the monopoly cotton was sold at the rate of 16 and 18 Rs. per maund of about 80 pounds weight, were soon run upto 28 and 30 rupees. See William Bolts, Considerations on India affairs particularly respecting the present state of Bengal and its dependencies, (London, 1772), p. 196.

81. J. Talboys Wheeler, Early Records of British India: A History of the English Settlements in India, (Delhi, 1972), p. 300.

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 according to the current rates. For these inland trades a network of the Company's factories and sub-factories was built at convenient spots. In this way the Company, their servants and their hirelings earned great profit. To do away with these malpractices and the exactions of chaukis etc., the Company established a number of dastak peons with badges carrying a Persian inscription signifying their being the Company's servants. With every dastak one of these peons was sent who was responsible for the goods passing free of all duties and impositions. After finishing his work the peon was ordered to return the dastak to the President so that the further use of the dastak may be abandoned. In 1759 the Court of Directors expressed their dissatisfaction with the measures taken, and introduced English colours for the protection of persons working under

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 them. Vansittart realised the abuse of dastak and agreed to impose duties on all Company's inland trade at the fixed rate of 9% on the prime cost at the places where the goods were provided. But the Calcutta Council rejected the plan outright and decided that the English were entitled by the famān to trade in country produce duty free. The nawāb could be allowed a 2.5% duty on salt only and the gunāshatās of the company kept outside the jurisdiction of

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82. See K.K. Dutta (ed.), Fort William-India House Correspondence, Vol. I, Introduction, p. XLIV.

83. H.N. Sinha, (ed.), Fort William-India House Correspondence, Vol. II, 1757-1759, (Delhi, 1957), See Introduction, p. XXXI-XXXII.

nawāb's officials.<sup>84</sup> Finally, in March 1773 Warren Hastings issued new regulations, by which the petty chaukis were abolished except 7 and a single uniform duty of 2.5% was imposed to be paid by all alike—the Company, its servants, Europeans and Indian Merchants.<sup>85</sup> Up-till now, proto-industrialization received some kind of encouragement in one way or another because the Company and her servants placed orders and advances to the weavers. But from now onwards, proto-industrialization of Bengal received very little or virtually negligible stimulus from foreign and Bengali merchants.

During the later half of the 18th century various duties including custom, town, police, re-export and re-import duties were imposed on goods imported and exported from Bengal. Various rules were promulgated to promote partially or wholly the Company's industrial interests in Bengal.

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84. See, C.S. Srinivasachari (ed.), Fort William-India House Correspondence, Vol. V, 1764-1766, (Delhi, 1962), pp. XVIII-XIX. But there were instances which show that Vansittart and his gumastās were indulged in such actions. This is quite clear from the demand of Messrs. Johnstone and Hay to set up an inquiry on nawāb's allegations when he says, "Mr Vansittart's own particular Gomastas shall be excused the duty laid on the trade of the company, from the one part of the country to the other in case they produce Mr Vansittart's public and private dastak ..... it will appear, that a private agreement has been entered into between Mr. Vansittart and the nawab to put all the trade into Mr Vansittart's hands, which the rest of the English were deprived of by the treaty laid before the Board". See, Extract of consultation of March 28, 1763. Johnstone and Hay's Minute. Quoted in, Narrative of the Transactions in Bengal from the year 1760 to the year 1764. During the government of Henry Vansittart, Vol. III, (London, 1966), pp. 77-78. Also see, copy of a letter from the nawab to the Governor, Dated March 22, 1763, for the provision of the Company's duty-free trade. This letter is quoted in the Narrative of the Transactions in Bengal from the year 1760 to the year 1764. During the Government of Mr Henry Vansittart, Vol. III, (London, 1966), p. 80.

85. R.P. Patwardhan (ed.), Fort William-India House Correspondence, Vol. VII, 1773-1776, (Government of India Publication, Delhi, 1971), p. XXVI.

Goods exported from Company's provinces had to pay an export-duty of 2.5% on the valuation specified in the rates books; goods imported in Company's provinces with a rowannah secured at any of the custom houses in that district had to pay an import duty of 2/2% on the valuation specified in the Banāras rowannah and on those goods imported to Company's provinces from dominions of excellency without passing through the District of Banarās was also liable to pay an import duty of 2/2% on the valuation specified in the rates book. Merchants importing or exporting goods to or from the Company's provinces had to pay the duties before their boats arrived opposite to the custom houses. But the boats tried to evade custom duties by passing the said station without paying the customs and securing a rowannah and if traced and stopped were subject to double duties.<sup>86</sup> The goods invariably confined to articles.

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86. New Custom houses were constructed at Manjee and Chawsah. See Board of Revenue (customs), proceedings, Vol. 1, (9th May-15th August, 1788); pp. 149-152. These chaukis were authorised by the government to stop all the boats loaded with merchandise attempting to go out of the Company's provinces without having paid the export duty and taken out a rowannah in the manner collected at other chaukis. If the merchandise was of a superior quality whereas the merchant had applied to secure a rowannah for goods of different or inferior quality, the custom collector had been authorised either on suspicion or information to stop any good passing through his station. He had been also authorised to examine any part of such goods in the public cutchery, and if the fraud detected he had the power to detain the goods and transmit the necessary proofs to the Board of Revenue who had final authority to direct the order to confiscate the same (the goods). These chaukis were opened every day except Sunday. Such rowannahs had to be sealed and signed by the collector, the darogāh, the munsif, or accountant etc. No collections either on account of fees or otherwise should be levied by the collector or any of his officers on goods imported or exported to or from the Company's provinces beyond the duties specified. If an officer was practising the prohibitory order was subject to be dismissed from his employment. Such officer was also subject to such fine as the board of revenue may think proper to impose not exceeding his salary of six months. A register of all rowannahs granted for goods imported and exported into or from the Company's provinces be prepared and transmitted on monthly or annual basis to the Board of Revenue. But instances were there to demonstrate that such prohibitory actions were practised by British officials.

of provisions and liquors, for gentlemen residing the up country in the civil and military services were offered free passports. The natives furnished the signature of Governor-General and obtained an affidavit of having no merchandise were also given a free passport.<sup>87</sup> The river collections were abolished in 1790. The police tax of Calcutta increased and became heavy. Prior to the abolition of the Calcutta Government custom house, all exports, under foreign colours had paid a duty of 2½% to that office. But in 1790 this duty was abolished. Foreign ships clearing out for sea from foreign settlements had to pay no duty now, although it was 2.5% prior to the abolition of the government customs.<sup>88</sup>

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87. Board of Revenue (Customs), Proceedings, (4th January-29th Dec, 1790), Vol. 2, pp. 43-44.

88. Due to the abolition of river collections on the ships loading in the river excepting foreign vessels, the Dutch, French and Danes conveyed away sugars and gruff articles 4% cheaper than the British and 2% cheaper than the manufactured ones. See Board of Revenue (Customs) proceedings, (4th Jan-29th Dec, 1790), Vol. 2, p. 187. For police tax see, pp. 187-188. The police tax was fixed by a sanctioned law. As a result many merchants were adopted the method of depositing their goods at foreign settlements, bring musters only to Calcutta. For abolition of export duty of the Calcutta custom house see letters from the Custom Master, quoted in Board of Revenue (Customs) proceedings, 1790, Vol. 2, p. 199. For other provision see pp. 201-202, 204. "Public notice is hereby given to all persons, that all goods and merchandise, which contrary to the said rule shall be laden, or attempted to be laden on board any ships or vessel, lying opposite to the town of Calcutta, without having paid the Calcutta duties or which shall be laden or attempted to be laden, either above or below, the said town of Calcutta, for the purpose of evading the Calcutta duties, will, upon detection be seized and confiscated." The person or persons who informed such a contraband transaction, had to be rewarded upon the seizure and confiscation of any such goods or merchandise to the tune of one half (½) of the net produce of the goods. Those goods exported at Calcutta and Baranagar paid it to the Calcutta Government custom House and those exported at Bandell, Chinsura, Chandernagore and Serampur paid it to the Hughli Custom House.

One important provision was implemented on 1st October, 1792. According to this regulation, the custom master was instructed not to refund half the duties on certificates from other presidencies in future which was usually the case previously.<sup>89</sup>

A comprehensive study of various duties, in Bengal on raw materials and finished goods demonstrates that these impositions of town, transit, import, export, police, and other duties on various parts of Bengal were guided by British industrial interests. They wanted to make Bengal a very important market for their factory finished products. If the proto-industries of Bengal existed to manufacture very cheap finished goods compared to Britain, British factory finished products found no outlet there to penetrate into Bengal markets, because quality-wise Bengal's proto-industrial products were far superior. And secondly, the natives of Bengal required very little luxury goods. Now, there was only one channel left. They artificially increased the production cost by imposing various taxes on raw materials and finished products. This will be evident from the following example. A transit duty of 3.5% was imposed, excluding town duties which was at the rate 2%. And importation by

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89. See, President and Members of the Board of Revenue, 1st October, 1792, Board of Revenue (Customs), Proceedings, 16th Jan-28th Dec. 1792, Vol. 4, pp. 285-286. Actually, from the certificates of other Presidencies, it does not appear clear that whether the goods were shipped from Madras on account of bad markets or were purchased there perhaps two or three hands from the persons who paid the duties for the purpose of sending to Bengal on speculation. If they were sold here it would be to an advantage, if returned unsold, the duties levied at Madras had to be refunded on their re-exportation goods sold here or bartered at the Port of Calcutta were not entitled, on exportation to any duty or certificate because it was a mercantile transaction on speculation but the duty was returned on all goods exported that have not changed owners.

sea at the Port of Calcutta in total 7.5% duty was imposed, which formed the custom and town duties at the rate of 3.5% and 4% respectively.<sup>90</sup> If we include police tax, its magnitude further went up. All these taxes were also applicable to finished proto-industrial products. If we calculate, in all, the production cost of the cotton proto-industrial products, it became costlier than British machine products and, therefore, lost many Bengal's as well as foreign markets. Thus, in course of 19th Century, de-industrialization happened in absence of the proto-industries.

During the intitial phase of Company's period, considerable demands and advances to the proto-industrial producers came from Dutch, French, Danes and Ostenders, which was injurious to the development of industrial health of Britain. That was why the Britishers in the long-run adopted the policy of compulsory differential advantage by force. It was the Ostender Company and factory at Bānkī-bāzār which was first ruined by Clive in 1752. In 1759 the Danish Chief factor defected to the English bringing with him Rs. 350,000 in cash. Now, Serampore ceased to take active part in the affairs of Bengal and eventually in 1845, all the Danish settlements in

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90. Miscellaneous Records relating to Commerce, Custom, Salt and Opium. Copy of Finance Committee's report, (dated 15th Jan, 1809), pp. 23, 24, 25, 30. From the same piece of evidence it is possible to display that the cotton imported from right bank of the Yamunā into the ceded and conquered provinces was liable to a duty of 8 ānas per maund. On the same cotton and cotton produced in the ceded and conquered provinces, a duty of 4 ānas per maund was imposed on its exportation from there. On both kinds of cotton imported into Banāras (Vārānāsī), a duty of 2.5% was imposed on a valuation of Rs. 6 per maund. On the cotton imported from Deccan into Banāras, a duty of 5% was laid on a valuation of Rs. 8 per maund. Therefore, differential duty existed.

India were sold to the English for £ 20,000.<sup>91</sup>

It was the policy of retrenchment and economy in all their possessions in India, the prevalence of corruption, dishonesty and private trade, the large number of desertions to the ranks of the English and the decline of the Dutch maritime power, that brought about the downfall of the Dutch.<sup>92</sup> The process started during the 1750s, finally, ended by the treaty of 1824 when all the Dutch settlements, except Balasore (which was ceded in 1846) were made over to the English and Daniel Overbeek, the Director and 8 others Dutchmen were granted pensions.<sup>93</sup>

91. Owen C. Kail, The Dutch in India, (Delhi, 1981), pp. 136-137.

92. The Hollanders and Zeelanders were basically sea-farers. They did not confine themselves to the transport of goods but were just as ready to ship cargo elsewhere. The maritime industry flourished especially in the northern lowlands, where little land on very high rent was available. Due to the scarcity of cheap land many people of moderate means invested their savings in buying shares in ships, in the fishing industry etc. Further encouragement to Dutch maritime trade and industry offered by the rederij system, whereby a group of people would join together to buy, build, charter a ship and its cargo, a part-owner usually being the master himself who was personally interested in the sale of cargo. The evolution of the 'fluit' or fly boat, manned by relatively small crew, yet carried a bulky cargo was one contributory factor to the profitability of the maritime trade of the shipowners. It was these techniques which enabled the Dutch to offer lower freight rates than any other nation in Europe. See, Ibid, pp. 7-11. During the first decade of the later half of the 18th century (1755-1760), English trade in opium and saltpetre crossed Dutch trade. p. 134. Throughout the 18th century dishonestly among Dutch merchants and officials was a wide spread phenomenon.

93. In 1781, Ross was instructed to surrender Chinsura to English to prevent it falling to the French. It was retaken in 1795 when France declared war on England and Holland. Chinsura was first administered by a special commissioner and then by the judicial magistrate of Hughli. Chinsura was resorted to Holland in 1817, but the Dutch Government was no longer interested in trading in India. See Ibid, p. 139.

The French settlement of Chandernagore founded by Bourreau-Deslandes in 1690 gained importance as proto-industrial and commercial centre under the governorship of Dupleix(1731-1741) as a result of his untiring efforts. Before 1763, the trade of Bengal was the most important branch of the commercial operations of the French Company and in 1763, this aim was further consolidated.<sup>94</sup> At this critical juncture, the affairs of French Company were in the hands of an old man called Renault de Saint Germain who lacked in firmness in dealing with the English. The English in their bid to achieve a monopoly of the Bengal trade and to limit the French trade, applied every means to evade the execution of treaty provisions by imposing new restrictions on French trade either directly through their own agents or indirectly under the guise of the authority of the Nawab. The French dependence on English for the supply of saltpetre, the subjection of French shipping to vexatious inspection

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94. The trading rights and privileges in Bengal granted to the French by the Parwanās of the local rulers. The principal articles of trade were silk, cotton goods of many varieties, opium, saltpetre etc. By the terms of the treaty of Paris, 1763, the French regained their old trading rights. See, S.P. Sen, The French in India, 1763-1816, (Firma K.L. Mukhopadhyaya, Calcutta, 1958), pp. 82-85. Law wrote in his Memoir of 1767, "everybody knows that Bengal is the principal place for the commerce of the Company; it is even the only place which can procure sufficient profit to cover our expenses in India".

95. This aim of the English Company's officials is clearly interpreted on basis of the French contemporary records. These French records contain large number of letters exchanged between the councils of Chandernagore and Calcutta. Large number of complaints were recorded in the different French subordinate factories against the activities of the English agents and the agents of the nawābs acting under English instigation. The main subjects of complaint on the French side were: ill treatment of French agents, physical violence against French agents etc., Ibid, pp. 85-86.

by the English, the exactions by the Nawāb's officers in the transit of French goods, the exactions of internal customs by Nawāb's officers at the French subordinate factories, and the difficulties encountered by the French in the procurement of Cotton, Silk, Opium etc. from different places of Bengal were some of the important examples of English interference in the commerce of French in Bengal. Most of the Bengali proto-industrial producers were strictly controlled and compelled to sell their proto-industrial products to the English Company. The vehement protests of the French were of no avail. The French trade after 1765 decreased <sup>96</sup> (especially of Dacca). The French Company's abolition in 1769 and later the outbreak of hostilities between English and French offered an opportunity to English to establish a monopoly in Bengal. Peace treaty was concluded in 1783 and equal terms were offered to the French. <sup>97</sup> But, this treaty was not a success and a new convention was signed on the 31st August, 1787 at Versailles. According to the articles of this treaty the freedom of trade by French subjects in Carnatic, Madura, Tanjore, Northern Sarkār, Bengal, Bihar and Orissa was provided (article-1) with French right to import salt in Bengal limited to 200,000 Mds. (article-2) and finally, the English agreed to deliver to the French in Bengal

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96. S.P. Sen has observed that "after 1765 the French trade there (Dacca) was valued at 5 to 6 hundred thousand livers per year." Ibid, pp. 91-92.

97. The articles 13th, 14th and 15th of the peace treaty of 1783 were related to the restitution of territories in India. These articles also contained specific provisions that assured the complete freedom of commerce to all French subjects in India, trading either individually or collectively through a Company. These articles also provided the all commercial rights and privileges enjoyed by the old French Company.

18,000 Mds. of Saltpetre and 300 chests of opium (article-3) at prices current before the last year.<sup>98</sup> But this was not a long-term settlement. Here, also Englishmen's industrial interests were clearly exposed.

It was again the industrial and commercial interest of the English that shaped the land revenue system of Bengal. The original aim of the Company's officers was to decrease the purchasing power of consuming classes, the proto-industrial classes and others by applying any means. Two fundamental facts governed this economic relationships of the British Company in Bengal during the later half of the 18th century: the first was to deepen and intensify the existing poverty among these classes to prevent them from buying raw materials and making finished goods to sell to the highest bidder, the other was the lack of any kind of contractual law which was binding on both buyer and seller.<sup>99</sup> This factor in combination with inefficiency of agrarian implements increased the agricultural production cost in Bengal by 12 fold compared to Britain during the later half of the 18th century. If we include this

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98. After 1785, French Trading activities in India and particularly in Bengal intensified. The main factor behind this spurt of French trading activities was assigned to a new Compagnie des Indes, established in 1785, commonly known as the Company of Lalonne. The Royal Arrit dated 24th April 1785 and another arrit of the 15th May 1785 appointed 12 administrator and Moracin as Administrator General in India. The share capital, originally fixed at 20 million livers, later increased to 40 million livers by a Royal Arrit dated 21st Sept, 1786. The monopoly was granted for 15 years. But, it was not a success because of French revolution. See S.P. Sen, loc.cit., pp.420-421.

99. Ainslee Embree, Charles Grant and British Rule in India, (George Allen and Unwin Ltd., Great Britain, 1962), pp.70-71.

100. A.I. Levkovsky, Capitalism in India: Basic Trends in its Development, (Delhi, 1966), p.25. "In Bengal, the value of the gross produce of the land is little more than £ 1 an acre ... in Britain it is £ 5 per acre and the expense of cultivation is less than one-third of the gross produce. So that though the gross produce of Great Britain exceeds that of Bengal five-fold, its net produce exceeds that of the latter 12 fold."

cost in the production cost of proto-industries during period under review in Bengal, we will have a very high rate of proto-industrial production cost.

The raiyats were required to pay two types of land revenue:

(i) the nirkh which theoretically represented the division of the produce at the harvest time and constituted the aṣāl-jama' and the (ii) the abwābs, which were demands locally imposed on the raiyats and were partly of a provincial and partly of a local character.<sup>101</sup> It was on 12th August 1765 that the English East India Company achieved the Dīwāni of the provinces of Bengal, Bihār and Orissa. According to the terms of this grant, the Company would remit annually a sum of Rs. 26 lakhs to royal sarkār. The agreement of 30th Sept 1765 between the Nawāb and the Company settled the expenses of nizāmāt and the mode of payment by the Company to the Nawāb. According to this agreement the Nawāb agreed to accept annually the sum of sicca Rs. 53,86,181-9 as adequate allowance for the management of the nizāmāt. Oppression of the raiyats was further deepened by the treaty of 16th August 1765, 19th August, 1765 etc. on questions of war and the tribute to be paid to the Company by

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101. W.K. Firminger, Historical Introduction to the Bengal Portion of the Fifth Report, (Indian Studies Past and Present, Calcutta-1962), p.50. In 1722, Murshid Quli Khān fixed the land revenue of Bengal at Re.1 Crore and Rs.42 lakhs. Under Mir Qasim in 1763 it rose to an additional sum of Re.1 crore and Rs.26 lakhs on the territory remaining under his revenue administration (excluding Burdwan, Midnapur, Chittagon and 24 Parganas). By imposing abwābs, resuming profits of jāgīrs and carrying hasto-o-būds (Surveys), Mir Qasim nearly doubled the revenue of his territory in course of 3 years - from 1760 to 1763. Although the additional impositions were never collected in full, yet the sternous efforts to realize it began to produce structural distortions in the zamīndārī system. For this see Ratnalekha Ray, Change in Bengal Agrarian Society C.1760-1850, (Manohar, 1979), p.38.

the Nawāb.<sup>102</sup>

Now, the Naib Diwān realized that his existence in the office depended largely on the ability to collect as much revenue as possible. Amils now became more significant than zamīndārs. In many districts they agreed to pay a fixed sum, the men who offered the highest being preferred and they practically became farmers of revenue. This was really a destructive plan.<sup>103</sup> Thus, Mīr Qāsim was the first who adopted the principle of raising larger sums from the province.

Verelst (1767-69) decided to put an end to this state of affairs by appointing supervisors. The process commenced on 16th August 1769. The supervisors were asked to proceed to those districts which had been let out to farm while in other districts they were asked

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102. Niranjan Dhar, The Administrative System of the East India Company in Bengal: Political, 1714-1786, Vol. I, (Calcutta, 1964), pp. 7-8. The sum assigned to the management of the niẓāmāt was appropriated through following manner: Rs. 17,78,854-1 were paid for the household expenses of the Nawāb and Rs. 36,07,277-8 were paid to meet the maintenance costs of horses, sepoy, peons etc. Also see Ratnalekha Ray, Change in Bengal Agrarian Society C. 1760-1850. (Delhi, 1979), p. 39. For the articles of the treaty of 16th August 1765 between nawāb 'Shujab-ul-Doula, the nabob Najum-ul-dowla and the English Company' executed at Allahabad see British Parliamentary Papers of the 18th Century, Rare and Authentic Documents, George III, (East India Company, 1767 to 1773), (Delhi, 1985), pp. 52-53. According to the terms and conditions of the treaty of 16th August 1765, "in consideration of the great expense incurred by the English Company, in carrying on the late war, His Highness agrees to pay them 50 lacks of rupees in the following manner, viz., 12 lacks in money, and a deposit of jewels, to the amount of 8 lacks, upon the signing this treaty; 5 lacks one month after and the remaining 25 lacks by monthly payments, so as that the whole may be discharged in 13 months from the date here of." According to the terms of the treaty of 19th August 1765, the Nawab Nizam-ul-Dawla agreed to pay his majesty out of the revenues of Bihar, Bengal and Orissa, the sum of 26 lakhs of rupees per month, without any deduction for batṭa on bills of exchange by regular monthly payments amounting to Rs. 2,16,666-10-9 per month, the first payment to commence from the 1st Sept 1765.

103. For the details of the deceit, abuse of trust, oppression of the peasantry etc. by this method, see N.K. Sinha, The Economic History of Bengal: From Plassey to the Permanent Settlement, Vol. II, pp. 34-35.

to operate after the collections were over. The institution of supervision was regarded as annulling the authority of āmils and was opposed by them although āmils were told the supervisors (āmīns in their language) would not interfere with the business of collection.<sup>104</sup> The system of revenue farming through āmils was finally abolished by the end of 1770 and the āmīns became collectors in 1772.<sup>105</sup>

Under this system, a public advertisement had been made for would-be revenue farmers. The proposals offered were vague, uncertain and very low. Therefore, the committee decided to have a public auction, though with ruinous effect. Ta'alliqdār and petty zamīndārs who paid revenue directly at Murshidābād were exempted from public auction. Settlement was made with these ta'alliqdārs and zamīndārs on the footing of farmers. They had to enter into all the

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104. It is believed that the āmils caused heavy expense. Very little benefit was derived from their services. It was pointed out by āmīns at Rungpore that the āmils of Rungpore was paid Rs. 52,000 Narayani Rupees of which Sebundy was 27,000 and commission 25,000. The servants employed by āmils were paid out of sebundy. Thus, it was these evil practices all over Bengal that encouraged the appointment of āmīns to stop the evil practice of the āmils. Reza Khān at first made a weak protest against the challenge of controlling power of āmils by supervisors or āmīns. See Ibid., p. 37.

105. The system of revenue farming through āmils was entirely displaced by the end of 1770 by the Court of Directors expressing their approval of the measure in their letter dated 25th March 1772. Ibid., pp. 37, 38, 68, 69. Most of the Englishmen connected with land-revenue collection were in favour of a three or a five year farming of land revenue collection as the best method to be adopted. Supervisors (āmīns) like Becher, Boughton Rous, Lawrell, Ridger, Harwood and others laid especial emphasis on this measure as the Panacea for all the ills. This system was first introduced in June 1772 at Nadia. It was decided by the Committee of Circuit headed by Hastings, subordinated by Samuel Middleton, James Lawrell, John Graham and Philip Milner Dacres, all seniormost servants of the Company that the Nadia model of farming (system) had to be introduced in other districts as well.

conditions of a farmer's paṭṭa (written lease) and furnish responsible securities. In these bidding hereditary zamīndārs were preferred. The lease (Paṭṭa) was for five years. Later, a new experiment, under which a whole district was farmed out was tried. By now a farming system was established throughout Bengal; a new departure rather than a variation of an old system.

One of the most glaring characteristics of five-year farming system was over-assessment throughout Bengal providing sufficient fertile ground to Calcutta baniāns to secure the most beneficial farms. Zamīndārs tenacious of their hereditary possessions outbidding others composed the body of farmers under this new system. A large zamīndār rarely supervised revenue collection; the zamīndārī dīwān with his subordinates managed the collections and obtained the revenue from mofusils. In large zamīndārīs the top intermediaries were kūtkinādārs and mustājirs, who contracted to pay a fixed revenue and yielded income out of any excess collections made by his subordinate payers. Below these intermediaries were the shiqq-dārs in large zamīndārīs, who were the highest intermediaries in smaller zamīndārīs.<sup>106</sup> Some of the principal farms were held by the Indian underlings of the Company's servants, but the real farmers

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106. For the farming system see Binod Shankar Das, "Agrarian Relations in the South West Bengal Presidency"; Journal of the Asiatic Society, Vol. 15, Nos. 1-4, (1973), pp. 112-116. See also N.K. Sinha, The Economic History of Bengal From Plassey to the Permanent Settlement, Vol. II, (Calcutta, 1962), pp. 68-69. For the impact of this system on Peasants and zamīndārs see Ratnalekha Ray, Change in Bengal Agrarian Society, C. 1760-1850., pp. 41-45. Also see John R. McLane, "Land Revenue Transaction in 18th Century Western Bengal," Bengal Past and Present, Vol. CIV, Parts 1-11, Nos. 198-199, (Jan-Dec, 1985), pp. 7-8. John Shore viewed this new farming system as one that was introduced to securing for the baniān the most beneficial farms. Francis argued "they strained the country in order to accumulate a rapid fortune and in the end perhaps obtaining the remission in the very lands, of which they were themselves farmers and collectors put those remissions into their pockets".

were their masters. Some of the amīns (revenue farmers) were ignorant of the mode of collection which was productive of extortions and it were they who were much more exposed to such artful agents. The farming system was discredited by 1777 as was evident from Amini Commission Report, the Hastings-Barwell Plan and Francis Plan. 157

Consequently, Hastings restored the zamindārī system in 1777 in practically the older forms with certain modifications. Police, embankments, customs duties and other old functions were reassigned to the authority of the zamindars. This system was in operation till 1789. But this was again not a success. - 107

The British Company always viewed the zamindār as simple revenue collector and ousted them without any hesitation when more lucrative terms were offered by others. In such situations, the zamindars were least bothered for the welfare of the ra'i'yats, improvement of the lands, and the interests of the state rather than their objective of pecuniary gains. Thus the improvement of the soil was prevented due to ignorance, possessions too large and too much power over immediate cultivators. It was the zamindār 108

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107. The zamindārī system was restored on the basis of recommendations passed by Amini Commission Report, Hastings-Barwell Plan and Francis Plan which condemned the failure of granting Pattas to ra'i'yats and the failure of most of the farmers and the accumulating arrears. See N.K. Sinha, The Economic History of Bengal, Vol. II, p. 89. Under the zamindārī system, at the lowest rung of the chain was the mandal (village headman) who worked as mediator between ra'i'yats and the petty collectors, with the help of a Patwari (the lowest officer of the zamindar). The office of the Patwari was hereditary and could not be brought under proper bureaucratic control of the zamindār. Thus, the proper zamindārī bureaucracy started at the level of the gunāshtās, who was appointed to control the Patwari. The gunāshtās paid their revenues to Shiqdars, (a temporary officer). For details of the administration of zamindārī system see Ratnalekha Ray, op.cit., pp. 45-46.

108. J.C. Marshman, The History of India, Vol. II, (London, 1867), pp. 30-32. Also see James Mill and Wilson, The History of British India, Vol. V., pp. 344-346.

who arranged loans for the ra'iyats on interest. The bankers never extended loans to zamīndārs to clear of the balance of unpaid revenues but extended loans for two or three years with a view that in case of non-redemption he could press for the auction of his zamīndārī. If the zamīndār refused to place his zamīndārī at the public auction for sale, the banker would file a suit in the Court of Law for the payment of loan. Therefore, the bankers had secret designs to purchase zamīndārī by extending financial securities to the zamīndārs.<sup>109</sup> The magnitude of land revenue demand was further diversified by the introduction of discretionary imposts called the abwābs, taken proportionally from all revenue-payers in each zamīndārī. In fact, during the Company period the abwāb had no general proportional relation to the aṣāl-jama' since in many areas of Bengal some abwābs had been consolidated in the aṣāl-jama' figure and thus the figure never remained aṣāl or original.<sup>110</sup> From this critical examination it appears that the purchasing power of the poor consuming classes, the old zamīndārs, the proto-industrial

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109. Z.U. Malik, "Agrarian Structure of Bengal at the Beginning of British Conquest: A Contemporary Persian Account, Medieval India: A Miscellany, Vol. IV, (A.M.U., 1977), p. 188.

110. In one area the total demand might consist of one part of aṣāl-jama' and five parts abwābs while in other areas the proportion might be reversed. The great increase in the demand of state's revenue during the 18th century had taken place under the headings abwābs. Bengal had never systematically measured and the abwābs imposed on ra'iyats in Bengal was rarely based on detailed survey of the current state of cultivation. John Shore estimated in 1789 that the cost of revenue collection from the ra'iyats by the zamīndārs downwards equalled 15% of the Government's net demand and the profits of the intermediaries amounted to an additional 35%. Therefore, approximately 1/3rd or a third of what ra'iyats paid had taken by the zamīndārs and their subordinate collectors. See John R. McLane, loc. cit., pp. 11-17.

classes and others have declined considerably. The new zamindars were least or not interested to provide stimulus to the proto-industrial system of Bengal because of their money-mindedness and also because of the instructions tendered by their British superior. Thus, the foreign as well as inland demands for proto-industrial products of Bengal had been considerably reduced due to high production cost, competition from cheap factory products. Hence, the considerable reduction in the demand from international as well as internal markets for the proto-industrial products in combination with varieties of other factors was largely responsible to a substantial reduction in the proto-industrial activities in the last two decades of the 18th Century Bengal.

CHAPTER-III

AGRO - BASED CRAFTS

A systematic survey of spread of various crafts into the different parts of rural Bengal exhibits that proto-industrialization was a widespread phenomenon. Writing of crafts in the late 18th and early 19th century, Ghosal observed that most of the crafts of Bengal were organized on a domestic basis, although some state kārkhānas did exist<sup>1</sup>. There were similarities as well as diversities in the organization of different crafts of Bengal. Hence, it would be pertinent to study the various crafts separately in order to bring out their specificities and the changes that might have occurred during the period under study. It might help us to identify the factors which caused these changes. Since the manufacture of cotton textiles was the most important source of livelihood only next to agriculture and most widely spread of all industries in India, an attempt will be made to discuss various aspects of the mode of production of cotton textile industry first.

Agro-based proto-industries had deep rooted and wide spread in the 'pull', 'pull corridor' and some of the parts of 'neutral' areas of rural Bengal. Minor agro-based proto-industries were also found in the 'push' and 'push corridor' areas of rural Bengal. Some of the parts of the 'pull' and 'pull corridor' areas of rural Bengal were specialized in some agro-based proto-industries while other parts specialized in some agro-based proto-industries depending on the availability of raw materials. In 'neutral', 'push' and 'push corridor' areas of rural Bengal, agro-based proto-

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1. H.R.Ghosal, Economic Transition in the Bengal Presidency, (Calcutta, 1966), p.1.

industries were sparsely established because of the non-availability of raw materials, difficulty in transportation, sparse population, etc.

The proto-industrial producers of these regions had double occupations during most of the parts of the year. During sowing and harvesting seasons they had to work in agriculture for their livelihood and during off times they worked in different agro-based proto-industries for an extra earning.

## COTTON INDUSTRY

### HISTORY

The birth place of cotton manufacture is India.<sup>2</sup> The origin of the cotton craft can be traced back to the Harappan Civilization in the finding of numerous spindle whorls from the houses of Mohenjodaro which attest to the practice of spinning by the rich and poor alike. Fragments of finely woven madder-dyed cotton fabrics were discovered at Mohanjodaro. Recent excavations at Alangirpur (Distt: Meerut, U.P.) produced important evidence regarding cloth.<sup>3</sup>

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2. Edward Baines, History of the Cotton manufacture in Great Britain, (London, 1835), p.9.

3. For a detailed examination of the evidence see Indian Archaeology, 1958-1959, p.52. Also see M.K. Pal, Crafts and Craftsmen in Traditional India, (New Delhi, 1978), p.61. These evidences were provided by impressions on a trough. The yarn used in producing clothes seems to have been fairly fine, though not of uniform section. The technique applied was of plain weave, few scraps of cotton were found out sticking to the side of a silver vase. Chemical examinations of these silver vase show that the coarser varieties of cotton was utilised. Marshall maintains that "this discovery which is one of the most interesting of their minor discoveries made at Mohanjodaro, disposes finally of the idea that the fine Indian cotton known to the Babylonians as Sindhu and to the Greeks as Sindon was a product of the cotton tree and not a true cotton." For this see, S.P. Gupta (ed.), Costumes, Textiles, Cosmetics and Coiffure in Ancient and Medieval India, (Orient Publishers, Delhi, 1973), p.3.

For warmer textiles wool was utilised while for lighter one the cotton. The reference of cotton textiles as the customary wear of the Indians was repeatedly made during the time of Herodotus, the father of History, around 445 B.C.<sup>4</sup> Nearchus, the Admiral of Alexander the Great (327 B.C.) the observant navigator of the river Indus, whose memoirs have been substantially preserved in Arrian's History of Alexander, mentioned a kind of garment which was manufactured by the product of a tree much more whiter and finer than flax. This, he, probably recognised as cotton. Strabo, in his account of the Indians, referred to the flowered cottons or Chintzes and also celebrates the various and beautiful dyes with which their clothes were figured on the authority of Nearchus. It was Arrian who for the first time mentioned cotton as an article of trade in his valuable record of ancient commerce, called The circumnavigation of the Erythrean Sea.<sup>5</sup> In 73 A.D. Pliny was aware of the trade and manufactures of India.<sup>6</sup> The muslins of Bengal were then of superior quality and the Greeks named it as gangitiki after the sacred Indian river the Ganges.<sup>7</sup>

Ralph Fitch who visited Bengal in 1583, mentioned that the best and the finest quality of cotton cloth was produced at Sonargaon. Abū-l Faḡl also describes the manufacture of a very fine specie of muslin in great quantities at Sonargaon.<sup>8</sup> Bengal

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4. Edward Baines, loc.cit., p.17.

5. Ibid., pp.18-22.

6. Milburn, Oriental Commerce, Vol.2 (London, 1813), p.229.

7. Edward Baines, op.cit., p.23.

8. Abū-l Faḡl, Ā'in-i Akbarī, Vol.II, p.124. (Jarret's edition) Moreland has also quoted Abū-l Faḡl. See his, India at the Death of Akbar: An Economic Study, (Sunita Publication, Delhi, 1987), p.170.

calicoes formed a considerable part of the Portuguese exports to Europe during the 16th century.<sup>9</sup> The cargo of the Carrack taken by the English in 1592 consisted of calico lawn, broad white calicoes, coarse white calicoes, brown broad calicoes, canopies, towels, quilts and calico carpets etc.<sup>10</sup> Robert Orme in 1752 regarded the cotton manufacture of Bengal almost as a national industry in which man, woman and child participated considerably.<sup>11</sup> John Crawford talking of the muslin production of Dacca in 1830-31 maintained that the fine variety of cotton was produced in the neighbourhood of Dacca in the vicinity of the River Meghnā and its growth extended to about 40 miles along the banks of the Meghnā and about 3 miles inland.

#### CULTIVATION, VARIETY AND QUALITY OF COTTON IN BENGAL

The cotton plant described as Gossipum herbacium differs from the common cotton plant of Bengal.<sup>12</sup> Its different qualities are known as Phootee or Photā, narma, and biretta. In Bengal most of the districts produced different kinds of cotton.<sup>13</sup>

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9. Dibendra Bijoy Mitra, The Cotton Weavers of Bengal, 1757-1833, (Calcutta, 1978), p.9.

10. Milburn, op.cit., p.230.

11. Robert Orme, Historical Fragments of the Mughal Empire, (London, 1905), p.409.

12. James Taylor, A Sketch of the Topography and Statistics of Dacca, (Calcutta, 1840), p.130. It is different in respect of branches more erect, with fewer branches and the tubes of the leaves more pointed, its radish colour even the petiole and nerves of the leaves are less pubescent, longer peduncles etc. The staple of the cotton is longer, much finer and softer.

13. N.K.Sinha, The Economic History of Bengal From Plassey to the Permanent Settlement, Vol. I, (Calcutta, 1956), pp.103, 104-109. In Malda and in the aurg attached to it three sorts of cotton were produced: barrabunga, biretta and narma. The barrabunga was soft and excellent. The biretta was inferior to the narma. Three kinds of cotton were produced at Birbhum called the narma, the muhree and bogga. Narma of Birbhum was the best quality. At Radhanagore also three types of cotton were grown called Kaur, the muhree and the bhoge. The shape of the first was the best as it united strength with softness. In Hariyal Dessy, byratty and bhoga were produced.

In a whole year two crops were raised and they were gathered in April and September. The produce of the first season was the finest and is chiefly cultivated. The high lands were considered appropriate and were selected for this crop.<sup>14</sup> The cotton yielded on the high lands in the month of April were not considered so good as that of the vernal one and its inferiority was attributed to the vegetation of the plant being more rapid and, therefore, more weak.<sup>15</sup> Its fibre was warty and swelled on bleaching. The average price of undressed cotton in the district had been Rs. 3 per maund of 80 lbs. in the year 1789 and the net profit was meagre. In 1789 the price of cotton at Dacca was from 4.5 to 6.5 rupees per maund.<sup>16</sup>

Mr. Bazley postulated that the "Indian cotton is always of a rich creamy colour, and for its colour it is frequently used as a mixture to improve the colour of the worst or low American

14. James Taylor, A Sketch of the Topography and Statistics of Dacca, (Calcutta, 1840), pp. 131-132. Such lands were ploughed from 8 to 12 times, upto September and October when the seeds were sown. This was done in parallel rows, distant about a cubit from each other and thereafter they were moistened with water. The seeds for sowing were picked up carefully, dried in the Sun and were preserved in earthen pot well oiled, with its mouth stopped up, so as exclude the external air, were generally hung up to the roof of the hut where the fire was usually kindled. It impoverished the soil and the same field never produced successively more than two crops of good cotton. That was why land was required and allowed to lie fallow every fourth year. The northern division of the district produced the best cotton and was said to swell less than the produce of other parts of the country.

15. James Taylor, A Descriptive and Historical Account of the Cotton manufacture of Dacca in Bengal, p. 14.

16. J.F. Royle, On the Culture and Commerce of cotton in India and elsewhere, (London, 1851), p. 40.

cotton.<sup>17</sup> It was better in dye, its thread swelled in the process of bleaching, hence the cloth produced out of this cotton became more substantial in appearance. The value and quality of cotton depended on the length, strength, fineness, softness and equality of the fibre; which were modified by colour and cleanliness, that is freedom from knots and impurities, so that there may be less waste in spinning.

The quality of the cotton might be divided into four qualities - ordinary, middling, fair and fine. It was subdivided into the following categories: inferior, ordinary, middling, good middling, middling fair, fair, good fair, fine or good and fine.<sup>18</sup> By mixing different short together, and by careful management in preparing the mixture for spinning, the manufacturers could make

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17. See J.F. Royle, *Ibid.*, pp. 22, 23, 127. While the fibres of cotton were drawn out of the mass, it demonstrated many irregular twists to give them a jointed appearance. Under the microscope the fibre appeared to be continuous, moderately twisted, flat, ribbon-like, clear and transparent in the middle, and opaque towards each margin. The finer and more uniform the fibre and more inclined to twist, the better is suited for spinning into fine yarn. But if the fibre were short, broad and formed of flimsy ribbon, they were less suited for machine production, though they yet, be twisted into thread by the delicate fingers of the Hindu. Also see, Letter from the Secretary to the Court of Directors to the Secretary to the India Board, dated the 5th Sept. 1828, Reports and Documents connected with the Proceedings of East India Company in regard to the Culture of cotton wool, silk and indigo in India, (London, 1836), p. 350. Those cottons were produced in the neighbourhood of Dacca to the eastward covering the areas of Sonargang, Shitalbarry, Bajitpur and Junglebarry etc. The thread made of cotton produced to the South-east by Narayanpur, and Kanpur, swelled in bleaching but less than the Hindustan cotton. The thread of the produce of the country west and northwest from Dacca which covered the areas of Dimroy, Attya, Cogmaria, Harriyal, Radeshyr and Boosney, swelled much in bleaching, more especially if it be hard twisted. Also see W.N. Hunter, A Statistical Account of Bengal, Vol. VI, (London, 1876), p. 240. The Chittagong cotton was supposed to have possessed the facility with which it took colour in dyeing.

18. J.F. Royle, loc.cit., p. 128.

a substitute for almost any particular kind of cotton, except the very best. The long shaped cottons were generally used for the twist or warp, and the short shaped for the weft.

The Indian cottons appeared under microscope as less spiny, few flattened cylinders, with many flimsy ribbons and warty excrescence varying in diameters from  $\frac{1}{600}$  th to  $\frac{1}{1000}$  th of an inch, some are even  $\frac{1}{1500}$  th to  $\frac{1}{2000}$  th of an inch. In length differing from  $\frac{17}{20}$  ths to  $\frac{11}{10}$  ths of an inch.<sup>19</sup> The strength of attachment of the fibre to the seed determined the quality of cotton.<sup>20</sup> In the same variety of the cotton the percentage of clean cotton varied depending upon the season, the time of picking, the mode of cleaning and other accidental causes.<sup>21</sup>

#### IMPORT OF COTTON INTO BENGAL

The quantity of cotton grown in the Bengal province did not equal  $\frac{1}{8}$ th part of the quantity worked up there into piece goods.<sup>22</sup> The weavers during our period depended upon the supply of

19. Ibid., p. 131.

20. See Dr. Forbes Watson, Report on Cotton gins and on the clearing and quality of Indian Cotton, part I, Summary and Conclusions, (London, 1879), p. 2. The strength of the attachment of the fibre to the seed is the fundamental element in determining the degree and magnitude of injury. Actually, it is well noticed that the strength of the individual filaments varies in different as well as same varieties of cotton. The more tenaciously the fibre adheres to the seed, the greater must be the strain to which these weak fibres are subjected and finally, the greater their liability to injury. The leaves of the native plant are smaller and more friable.

21. Dr. Forbes Watson, Report on Cotton gins and on the cleaning and quality of Indian Cotton, Part II., (William H. Allen and Company, London, 1879), p. 199.

22. Letter from the Secretary to the Court of Directors to the Secretary to the India Board dated the 5th Sept., 1828, Quoted in the Report and documents connected with the proceedings of the East India Company in regard to the culture of cotton wool, silk and indigo in India, (London, 1836), p. 122.

cotton from different areas of the country into Bengal which formed, 7/8th of the quantity used in their various manufactures.<sup>23</sup> Bengal including Benaras imported 4,50000 maunds of cotton. 1,80000 maunds were contributed by the produce of the Deccan whereas 2,70000 maunds from the northwards, principally from the Raja of Calpee. Out of this Benaras required 40,000 maunds annually for the manufacture of finished commodities.<sup>24</sup> The remainder i.e. approximately 4,10,000 maunds were required for Bengal, Bihar and Orissa. Cotton was also imported from Sūrāt, Baroch, Mirzapur, Arakan, Garrow and Tipperah Hills.<sup>25</sup>

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23. Extract Report of the Import and Export trade of Calcutta, 1st June, 1799 to 31st May 1800, Ibid., p.17.

24. Extract summary report on the cotton trade of India. Fort William, 30th April 1802, Ibid., p.22.

25. See N.K.Sinha, The Economic History of Bengal, Vol. I, (Calcutta, 1956), p.103. Malda produced 40,000 maunds of biretta and nama kind of cotton of which about 10,000 maunds were exported. The import cotton in the district from Mirzapur amounted to 6,000 to 8,000 maunds and the rate varied from Rs.12 to Rs.15 per maund which increased to Rs.22 and Rs.24 per maund in 1788. In the Maldaur aurang at the foot of the Bhutan hills, at a place called Raniganj the hill people brought about 1500 maunds of kapās of the quality inferior to barrabang and superior to biretta and nama and cost sonaut Rs.7 - 8 or Rs.8 per maund of 92 sicca weight. The import of hill cotton from Bhootany Assam and Rangamatty amounted to about 18,000 maunds. Other districts of Bengal province also imported cotton from different parts of the country. Also see Extract summary report on the cotton trade of India, Fort William, 30th April 1802, Ibid., p.22. Also see James Taylor, A Sketch of the Topography and Statistics of Dacca, (Calcutta, 1840), p.165. The cotton imported from Mirzapur yielded the thread for the baftās, hammāms and other assortments of cloth of an inferior quality. The Arakan cotton ranked next to Mirzapur and was imported in small quantity. Bogha cotton produced at Garrow and Tipperah Hills was utilized for the manufacture of the coarsest description of cloths.

ORGANISATION OF THE COTTON WEAVING INDUSTRYMUGHAL PERIOD

Most of the crafts in India were caste-occupations, based on the law of Karmā<sup>26</sup>. However, in respect of cotton weaving, things were somewhat different. The caste system was not the 'decisive determinant'<sup>27</sup> of the shape of production organisation in the cotton industry. There were other factors as well which played a role in shaping the production organisation in the cotton industry.

The Sultāns of Delhi brought about various crafts techniques and practices with them and introduced them into Indian soil. These newly established crafts and increased demand for cloth manufacture were accompanied by, firstly, the immigration of artisans and merchants from the Islamic east to India and secondly, by large scale of enslavement<sup>28</sup>.

It was the Sūfism that played a vital role in the process of peaceable and forcible conversion<sup>29</sup>. The converts mostly came

26. A man's status in this life is determined by his action in past life. Caste was thus supposed to be a divinely ordained social system, under which every individual was born to a fixed status of existence, to which were assigned a fixed occupation and a fixed status. See B.B. Misra, The Indian Middle Classes - Their growth in Modern Times, (Oxford University Press, Delhi, 1983), p. 50. The concept of purity and pollution included both acquired and inborn pollutions. The latter determined the rank and accounted for the differences among human beings. See Gerald D. Berreman, Caste and other inequalities: 'Essays on inequality', p. 319.

27. Dibendra Bijoy Mitra, The Cotton Weavers of Bengal, 1757-1833, (Calcutta, 1978), p. 38.

28. Irfan Habib, "Non-Agricultural Production and Urban Economy", Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. I, C. 1200-C. 1750, pp. 76-96.

29. There were 12 Sūfī silsilas in India: Chisti, Shuhrawardi, Firdausi, Suhudi, Shattari, Mahadavi, Raushanuyah, Qadiri, Isra'īlī, Mujaddidis and Naqshbandi.

from the various artisan class, craftsmen, the village menials and the peasants. Further stimulus was provided to the process by Bhakti movement of the 15th and 16th centuries.

The early system of production of cotton textile was based on small independent producer, working with his own capital and labour and directly dealing with customers in his village. In the presence of direct dealing the possibility of fraud was very small. The craftsman was, of course, a master craftsman and had apprentices under him who were paid small sums as wages. Such a system was also functioning in urban centres.<sup>30</sup>

Two types of workers can be traced in such production system: first, the highly skilled, rich artisans who manufactured luxury goods; second, comparatively poor artisans not specialized artisan who catered for the demand of the local markets. The former craftsman was essentially a master craftsman, employed apprentices and journeymen on small wages, possessing two or three looms.<sup>31</sup> Before the 1st half of the 18th Century the craftsman as an independent figure, combined in himself the various functions of employee, merchant, foreman and even workman. These goods were

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30. Debendra Bijoy Mitra, The Cotton Weavers of Bengal, 1757-1833, p.39. He quotes Baines in opining the processes of cotton production who believes that cotton production were not divided among different groups. In the earliest stage of cotton industry i.e. in the earliest stages of the guild, there was little division of labour. But this system of production organisation was changed with the change in demand and market conditions. Also see Ishwar Prakash, "Organization of Industrial Production in Urban Centres in India during the 17th Century with special reference to Textile," B.N.Ganguli(ed.), Readings in Indian Economic History, Proceedings of the First All India Seminar on Indian Economic History, 1961, (New Delhi, 1964), p.48.

31. See Iswar Prakash, Ibid, p.48. Also see Debendra Bijoy Mitra, loc. cit., pp.39-40. In Dacca for example production was carried by small master weavers. These weavers employed boys of 14 years of age as apprentices, as said by Taylor. See Taylor, A Descriptive and Historical Account of the Manufacture of Dacca in Bengal, p.78.

then transported to urban centres and sold to merchants. Here, the role of intermediary merchants gained importance, which appeared during the reign of Alā'u'ddīn Khaljī (i.e. 13th Century). "Some of these merchants might themselves be engaged in trade in these goods, while others bought them on inventory for sale to other merchants."<sup>32</sup>

In course of the 16th and the later half of the 17th Century this production system was changed and only a small proportion of the total marketed output was produced in this manner. Now, the bulk of the production was organised on the basis of agreements among the European Companies and other merchants, merchant-middlemen and weavers, specifying details such as the quantity to be produced, the price and the date of delivery. A substantial part of the final value of the contract was usually offered in advance to the weavers to purchase raw materials and to maintain his family expenditure during the period of production. Advances were made either in cash or in raw materials. The

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32. The System of brokerage (dālāl system) appeared first during Ala'u'ddin Khaljī's period. The brokers operated between merchants and customers and raised prices unduly. It was against this class of people that Alā'u'ddīn Khaljī took severe actions. See for details Irfan Habib, "Non-agricultural Production and Urban Economy" Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. I, C. 1200-C. 1750, (Delhi, 1982), p. 86. Om Prakash believes that several varieties of 'comparatively coarse cloth were produced in the district of Malda for eventual sale to merchants engaged in trade with Pegu, North India (Hindustān) and Persia, traditionally important markets for these varieties. See his, The Dutch East India Company and the Economy of Bengal 1630-1720, (Princeton University Press, 1985), p. 98. D. B. Mitra believes that 'about 1700 A.D. when the demands for foreign market was limited, which is a futile generalization because Portuguese, Dutch, English, French, Danes and other Asian merchants had already established their trading relationships with Bengal, See his Ibid, p. 40.

artisans had nothing to do with the capital involved in the business.<sup>33</sup> This production organisation involved three important elements: first, the weaver's need of finance; second, the relative lack of access to market and finally, a desire on his part to avoid risks arising out of his inability to forecast correctly the behaviour of the demand for a given variety of textiles. It were the proliferation of the aurangs and the emergence of new markets with increased demands for varieties of patterned, designed and coloured cloths, that increased importantly the operation of contract system.

The contract system replaced the independent producers by a superior called mahājan, who was more a merchant rather than the producer and who provided part of the necessary working capital. The mahājans used to make advances to the weavers for the supply of cloths at a fixed rate. Before the arrival of the English, Dutch, etc. in Bengal, the Asian and the Portuguese merchants never fixed a definite price of the commodities, they ordered at the time of advances and fixed the prices of the products only at the time of delivery. It were the European Companies, who fixed the price on basis of samples at the time of giving dāñī.<sup>34</sup> The

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33. The Contract System through merchant middleman was intensified in Bengal only during the later half of the 17th Century. Manrique said that Patna alone contained over 600 brokers and middlemen engaged in commerce. See Ishwar Prakash, "Organization of Industrial Production in Urban Centres in India during the 17th Century with Special reference to Textile," B.N. Ganguli (ed.), op.cit., pp.48-49. Also see Om Prakash, The Dutch East India Company and the Economy of Bengal, 1630-1720, p.98. Sushil Chaudhari also talks about Contract System in his, "Textile trade and Industry in Bengal Subah, 1650-1720," IHR, Vol. I, No. 2, (Sept, 1974), p.273.

34. Sushil Chaudhari, "Textile Trade and Industry in Bengal Subah, 1650-1720," IHR, Vol. I, No. 2, (Sept, 1973), p.275.

mahājan was assisted by pāikārs, the travelling agents, who went about the country advancing money to weavers. The pāikār was assisted by mukeems, who specialized in inspecting the making of cloths. The mahājan also extended money on loan at varying rates of interest depending on the nature of business. The mahājans exploited artisans because of their stern poverty.<sup>35</sup>

The contact system of organization of cotton textile production, sometimes equated with European putting out system markedly differed with each other. The differences between the two can be recognised in following terms: in the European case it was the merchant capitalist who provided the necessary raw materials, and the money payment made to him was only an advance on his wages. In case of Bengal, the artisans retained their independent status, buying his own raw materials and exercising formal control over his output until it changed hands. He for the most part remained as 'price worker' and was not reduced to the status of 'wage worker'. The merchant could have a claim on the output and debt obligations, that was subject to coercive control by the merchants.<sup>36</sup> In the contract system, therefore, the merchant middle man had little control over the quality, size and quantity of production; whereas in putting out system merchant capitalist had<sup>37</sup> full control over the production organization, quality and quantity. Here the proto-industrial system of Bengal lagged behind the

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35. D.B.Mitra, op.cit., p.40.

36. Om Prakash, The Dutch East India Company and the Economy of Bengal, 1650-1720, (Princeton University Press, 1985), pp.98-99.

37. Sushil Chaudhari, loc.cit., p.273.

European proto-industrial system in terms of control over the production organization, which was undoubtedly a major stimulant factor in the direction of technological innovations, its application to production process etc. Actually, in putting out system it were the merchant capitalists who bore the responsibility for all the risks and the production in a given time, its delivery to the purchasers in a given time, etc. Thus, it was the supply factor on the part of the putter-out capitalists that made transition to a centralized production system which in turn led to industrial capitalism. In the contract system labour cost was very low that made the textile manufactures of Bengal highly competitive in the world market. If the cloths were purchased directly from producers rather than through intermediary the cost advantage in case of coarse cloth from Māldāh town in 1670 would be between 12% and 15%. The mark-up by the merchant would, of course, be substantially greater under the contract system to compensate him for the additional risks borne, which were not inconsiderable.<sup>38</sup> The appropriate evidence regarding 'weavers costs' and the 'merchants' 'mark-up' is certainly so meagre that it is very difficult to draw any conclusion from it. As a result<sup>39</sup>

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38. On Prakash includes following risks into it. "For example, a sudden rise in the cost of living in wake of a Famine, or the appointment of a particular tyrannical official in a given area, might lead to a mass migration of the poor weavers to a more convenient location, to the great discomfiture of the merchants who had entered into contracts with them and given them advances." See his, op.cit., p.99.

39. Ibid, pp.99-100. He takes examples from Van Rheed's data of 1686-1687 for three grades of khāsas, an important variety of muslin. About 2/3rds of the price obtained by the weaver covered the costs of the raw materials, and the remainder was the reward of his labour. The mark-up by the merchant was 35%, 55% and 142% in case of grade I, II, and III respectively. The Dutch factors recorded the great quality differential among the three grades.

of all these, it seems that merchants and intermediaries in contract system took least interest in production organization, technological innovations, its application in industrial production, etc. That in its turn, made the highly developed proto-industrial system of Bengal stagnant, and in the course of late 18th and early 19th centuries even the de-industrialization of Bengal's proto-industries.

The cotton manufacturing industry was wholly organised on a domestic basis. Every weaver's cottage was a little workshop and there was hardly any important village without such cottages.<sup>40</sup> A particular piece of cloth required the labour and skill of an entire family of eight or nine persons, from the head of the family to the little child who supplied for the different stages, the skill and strength necessary for the purpose.<sup>41</sup> The women generally participated in the production process by spinning the thread designed for the cloths and then delivered it to the man.

The Bengali baniās worked as negotiator with authorities, as contractors with merchants, as contacts with petty producers and as experts with different professional groups. It were Europeans, who encouraged Bengali baniās and appointed them to carry on their business with different Companies in local markets and with primary commodity producers and were often termed as the

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40. H.R.Ghosal, Economic Transition in the Bengal Presidency, (1793-1833), (Calcutta-1966), p.1.

41. Sukumar Bhattacharya, The East India Company and the Economy of Bengal from 1704-1740, (London, 1954), p.183.

merchant of the company.

The intermediate merchants were the essential instrument of the total investment machinery. They placed advance orders by advancing capital to weavers, dyers, cleaners and bleachers. The company employed a number of Indian merchants for providing financial assistance. The procurement system in different regions of the country functioned on a contractual arrangement between the merchants and the company by keeping a long document containing names of merchants, types of commodities, dimensions, prices and quantities, etc. The total number of such merchants dealing annually with the company varied from 20 to 40. The contract was always a collective one but each merchant was entitled to receive a share of investment according to their financial standing.

There were also established broker families to cope with the expanding demand for business deals and search for untapped centres of production and market on the part of the European companies and other merchants. This in its turn, contributed to a further development in the organisation and working system of brokerage in two respects: (1) the chief brokers adopted a new strategy by employing persons other than kinsmen for assisting their works as subbrokers and (2) there originated the institution of partnership between two or more reputed brokers. The

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42. It was the handicap on the part of the Europeans in regard to local language, local production system, psychology of the rural craftsmen, behaviour of craftsmen towards Europeans, location of raw materials, lack of funds and approach to Mughal State and Bengal's nawābs, in the initial phase that undoubtedly compelled (European(s) to rely on Bengali baniās. These baniās also functioned as the agents of different companies and merchants simultaneously.

rapid expansion of market introduced a degree of specialization in the broker's functions: first, those who were the regular employees of the merchants and companies; second, who worked under more than one client simultaneously, third, those who took business on an ad hoc basis and might be called broker-contract.

It is evident from the following analysis that especially in Bengal during 17th and 1st half of the 18th century, even in embryonic form industrial middle class did not develop as had happened in this period in Western Europe. The Bengali baniās and other intermediary merchants, though instrumental to handicrafts production, did not contribute to the transition from proto-industrial capitalism to capitalism proper because they had no interest in the production process. They did not have to bear the risk due to production process, incapability in supplying the promised commodity in a given time, etc. They even did not own productive forces, building for production etc. Actually, their commission from both the parties were fixed and their income due to brokerage was sufficient. But they did not invest these vast fortunes in industrial enterprises. This, although in part, contributed to the stagnation of Bengal's highly developed proto-industrial systems.

On 28th April 1679, the Bay Council laid down some rules for providing privileges to the company. This included the following elements: firstly, the Company's investment must come first; it prohibited the private traders or any other business person to contact those weavers who usually worked for the Company, or in prohibited goods; secondly, no English man, nor his agent, should keep a particular house outside the factory for

private trade. They had to do all the business, including the receipt, packing and despatch of goods within the factory, and finally, money should be invested in places inhabited by the company's weavers without first acquainting the chief of the factory for his directions as to the weavers to be employed.<sup>43</sup> On the contrary, the chief was not to impede this business, it being a just privilege of the company's servants in Bengal, the chief had to assist all fair and just private trade.<sup>44</sup> But some of the high officials did not abide by the rules and regulations formulated by the company. For these officials, money making was supreme.

It were the weavers who had to bear the risks in the production process. They had to buy the raw materials, to transform it into finished commodities and finally, to supply it to merchants. If the finished products were not up to the point, they had to suffer. If the supply was delayed, their risks further aggravated. Artificial decrease in the quality of their products were made in the factories of the European Companies. The balance due to this reason on the part of weavers were great, which made them highly dependent on European companies. In this dependence servitude condition, they were bound by rule and regulation to finish first goods promised to the English East India Company. In

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43. Sir Charles Fawcett, The English Factories in India, Vol. IV (New Series, Oxford at the Clarendon Press, 1955), p. 198.

44. Ibid., p. 198. In November 1681 the Company was writing a dispatch of Bengal in which they condemned Vincent for having extracted for brokerage, 2.5% of what was paid him by the buyers of all the company's silver and 2.5% on all the goods which he had bought for company. In total he yielded 5% for his personal use. He likewise interfered in the investments of Dacca, Balasore, Qassimbazar and Hughli factories.

this condition, technological innovation from below was just impossible, which is evident in the case of Bengal's proto-industrialization.

Any marked increase in the demand of Bengal's cotton products were satisfied by increasing the working hands and not the machines. This led to shortage of particular varieties and weavers failed to fulfil their contracts. As a result, weavers geographical mobility increased,<sup>45</sup> that stagnated the proto-industrialization of Bengal.

In Bengal, during the Mughal period a number of state kārkhānas existed for manufacturing various kinds of commodities. The craftsmen in different fields of industry were assembled in a kārkhāna which was placed in charge of a mālik over whom there was the 'State General Superintendent of Arts and Crafts.' The French Traveller, Bernier has referred to the state kārkhānas for the artisans in 1666.<sup>46</sup> Such kārkhānas were maintained at Dacca, Sunargong, Junglebaree and Bazatpore for the manufacture of the mulboos khās Muslin for the royal wardrobe at Delhi. These state kārkhānas were in charge of darogāh who exercised uncontrolled authority and power over all members employed in the kārkhānas. The immediate duty of darogāhs was to inspect the manufacture of all the cloths made for the Emperor's use.<sup>47</sup>

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45. Om Prakash has taken the data presented by Director de Haze. He notes that weavers were coming to Balasore from the uplands to settle down there. They were experts in making good malmals, khasās etc. of which the merchants have shown us some samples. 'See Om prakash, The Dutch East India Company and the Economy of Bengal, p.101.

46. Bernier, Travels in India, (Oxford, 1914), p.259.

47. This point has been borrowed from Dibendra Bijoy Mitra who has taken from Proceedings of Board of Trade, Ist Dec., 1806, Vol. 156, op.cit., p.41.

Most of the weavers appointed to these state kārkhānas were the most experienced and expert weavers in the province; their names were registered and they were bound to work at the scheduled hours until the different tasks assigned to them were finished. Inspectors called mokeems were employed to carefully examine the proper standard of thread allowed to weavers to bring about with them to the kārkhānas for their looms and none was permitted to be utilised until it was properly compared and approved of.<sup>48</sup> These practices must have highly sharpened the skill of the weavers and effectively prohibited the weavers from committing any improper practices while manufacturing cloths. Consequently, the malmal khās manufactured for the emperor was probably of superior thread and consisted throughout the warp and woof, as nearly as possible of thread of one quality.

There were besides daroghās and inspectors, guards who were placed over any weaver, showing an unwillingness to work and corporeal punishment was inflicted on them if they attempted to abscond. The weavers were also the subject to be defrauded of a considerable portion of the wages as the share of officers and servants of the mulboos khās kutees at the rate of 25%.<sup>49</sup> The manufacture of jāmdāni muslins was a monopoly in the hands of the government and subsequently finest of these fabrics were reserved for the use of the nobles at Murshidābād. These fabrics were made exclusively by the weavers of the Dacca aurang. It was Nūrjahān who patronised these Dacca muslin, provided every promotion to it,

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48. James Taylor, A Descriptive and Historical, op.cit., p.82.

49. Ibid., p.83.

and after whose days it was adopted as the fashionable dress of the Mughal nobility.<sup>50</sup> The weavers were advanced by the darogāh of the sudder mulboos khās kootee at Dacca. The merchants were obliged to purchase indirectly through intermediary appointed by the Government. These agents had to pay a regulated sum annually to the government for these privileges and in return they charged a percentage on all sales made by them. A tax recognised as chappa jāmdāni was also levied on the weavers of this sort of muslin and continued to be collected till the year 1792 when it was abolished.<sup>51</sup> One other form of exploitation of the weavers was in vogue in the form of the mulboos khās investment which formed a part of the naẓr presented by the governor of Bengal to the emperor at Delhi.

In the state kārkhānas repair work were also undertaken. The artisans in the state kārkhānas worked with raw materials supplied by the state into fully manufactured goods fit for use. They were the salaried servants of the state and were paid directly from the state treasury.<sup>52</sup> The artisans who accumulated capital through any means had, in course of time, opened up their own kārkhānas where other artisans were working on the wage basis. These kārkhānas functioned on the pattern of royal kārkhānas.<sup>53</sup>

In the state kārkhānas also there was little prospect to technological innovations. These kārkhānas were established to

50. S. Bhattacharya, op.cit., p. 184.

51. James Taylor, Descriptive and Historical, op.cit., p. 84.

52. Dibendra Bijoy Mitra, op.cit., p. 42.

53. Shiv Chandra Jha, Studies in the Development of Capitalism in India, (Calcutta, 1963), pp. 36-43.

satisfy imperial as well as elites needs, the production cost in these kārkhānas was very low, risk factors were negligible, supply factor was not very important as most of the workers were working on part-time basis and hence, the chances for technological innovations was very little. Here, also the prospect of centralized system of industrial production for transition to industrial capitalism proper was meagre or negligible.

NAWAB PERIOD

The term 'factories' in English, or the Dutch 'factorijen; with and without fortification were descended from the Portuguese trading agencies or feitorias, which were scattered along the African and Asian sea coasts', beginning with the castle erected at Argium in Morocco in 1445 and ending with the feitoria at Nagasaki in Japan in 1570! The feitorias had much in similarities with the medieval Fondachi, the Geneose and Venetian merchant's residential quarters in the Muslim sea ports of North Africa and Ottoman harbours. But, in India it is quite possible to associate this tradition with a mound called Farangi dibba (the foreigners mound) at Pedda Ganjam in the Krishna district of Andhra Pradesh with Geneose or Italian traders who had established a settlement there in A.D. 1224.<sup>54</sup>

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54. Owen C. Kail, The Dutch in India, (Delhi, 1981), p. 101. From the ancient times, the rulers and princes of the maritime states in the South were familiar with the institution of what has been called, 'mercantile extra-territoriality' and had permitted Arabs, Iranians, Malaysians, Indonesians and Chinese to live in separate residential districts, each under the administration of their own headman. Such settlements were ruled by a especial agreement with the local rulers. The position of these merchants and artisans was determined by the terms of the convention and not by ordinary laws of the land. In many Asiatic sea-ports including India, from Persian Gulf to the South China Sea etc. foreign traders resided in these more or less autonomous residential quarters. Some attained great wealth and influence, others were at the mercy of the ruler or his governor, local officials.

The First Portuguese settlements in India did not conform to the traditional institution of extra-territoriality, because they were more than commercial. The early Portuguese commanders in India insisted on obtaining territorial concessions, or they seized territory, not as merchants but in the name of Portugal with exceptions in case of their settlements at Hughli and San Thome. But, within a little span of time they assumed sovereignty due to their formidable naval power.<sup>55</sup> Factory system in India on an intensified scale commenced in the later half of the 17th century.

The factories and aurangs were scattered throughout the province. These were no better than agencies or mere establishments for securing supplies.<sup>56</sup> The Council in Calcutta exercised direct control over the chiefs and subordinate officers of these factories and compelled them to furnish securities for their good conduct.<sup>57</sup> Generally, at the commencement of each year the Council at Calcutta despatched to the respective factories lists of investments, samples of cotton piece goods to guide them in selecting goods and also bullion and money for the payment. The Company always attempted to keep the merchants under effective control by applying various measures. This consisted of obtaining securities for the money advanced to them, imposed penalties

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55. Ibid., p.102.

56. H.R.Ghosal, Economic Transition in the Bengal Presidency, (1793-1838), p.1.

57. Dibendra Bijoy Mitra, op.cit., p.45.

in case of deviation from honouring the contracts in time, warned them against the supply of inferior quality, insisted on settlements of accounts in the English factories not admitting any arbitration in this and sometimes even holding the securities responsible for payment of the dues in arrears.<sup>58</sup> Sometimes, on failure of contracts, the merchants were put in confinement.<sup>59</sup>

In spite of all these, the merchants often failed to supply the full quantity of goods according to the terms of contracts and usually demanded larger advances.<sup>60</sup> That was why, the Court of Directors about the year 1746 instructed the members of the Council in Calcutta they should make very little advances by procuring goods at ready money.<sup>61</sup> The merchants replied in negative terms. They held that without 'dādān', they were unable to provide goods. They received dādān only on some selected articles and they had to provide most of the commodities for ready money. They further postulated that in absence of dādān it would be impossible for the Company to get cloths for investment. Since there were certain qualities of cloths which did not yield profit rather caused losses even when full dādān was advanced upon them, for example, for the coarse cloths, the Company was not willing to advance dādān. The dādānī merchants were willing to accept  $\frac{1}{2}$  part of the investment in ready money, the remainder they

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58. Letter to Court, 11th Dec., 1741, Quoted in K.K. Datta's Studies in the History of Bengal Subah, pp. 123-124. Also quoted in the Introduction of Fort William - India House Correspondence (Public), Vol. I, 1748-1756, (ed.), K.K. Datta, (Indian Record Series, Delhi, 1958).. p. XL.

59. Letter to Court, 19th Nov. 1748, Quoted in K.K. Datta's Studies in the History of Bengal Subah, p. 124.

60. Letter to Court, 11th Dec, 1741, See Fort William-India House Correspondence, Vol. I, 1748-1756, (ed.).. K.K. Datta, p. XL.

61. Letter to Court, 30th November, 1746, Quoted in K.K. Datta's book, op.cit., p. 116.

demanded in the form of dādnī<sup>62</sup>.

Till 1753, the French Company's investment was accomplished in Bengal by the same dādnī merchants who also provided, the investment of the English East India Company. But the French were offered more favourable terms because they were less scrupulous in prizing the assortments and consequently had less difficulty in procuring their investment. That was precisely the reason that dādnī merchants were less interested in conducting business with the English Company. The terms of the French and the Dutch were more lucrative to them and in many cases they refused to accept the terms of the English Company.<sup>63</sup> Many of them refused to supply the promised quantity of goods to the Company and preferred to work for the French and the Dutch.

The prizing of cloths consisted of comparing them with original samples on the basis of which contract was made. The cloths were brought to the factory where these were arranged in a chronological order according to their qualities of texture. Four classes of cloths were identified by certain alphabet. Those cloths which were admitted in fourth class were rejected. Then the Commission was admitted. The Commission was

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62. Letter to Court, dated 10th January, 1747-48, Fort William-India House Correspondence, Vol. I, (ed.), K.K. Datta, (New Delhi, 1958), p.192. Later on 13th June, 16 merchants of which 7 were new men proposed to undertake a part of the investment to the amount of Rs.7,70000 on the following terms. They demanded 50% to be advanced on dādnī basis and interest to be also allowed till it was paid from the time of signing the contract. 35% more to be paid them when their goods were prized and interest to be allowed thereon from the 1st October. This meant that they demanded only 1/3rd of their investment in the form of ready money.

63. Dibendra Bijoy Mitra, op.cit., p.47.

varied according to whether the cloths were advanced for or were purchased ready made at the fairs. At the former about 8% and on the latter about 4.5% were allowed to dādnī merchants excluding various other expenses amounting in aggregate to an additional charges of 7%.<sup>64</sup>

From the above survey it is possible to postulate that the system of issuing advances to the weavers through dādnī merchants from Company's economic point of view undoubtedly provided the most important mode of securing their investment. This system was advantageous to the English East India Company because it ensured the supply of a required quantity of goods of a standard quality within the given time. It prevented fluctuations in prices. But the system left the weavers in a state of complete economic dependence upon the Company and in many cases they lost the incentive to work.<sup>65</sup> The Company's servants were at liberty to reject any number of pieces by assorting them below the contracted standard and the price of such pieces were either deducted or set off as outstanding balance against the weaver concerned.<sup>66</sup> The rates at which the agreement was made between weavers and dādnī merchants were extremely low. Although the price of labour steadily rose during the 20 years from 1793,<sup>67</sup> the proportional increase in the price of cloth was really meagre.<sup>68</sup> In settling the prices with the weavers, dearness of grain or of raw materials,

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64. James Taylor, *Descriptive and Historical*, op.cit., p.88.

65. H.R.Ghosal, Economic Transition in the Bengal Presidency, (1793-1833), (Calcutta, 1966), p.8.

66. Bengal Board of Trade (Commercial) Cons., May 7, 1793 and May 8, 1818.

67. Bengal Board of Trade (Commercial) Cons., May 7, 1793. Quoted in H.R.Ghosal's, 'Economic Transition in the Bengal Presidency, (1793-1833), p.8.

68. Bengal Board of Trade (Commercial) Cons., June 1793 and also Bengal Board of Trade (Commercial) Cons., March 13, 1794.

was not taken into consideration.

Some kinds of manufacturing activities were performed in the European factories. In the Dutch factories of Bengal European as well as Indian artisans worked under the supervision of a Dutch foreman. Similar activities were followed in the English factories as well. The manufacturing activities in the factories were related to axillary trades. Dyeing, bleaching, printing etc. were practised in these factories. Frames, printing blocks, looms etc. were produced. Sample production checked and inspections carried out to ensure that the cloth made in Bengal was of the same standard as the material required.<sup>69</sup>

Through this manufacturing method again the possibilities of making transition from a highly developed proto-industrial system to industrial capitalism were extremely meagre or completely absent. The explanations are many and varied.

The factors noted in 1690, "The increase of our revenue, is the subject of our case as much as our trade; it is that must maintain our force when twenty accidents may interrupt our trade; it is that must make us a nation in India ... and upon this account it is that the wise Dutch, in all their general advices that we have seen, write ten paragraphs concerning their Government, their civil and military policy, warfare and the increase of their revenue, for one paragraph they write concerning trade."<sup>70</sup> If this

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69. Owen C. Kail, The Dutch in India, pp. 110-111.

70. From this passage Sir Alfred Lyall deduced that Englishmen's purpose by now became quite clear, was to establish "Such a politic of civil and military power and create and secure such a large revenue, as may be the foundation of a large, wellgrounded, sure English dominion in India for all time to come." See letter to Fort St. George, Dec. 12, 1687, quoted in Sir Alfred Lyall, The Rise and Expansion of the British Dominion in India, (London, 1913), pp. 48-49.

was precisely the innate aim of the Britishers in India from the late 17th and early 18th centuries, they would not think of promoting indigenous inventions and its application in indigenous industries. They did use up-to-date techniques in their factories in Bengal in regard to colour, dye, packing and baling etc. Even these techniques in these trades were kept as top secret. The European foremen in their factories did not teach their fellow men to innovate such machines rather they taught them how to use these machines. They, therefore, were least interested in indigenous inventions and its applications to Bengal's industries thereby hindering the transition from proto-industrialization to industrialization.

The sizes, texture, pattern, designs and colour combinations of the textiles were adjusted. European Companies and private merchants normally demanded considerably larger sizes of cotton textiles which had a high demand in European markets and then was unusual in Bengal. This required resetting the looms and using new matrices. The patterns and designs that would have quite wide market in Europe were also often quite different. Initial resistance to such innovations was generally overcome by the offer of higher prices and an assured purchase of the entire output thus produced. The Europeans generally recognised Indian artisans as good imitators rather than good inventors; the Companies brought in expert weavers and dyers from Europe just to prepare samples.<sup>71</sup>

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71. One such unit was opened up by the Dutch within the precincts of their factory at Hughli where experiments in new designs and colour schemes were carried out. "There were occasions when the cost of the new product turned out to be prohibitive, and others when the Indian artisans were simply unable to imitate the samples!" See Om Prakash, The Dutch East India Company and the Economy of Bengal, 1630-1720, pp. 101-102.

Not all the innovations resulting from these experiments were adopted. It was the lower cost of living in Bengal, that enabled the Companies to start manufacturing certain varieties of textiles, traditionally produced in Gujarat, the Coromandel Coast in Bengal. These attempts were hardly a success because of the unwillingness of the Gujarati and other craftsmen to share their skills with artisans in Bengal. But, in the absence of improvement in the main industry there was again little possibility to a transition from proto-industrialization to industrialization proper. In course of the later half of the 18th century these characteristics became more apparent.

#### COMPANY'S PERIOD

Since the dādnī merchants often failed to meet the demand of goods according to the terms of contract, the Company in 1753 abandoned this method and introduced the system of dealing directly with the weavers and artisans through the medium of her gunāshṭās.<sup>72</sup> In order to keep a careful watch over the conduct of the servants, a supervisory committee was founded in 1755 with Roger Drake, the President, Charles Manningham, Richard Becher, William Frankland as its members.<sup>73</sup> The servants of the Company

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72. Dibendra Bijoy Mitra, *op.cit.*, p.47. Also see J. Talboys Wheeler, Early Records of British India: A History of the English settlements in India (Vishal Publisher, Delhi, 1972), p.300. Also see Letter to Court, 18th Jan., 1754, K.K. Datta (ed.), Fort-William-India House Correspondence, Vol.1, p.762. The dadni merchants had also failed to procure the promised quality of cloths. Repeated complaints for those (bad quality) and great advance in price of the most considerable articles were recorded. They complained the bad quality of Seerbeties, alliballie, malmals, terrindams, nainsukh and Seerha-ndconnens etc.

73. Letter from Court, dated 31st Jan., 1755, p.179. K.K. Datta (ed.), Fort-William-India House Correspondence, p.85.

employed gumāshtās in like manner to carry on the inland trade.

This new method did not produce satisfactory results. The power provided to the gumāshtās and Company's agents was frequently abused for their own monetary gain.<sup>74</sup> That was why the Council in Calcutta had to restore the old method of entering into contracts solely with the merchants in different parts of Bengal. This necessitated the employment of various gumāshtās, pāikārs and dālāls at every factory or aurang in order to compel strict observance of the contracts by the weavers. By the year 1757, the indigenous group for whom the weavers had woven had nearly disappeared. Between 1757 and 1772, the servants of English East India Company with the help of agents and gumāshtās formulated such proceedings that prohibited the different regional merchants to have commercial intercourse with Bengal or to come to Bengal.<sup>75</sup> Hence, the entire economy of Bengal from 1760s to 1780s was dominated by foreign needs especially European needs.<sup>76</sup> The gumāshtās were working on the basis of monthly wages.<sup>77</sup>

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74. Verelst, A View of the rise, progress and present state of the English Government in Bengal, p.85.

75. Dibendra Bijoy Mitra, op.cit., p.48.

76. N.K.Sinha, The Economic History of Bengal, Vol. I, (Calcutta, 1956), p.110.

77. Dibendra Bijoy Mitra quoted it from Progs. Board of Trade, 3rd May, 1791, Vol.92. He (gumāshtā) was also given a residence in the aurang at his arrival there called cutchery. The aurang consisted of following persons: One head gumāshtā, one clerk, one cash keeper and some peons. It was in the cutchery where the gumāshtās summoned his brokers called pāikārs or dālāls with his peons and weavers. The gumāshtās made the weavers and their subordinates to sign a bond for the delivery of a certain quantity of goods at a given time and place on given rate with particular quality and then paid them a part of money in advance.

To do away with exploitation, each of the pāikārs was separately given their outstanding balances if any, with the particularities of the advance last made. It was the responsibility of the Company's officials to examine whether the pāikārs actually had received the amount for which they are debited or not.<sup>78</sup>

The finished cloths were collected in a warehouse where it was kept marked with the weaver's name till it was convenient for the gumāshtā to assort and fix the price of each piece. The person entrusted with this work was known as assorter.<sup>79</sup> Here the gumāshtās and the assorter fixed the prices of the goods in all places at least 15% and in some cases even 40% less than the goods so manufactured.<sup>80</sup> This compelled the weavers to attempt frequently to sell his cloths privately to the Dutch and French gumāshtās who were always ready to accept it. At Dacca, the weavers fetched 20 and 30% more by working for the agents of French Company. This "occasions the English Company's gumāshtās to set his peons over the weavers to watch him and not unfrequently to cut the piece

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78. Bisheshwar Prasad, (ed.), Fort-William-India House Correspondence, Vol. VI, 1770-1772, (Delhi, 1960), p. 19. This mode of the proceeding might play a central part in abolishing those frauds and oppressions formerly practised by the sarkār paymasters or their baniās in detaining parts of the advances in their own hands and obtaining from the pāikārs receipts for the whole.

79. Dibendra Bijoy Mitra, op.cit., p.50.

80. William Bolts, Considerations on Indian Affairs, (London, 1772-1775), p. 193.

out of the loom when nearly finished. " 81 Added to this, they were subject to various imposition on account of rusum demanded by the dālāls to the amount of 4 annas in the rupee. In addition, force was exerted to make the weavers to undertake the Company's business, which the weavers were unwilling to undertake. The Company also invested through foreign companies and monopolized the whole manufactures of the country. This ultimately reduced the weavers to slave status to the English.

The Famine of 1770 <sup>82</sup> had a terrible adverse effect on the total economy of Bengal in general and on the cotton weaving industry of Bengal in particular. The spinners, the weavers and the cotton cultivators of Bengal were depopulated in large numbers. <sup>83</sup>

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81. Ibid., p.50. Their transaction through the dālāls of Chittagong did not fetch even the subsistence to the weavers because their loom remained idle for 10 months out of a year. And in this two months they had to produce only two pieces of cloth. Working for the others was productive of confines and fines. This oppressed state of weavers was corroborated by the letter of Director, which had occasioned many of the weavers to fling up their looms. For details see, Translation of a petition of Luckum, Mucktaram, Subram and other Jeagees, inhabitants of Chittagong, Board of Trade (Commercial) Proceedings, 1st June 1784. J.Kumar, Select Document on India Trade and Industry, (New Delhi, 1981), p.163. Also see Letter from Court, dated 11th Nov 1768, N.K.Sinha (ed.), Fort-William-India House Correspondence, Vol.V, 1767-1769, (Delhi, 1949), pp, 138-139.

82. Letter to Court, dated 3rd Nov, 1772, Bisheshwar Prasad (ed.), Fort-William-India House Correspondence, Vol.VI, 1770-1772, p.418.

83. N.K.Sinha, The Economic History of Bengal, Vol.I, p.149. The price of cotton thread in Malda rose from 4-6 as per seer fine to 6-8 as per seer fine and Rs.2-4 per seer coarse to Rs.3-2-9 per seer coarse. Demand for Bengal cotton goods were steadily rising. In a petition at Shantipore in 1773 it is stated that "the price of yarn has been gradually rising for many years past. The number of spinners being greatly reduced by the Famine, it is now 25% dearer than formerly."

As the result of the depopulation at Dacca due to the famine of 1770, the total output of cotton goods was reduced to 1/3rd than that existed ten years before.

For saving the weavers from stern oppressions of the Company's gunāshtās, the Company's trade was thrown open from the 12th April 1773 onwards. It was declared that the weavers of the provinces of Bengal and Bihar should enjoy perfect liberty in dealing their business with persons in whom they had full faith.<sup>84</sup> Since the privileged inland trade in salt, betelnut and tobacco was abolished in 1768, the Company's trade in cotton piece goods could not be sustained. That was precisely the cause, that the commercial residents repeatedly complained of the adverse effects of the 'free trade' on the public trade of the Company.

For suppressing the free trade system, the company for the first time adopted the coercive major by implementing the regulations in 1775.<sup>85</sup> The regulation was formulated to control the

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84. C.J. Hamilton, Trade Relations Between India and England, (Calcutta, 1919), p. 198. Also see, Letter from Mr Francis to Lord North, (London, 1792-93), pp. 62-64. Mr Francis opined that regulations, pretending to control the misconduct of individuals might not bear any fruit. He suggested that the investment must be made by contract, "as it was heretofore, until the general increase and improvement of the manufactures will admit of its being provided by ready money purchases." He further suggested that the employment of Europeans in the district in any form whether with or without authority or even gunāshtās with authority, must be stopped at all events. He regards it as an indispensable measure to end these malpractices in the investment and procurement process of cotton finished goods in Bengal. Also see Proceedings Board of Trade, 9th May, 1775, Vol. 3, Part II. No force should be entertained by the weavers to accept the advances. This declaration undoubtedly reduced the oppression of the weavers to some extent. This is evident from following example. The weavers at Dacca refused to work for the company, some of them refused to deliver goods and would not abide by the summons of the gunāshtās. For this see, Progs. Board of Trade, 23rd June, 1775, Vol. 3, Part II.

85. Progs. Board of Trade, 5th Sept, 1775, Vol. IV.

weavers. If the weavers had agreed to work for the Company and accepted the advances, he was to be bound with his words and had to deliver cloths accordingly. Secondly, the weavers who had balances on their account, had to fulfil those balances. Thirdly, the Company's agents had the right to place peons after those weavers who failed to deliver the cloths to the Company according to the stated period and had the right to compel them to work. And lastly, failing in performing these duties was productive of punishment through the judicial court. This system failed to produce the result for which it had been introduced. Therefore, the Board of Trade reintroduced the contract system in 1775 through the 'Agency system' which continued to be general mode for the greater part of the cloth investment till the year 1782, although the investment by contract with Indian merchants was followed in few cases. The re-introduction of contract system for providing the Company's investment was largely concerned with a change in the mode of making advances to the weavers.

Previously, half of the total amount was advanced in the first kist and the rest was given to two equal kists. In the former case, the amount was advanced with the object to enable the weavers to purchase the raw materials but the weavers showed laziness in the delivery of the goods, if delivered then not upto the mark in quality, eventually large balances began to accumulate against the weavers<sup>86</sup>. To prevent this evil, 'monthly advances' was adopted as the effective method, with strict help from the chiefs and residents<sup>87</sup>.

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86. D.B.Mitra, op.cit., pp.56-57.

87. Progs. Board of Trade, 3rd June, 1776, Vol.7.

This was not an effective method and adversely affected both the weavers and the Company. The weavers demanded a 50% advance because the smallness of the first advance had an adverse effect on the weavers. The weavers usually purchased the essential raw materials for manufacturing cloths throughout the year out of this first advance and were deprived of the privileges of purchasing raw materials in large quantities when the prices were low with better quality. Under the new system of making the advances on 12 monthly instalments basis, they failed to avail the cheapness of the market to purchase the materials. This also prevented the intermediaries to enter into engagements with a large number of weavers simultaneously because it required large amount of capital to be invested. Thirdly, this also played an important role in delaying the delivery of cloths. Thus, large advances were extremely necessary at the commencement of the

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season.

Thus, the system of providing monthly advances was introduced in 1776 for 2 to 3 years (i.e. from 1776 to 1779), but without solution to the problem involved. Therefore, larger advances at the commencement of the season became compulsory.

During times of war, the Company was compelled to reduce the amount of investment. Under such compulsions, as in 1781, the advances to the contractors were made by issuing certificates

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88. D.B.Mitra, op.cit., p.59. Also see Progs. Board of Trade, 6th July, 1779, Vol. 20. Realising these difficulties the Board of Trade repeatedly informed to the Governor-General in Council to direct them with some rational proposals. Later, the Governor-General and Council agreed to consider the proposal of quarterly payments of advances, and later agreed to the quarterly advances.

for the Company's bonds bearing 8% interest. The system of payment for investment in goods by interest notes on the treasury had been adopted since 1769<sup>89</sup>. By April 1772, it stood at Rs.1.5 crores when Warren Hastings took charge. By 1776 the government was able to pay off completely its bonded debt. Hastings had stopped the system.<sup>90</sup>

Under the compulsion of bonded debts, many cloth contractors felt difficulty in having the cloths without making advances into cash to the weavers and hence, they borrowed money from the bāzār at the high rate of 12% to 15% interest.<sup>91</sup> The result was that after paying interest and meeting the discounts on Company's bonds, they had very small profit. This further made them unwilling to work for the Company. The exorbitant discount on the Company's bonds, was one of the important reasons for the low level of profit. The rate of discount was only 3% at the time of making the contract which gradually went up to 15% and the resident wanted the discount to be debited to the Company's account. Thus the weavers were without advances with engagements to the Company.<sup>92</sup>

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89. R.P. Patwardhan (ed.), Fort-William-India House Correspondence, Vol. 7, 1773-76, (Delhi, 1971), Introduction P. XXXII.

90. Ibid., p. XXXII.

91. Such complaints were made by Durga Charan Mitra, Ramneady Sumah, Sreemanto Ghose, Greedur Mitra, Ramkishan Halder and Radhabenode Halder etc. This is quoted in Progs. Board of Trade, 10th April, 1781, Prog. No. 17, Vol. 27.

92. Greedur Mitra, Contractor at Serampore wrote about his losses. Mr Kingley followed his example and wrote about his sufferings and difficulties at Bauleah prayed for the grant of indulgence. Dibendra Mitra quoted from Prog. Board of Trade, 1st May, 1787, Prog. No. 24, Vol. 31 in his op.cit., p. 62. During these years Company's economic position deteriorated immensely and it had no provision of investment for the year 1782-83 in cotton cloths, silk and silk piece goods. The effect of all these were that the weavers on many occasions were seeking permission to be released from the engagements to the Company and permitted to manufacture bāzār assortments.

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The weavers were not given a fair price for their labour. They were obliged to work against their will at prices arbitrarily imposed upon them. Even the English Company's men admitted that their European counterparts were prepared to pay 20% to 30% more. This attracted the weavers to work for them. Again, the prices given by the English Company remained unchanged for a fairly long time. Despite a certain rise in production cost, prices of cotton and increase of rent, the prices of finished goods remained unchanged.<sup>93</sup> It was only in 1788 that the first attempt to raise the prices of cloths was made. The commercial residents also cheated the weavers by prizing their cloths into inferior letters. The assortments consisted of six categories, and few pieces could reach the first two A and B. The English Company presumably gained by it whereas the weavers suffered, because a piece little inferior to A was prized to letter C and was paid accordingly. This system of prizing of cloths enhanced the balances against the weavers. The extortions by collectors of cloths from aurangs, gumāshtās and appraisers greatly reduced the actual receipts of the weavers.<sup>94</sup> The receipt of the weavers were further reduced by introduction and collection of three taxes called

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93. D.B.Mitra, op.cit., pp.62-63. John Bobb increased the rate by one rupee per piece on each of the superfine, fine and broad tanjibs. There were other examples of the same nature. But in most of the cases, however, the primary producers did not achieve the enhanced price. When cloths were brought to the factory, these were compared with the musters and if found to be the same quality, it was rated and marked as A. Inferior to A was regarded as B, inferior to B rated C, inferior to C recognised as D and inferior to D rated as E. Mr Barwell reversed this method and began to prize from the lowest letter E.

94. Ibid., pp.63-65.

The natural reaction against all these was that the weavers showed carelessness in fulfilling the contracts with the Company. They kept the Company's interest of free advances for longer time and purchased threads of inferior quality and wove cloths for sales in market and to private merchants. Secondly, the weavers concealed company's transactions by weaving their cloths in other houses and sold them through persons who were without Company's advances. Furthermore, after serious delay, they delivered the low quality cloths unsuitable for the Company's 'investment'<sup>96</sup>

To do away with this malpractice, in July 1786, 21 regulations were passed, while another set of regulations was issued on the 23rd July, 1787.<sup>97</sup> The regulations were of two types : (i) regulations relating to the obligations of the weavers to the Company and (ii) penalties for non-fulfilment of the contracts. All the weavers were given tickets specifying their names, place of residence and the issues of the contract from the government.<sup>98</sup> The government ticket holder weavers, in most cases, were forbidden to work for private merchants. Since the weavers were accustomed to work for both Company and individuals, the weavers according to

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95. From John Cheap, Commercial Resident of Sonamukhi to Board of Trade, 29th June, 1794, Board of Trade Commercial Proceedings, 1st August, 1794, See J. Kumar, Select Document on Indian Trade and Industry, (N. Delhi, 1981), p. 182. The kurtchā was a species of tax to the servants of the contractors and gundāh was imposed by a parwanāh from Mr. Aldersy with the consent of the weavers. From an inquiry set up by John Bobb privately, it became obvious that a system of speculation was functioning continuously in combination with the gumāshtās, the inferior aurang servants, and the principal weavers of the district and latter the receipts were divided among themselves. For this see Progs. Board of Trade, 3rd Sept, 1790, Prog. No. 66, Vol. 88.

96. Prog. Board of Trade, 15th July, 1783, Prog. No. 38, Vol. 37.

97. D. B. Mitra, op. cit., p. 67.

98. Petition of American, Greek and Muhammedan Merchants at Dacca, Board of Trade (Commercial) proceedings, 1787. See J. Kumar's, Select Document on Indian Trade and Industry, p. 170.

the rules of the regulation, must deliver the cloths of the Company with specified standard fixed by the Company in the tickets. They had to serve a fortnight's notice if they did not like to take the Company's advance. Again they were prohibited from new engagement unless and until their previous contracts were fulfilled. They were also not allowed to sell in the open market.<sup>99</sup>

In case the weavers failed to deliver cloths according to the specified period, the Company's men were empowered to keep peons after the defaulting weavers. The freedom of the weaver to sell cloths to English Company and other merchants was restricted.

This critical exploration of the organisation of cotton textile industry during the Company period comprehends that the harassment by the Company's gumāshtās or British agents in charge of investment and procurement after Plassey was continuously increasing with the exception at Dacca, Shāntipūr, Māldā and other places where Company's investments faced competition from European, Asiatic rivals and private merchants. But at these places also after 1778, the condition of the weavers became deplorable.<sup>100</sup> This circumstance compelled the weavers to make transition to some other kind of proto-industrial activities available in some other areas generally in iron, coal and mica mining during later half of the 18th century and first half of the 19th century. From the last

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99. D.B.Mitra, op.cit., p.67. Also see, Petition of American, Greek and Mohammedan Merchants at Dacca, Board of Trade (Commercial), Proceedings, 1787, J.Kumar, op.cit., p.170.

100. N.K.Sinha, (ed.), History of Bengal, 1757-1905, (University of Calcutta, 1967), p.113. For sometime, during the years 1771-1773, there was some talk of providing full freedom to all weavers and manufactures but without any practical change. The Company's servants, who were engaged in private trade, exploited their position as investment agents. Interlopers were not outbid. Therefore, some kind of discretional authority was vested in the Company's agents.

two decades of the 18th century, we trace the process of decline of cotton industry; one of the most ancient industry of Bengal. Some of the weavers also migrated to the commercial agriculture generally to be observed as hired or quit-rent labourers in native as well as European indigo and jute plantations in late 18th century and in tea in the 19th century. Therefore, during these years in Bengal, highly developed proto-industrialization made transition to de-industrialization rather than industrialization proper.

### SPECIALIZATION OF PRODUCTION

One of the most glaring and dominant characteristics of proto-industrialization process was the regional specialization of production. Intensification of international, coastal and internal demands together with widening of markets, enabled a progressive regional division of labour<sup>101</sup> in the 17th and 18th centuries Bengal.

The court traditions based on the changing demands of rulers and courtiers were reflected within its creative expression. With the change of the rules, the court traditions changed to some extent, which had some sensitive, generative and degenerative influences on the overall pattern, texture, delicacy, quality, decoration and style of cloths. This trend has been established early in the history of Indian textiles.<sup>102</sup>

The coming of the Muslims into India, introduced a new lease of life in fashion, art and designs. The Muslims injected a new vitality and creative desire, a fresh impetus into fabric art, by

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101. M.P. Gandhi, The Indian Cotton Textile Industry, Ist Part, Present and Future, (Calcutta, 1930), p. 19.

102. Monroe Wheeler (ed.), Textiles and Ornaments of India: A Selection of Designs, Texts by Pupul Jayakar and John Irwin, p. 21.

patronising craftsmanship and infusing new ideas that they had brought with them from their homelands. The synthesis of the Hindu and Muslim cultures, both inherently decorative, reached its peak during the great Mughals.<sup>103</sup> This is observable in the production of cotton cloths of different varieties during the period under review.

The great Mughals were great lovers of flowers of gardens which inspired many of the cloth producers of the period to adopt floral motifs for decoration. Floral motifs were most commonly used and were spaced across the length of a cloth. These floral motifs were shaded in various forms and tones of madder red to produce effect of great delicacy and beauty.<sup>104</sup> The borders generally constituted of broad bands of running floral scrolls. Occasionally, figure subjects like ghorsawar, hamsas and mayurpankis were glided down in the borders. The Dacca weavers had adopted the outline of their design to the straight lines and right angles of their weaves with admirable skill.<sup>105</sup> The commonest motifs were noble men or a lady holding a flower or smoking hookah, a lady riding a horse, and two ladies in conversation etc.

Another type of folk fabrics were derived from alpanas. The patterns of this fabrics was to show village women of Bengal drawing rice paste on the threshold of their dwellings. These drawings were symbols rather than ornament which demonstrated the enactment of rituals performed by women of the village at times of crisis for the promotion of rains, success of the harvest, and

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103. Rustom J. Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p. 17.

104. Pupul Jayakar and John Irwin, op.cit., p. 22.

105. Dr. S. K. Saraswati, Indian Textiles, (Faridabad, 1961), p. 26.

safety of village against epidemics.<sup>106</sup>

The geometric decorative motifs like rings, dots, zig-zag ornaments with clearly defined symbols were applied within panels arranged both horizontally and vertically. The advent of Europeans in Indian commercial intercourse introduced new elements in decorative art of textiles. For this they sent musters appropriate to home taste to train the Indian craftsmen in art of copying or adopting. "These musters were themselves often tinged with the only brand of orientalism familiar and acceptable to Western taste, which was kind of chinoiserie sent to him as a guide, the Indian craftsman created his own variations of Indian chinoiserie."<sup>107</sup> This decorative art was further hybridized by the infusion of Persian influence and by the incorporation of many purely Indian features. Thus birds, butterflies, squirrels and various other fauna were seen in the panels of Bengal cotton cloths.<sup>108</sup>

Consequently, there was great craze for Indian chint in Western Europe which lasted till the last quarter of the 18th century, although protective legislative measures to control their supply were employed without positive results. This was particularly observable in fine grades of Indian chint (chintz), which was in great demand in Europe during the early period of the East India Company's trade. Indian chint were sought mainly for room hangings, that were made in lengths to be cut up by the buyers according to the size and dimensions of the walls they were required

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106. Pupul Jayakar and John Irwin, op.cit., pp. 30-31.  
107. Irwin and Hall, Indian Painted and Printed Fabrics, Vol. I, Historic Textiles of India at the Calico Museum, (Ahmedabad, 1971), p. 36.  
108. Ibid., p. 36.

to cover. This was an end piece; colour utilised in these had the exceptional quality to preserve the colour well. By 1680, orders were being sent to India for large numbers of ready sets of bed hangings. Each set included large and small pardās (curtains), a taster, a bed spread.<sup>109</sup> These freshly coloured and easily washed fabrics naturally attracted Europeans. In the second half of the 18th century, furnishing fabrics were sometimes produced in a purely European style in the set of chair-seat covers.<sup>110</sup> That was why, it was in the middle of the 17th century that the potentialities of textile trade directly with Western Europe began to be recognised. It was the brilliance and fastness of Indian dye colours which were produced in combination with mordants, which when washed, retained its brightness, appealed the European buyers in particular.<sup>111</sup>

These influences on design, pattern, panel, colour, style, fashion and texture of cotton cloths from varieties of sources considerably contributed to the process of localization of manufactures<sup>112</sup> in Bengal and elsewhere in India. The tendency towards

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109. Ibid., p. 37.  
 110. Ibid., p. 37.  
 111. Ibid., p. 36.  
 112. See T. Raychaudhuri, "European commercial activity and the organization of India's Commerce and industrial production, 1500-1750" B.N. Ganguli (ed.), Readings in Indian Economic History, Proceedings of the First All India Seminar on Indian Economic History, 1961, pp. 70-71 and "Non-Agricultural Production; Mughal India", T. Raychaudhuri and I. Habib (eds.), op. cit., pp. 282-283. The first example of this process had been traced at Broach near Surat in the production of specialized textile goods, at least as early as the 16th Century which was followed by a group of villages around the centres of export in Bengal. During the first half of the 17th Century the Company's servant's procurements of their investments 'by shopping around the required items in the emporia, appear to have been relatively unimportant as sources of supply. This means that the process of localization of manufacture has not diversified till the first half of the 17th century.

localization of production witnessed an intensification in Bengal, Coromandel Coast and to a lesser extent in Gujarat in the 17th century. By the mid 18th century, these specialized regions alone supplied their (different merchants) requirements.

In Bengal, in and around factory towns, weavers, spinners and middlemen settled down. These settlements of the proto-industrial producers were deliberately promoted and facilitated by various European Companies to facilitate their purchases or 'investment'. Thus, centres like Dacca, Shāntipūr, Māldā, Hughlī, Qāsimbāzār, Chander-nagar, Chinsura, Bānkipur, etc. had their own specialized products. In some instances, availability of the relevant raw material was the determining factor.

In some of the families the production of cotton yarn formed an independent manufacturing activity, in other families like peasant households, yarn was produced by a subsistence oriented system and yarn production was recognised as a second occupation in weavers families. Coarse yarn was produced and supplied from Qāsimbāzār, Balasore etc.<sup>113</sup> The finest yarn, utilised in the muslin of Bengal was produced in the Dacca district by the families, whose members specialised in manufacturing a particular quality of cloth, their fine sense of touch possessed by a 'differentiate people; their patience and gentleness and the hereditary continuance of a particular species of manufacture in families through many generations.<sup>114</sup> The spinning of the finest yarn of the Dacca muslin required such a delicacy of touch that it was confined to the women of a

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113. Tapan Raychaudhuri, "Non-Agricultural Production: Mughal India," Tapan Raychaudhuri and Irfan Habib (eds.), op.cit., p.271.

114. S. Bhattachary, The East India Company and the Economy of Bengal from 1704-1740, (London, 1954), pp. 182-183.

few families of Dacca and its neighbourhood. These women acquired this standard of perfection by culture through generations. The finest thread was spun by women by hand, while the coarser were produced by charakha or charakhi.<sup>115</sup> The best spinners were the Hindu women from 18 to 30 years of age and after that they began to fall off; after 40 their sight was generally impaired and they became incapable of spinning very fine thread.

Another branch of cotton manufacture in which the regions around Dacca specialized and acquired world-wide fame was weaving muslins of various quality. Baines had the impression that some of the Bengal's muslins should be regarded as the work of the fairies or of insects rather than men, because of its softness and delicacy.<sup>116</sup> These products of Dacca acquired the poetic names: abrawān (running water), baftā hāwā (woven air), and shabnam (dew).

One other branch of industry in which Dacca acquired prominence was the manufacture of the tinsel work. This branch of Dacca industry received no promotion from the European markets and continued because of the demands of local Hindu people and consequently,

115. Ibid., p. 183.

116. Edward Baines, History of the Cotton Manufacture in Great Britain, (London, 1835), pp. 56-58. William Ward asserted that at Sonargōan and Vikrampur, muslins were woven by a few families of a superfine quality and required 4 months to weave one piece which sold at Rs. 450-500. When this muslin was laid on the grass and the dew has fallen upon it, it was no longer discernible.

it retained the purity of its artistic style.<sup>117</sup> Tinsel-printing was also practised in Calcutta.<sup>118</sup>

The art of embroidery was one of the most important industries of Dacca, dominated by the Muslims. Embroidery was either worked in loom or wrought by needle work.<sup>119</sup> The fine needle work or embroidery had its origin in Egypt and the celebrated art of Egypt.<sup>120</sup> It seems probable that the art of embroidery was first introduced into Bengal from the banks of the Euphrates.<sup>121</sup> This origin of embroidery in Bengal is further strengthened by the tradition at Dacca that the needles previously in operation were procured from Bassora. This was precisely the reason that Bassora and Jiddah were the marts for the embroidered goods of Bengal. Silai afforded the employment to a large body of dārji of Dacca.

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117. Dyes were used in the manufacture of tinsel work, which is a very old established industry at Dacca. The exact antiquity of this industry is very difficult to trace, but it is very important on account of her retention of all the purity of its artistic style. The tinsel decoration was largely used at Hindu wedding and sacred festivals. Sheets of tinsel were pressed into the dyes, and the raised ornament. In the vigorous design and excellent drawing of the ornament it followed the best tradition of Indian art. This was traced by E. B. Havell. Technical Art Series, 1902 Plate XII, Two wood dyes, from the collection of the government Art Gallery, Calcutta. Indian Art: Technical Art Series of Illustrations of Indian Architectural Decorative Work for the use of Art Schools and Craftsmen, (Delhi, 1977).

118. T. N. Mukherjee, Art and Manufacturing, (Calcutta, 1881), p. 350.

119. Ibid, p. 363.

120. James Taylor, A Descriptive and Historical Account of the Cotton Manufacture of Dacca in Bengal, (John Mortimer, London, 1851), p. 100.

121. Ibid, p. 101. Also see J. Forbes Watson, op.cit., p. 114.

The largest group of Bengal embroideries surviving from 16th and 17th centuries were those commissioned by the Portuguese at Satgaon. The embroidery of this school commonly consisted of bed spreads of large dimensions, small numbers of hangings, shawls and mantles.<sup>122</sup> The designs which covered almost every square inch of the ground were worked in yellow monochrome silk (Muga, Tasar or eri silk).

Designs were of the pictorial type, usually incorporating hunting scenes of the Portuguese Soldiers, European figures, drinking and marine scenes with ships, fishes, etc. Sometimes the embroiderers depicted scenes from the old Testament and from Greece-Roman repertoire. Hindu themes were also depicted, a favourite one being the Vaiṣṇava legend of the great flood.<sup>123</sup> These scenes were outlined in chain stitch and usually completed with fillings of back stitch. Sometimes details of the design were first embroidered on pieces of cloth and then applied to the ground. Another feature of style was the way in which the figured compositions were divided into self contained narrative panels, without logical sequence, organised within a strictly symmetrical plan. In the treatment of individual figures, the leading characters were enlarged by abandoning the proportion of axillary characters. Perspective and depth were hardly used, the general effect being one of flat patterning, characteristic of Bengal folk art.<sup>124</sup>

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122. John Irwin and Mr. Hall, Indian Embroidery, Historic Textiles of India at the Calico Museum, Vol. II, (Bombay, 1973), p. 35.

123. Ibid, p. 35.

124. Ibid, p. 36.

Lace, as it was understood in Europe, was not known and practised in India in general and in Bengal in particular. Lace manufacture had lately been introduced in India among the native Christians of Madras.<sup>125</sup>

The industries associated with the bleaching, dressing and packing were also flourishing around the suburbs of the city of Dacca. Abū-l Faḥal referred to Catarashunda in Sonargong as the most celebrated centre of bleaching. Naraindih and Tezgong in the vicinity of Dacca during the late 18th and early 19th century were famous bleaching centres for British, Dutch and French factors.<sup>126</sup> Next to bleaching was the nurdeah who arranged the threads of cloths that were displaced during bleaching. Then, the need of rafugārs was realized, who repaired cloths that had been damaged during bleaching by joining broken threads and removing knots from threads. Rafugāri is a branch of needlework in which Muslims acquired a degree of manual dexterity and

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125. T.N. Mukherjee, op.cit., pp. 362-363.

126. J.F. Watson, The Textile Manufacture and the Costumes of the People of India, (London, 1867), p. 70. Catrasunda in the 17th century was prominent for its water, which had the capacity to provide a peculiar whiteness to the cloths washed in it. Similar property had been traced in the water found in the vicinity of Dacca extending from Naraindih, the place where bleaching was principally practised during the Company's period, to Tezgong, about four miles distant from it. The water was brought to bleaching grounds from the wells but this was not the case during rainy season.

perfection.<sup>127</sup> Dhobās or dāgh-dhobees were washerman who were involved in removing spots and stains from muslins.<sup>128</sup> Ironers and bustabunds (Piling Cloth) also flourished in and around Dacca.

Malmals and Khāsas (cossas) were produced at Nadia.<sup>129</sup> Māldāh and Shāntipūr, Qāssimbāzār, Hughli, and later Chinsura and Chander-nagar became important centres of cotton and silk manufactures.

### C A R P E T S

Indian carpets were of two kinds: cotton and woollen. Generally they were classed as cotton darīs and satranjīs and woollen rugs and carpets but in reality dari is the native word for rug and satranjī<sup>130</sup> for a carpet.

Woollen pile carpets, known by the name of kālin, kālichā or galichā, originally manufactured in the wild north of Persia - Kurdistan, Kāmran, Khoorasan and Feraham were introduced into India by the Muslims.<sup>131</sup> The wet climate of India was inappropriate for the yield of soft wool suited for the production of best carpets. These carpets were made in previous centuries around the deserts of Central Asia.<sup>132</sup> The moist atmosphere of India was unfavourable for the preservation of this magnificent product of art.

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127. An expert rafugars could extract a thread 20 yards long from piece of the finest Muslin of the same dimensions and replaced it with utmost care in the finest quality called Chuna or 'Picking out a thread' see, Ibid, p.72.

128. The spots and stains were removed from Muslins by using the juice of amroola plant, which yielded an acid like called Sorrel. To remove iron marks, the stains and discolourations a compound of ghi and mineral alkali was used. Ibid, p.72.

129. Shafaat Ahmad Khan (ed.), John Marshall in India, 1668-1672, Notes and observation in Bengal (1668-1672), Vol.V, (Oxford University Press, 1927), p.66.

130. George C.M. Birdwood, The Industrial Arts of India, Part II (Piccadilly, 1880), pp.284-285.

131. T.N. Mukherjee, Art and Manufacturing, p.389.

132. Ibid, p.388.

Darīs and Satranjīs were perfectly distinct in style and made from the usual Indian pile carpets and rugs. These (Darīs and Satranjīs) were made of cotton and in pattern, these were usually striped, blue and red, or blue and white, or chocolate and blue and often of square and diamond shapes. Sometimes, gold and silver were introduced in producing picturesque designs like these observed on the bodies and apron worn by Italian peasant women.<sup>133</sup> Striped satranjīs of very superior texture were made at Rāngpur in the Rajshahi division. This was made of a peculiar design in blue on white ground which resembled in shape the foot of an elephant, hence called philpāyā.<sup>134</sup>

The manufacture of pile carpets was introduced into India by the Saracens or Musalmāns, who not only encouraged the indigenous arts but also brought the handicraftsmen with them from Baghdad, Shiraz and Samarcand to introduce Persian craftsmanship in pile carpet manufacturing in India.<sup>135</sup>

Velvet carpets were made at Murshidābād.<sup>136</sup>

#### T E N T   A N D   S A I L

The necessity and importance of the tent and sail in the Medieval period compelled the state to found a separate department called Farrāsh-Khāna (Tent House).<sup>137</sup> Besides their unavoidable utilisation in military establishments, they were widely required by the imperial courts especially when they moved from one place

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133. George C.M. Birdwood, op.cit., p.285.

134. Ibid, p.285. Also see T.N. Mukherjee, op.cit., p.307.

135. Ibid, p.285. Also see T.N. Mukherjee, op.cit., p.389.

136. Ibid, p.289.

137. N.S. Gupta, Industrial Structure of India during Medieval Period, (New Delhi, 1970), p.114.

to another as also by the moving business qāfilas. Qāfilas preferred to have a large bundle of tents always ready with them to meet emergency. It was also the need of the European community in India which encouraged the production of tents. Numerous vessels which plied between the different eastern parts encouraged the production of sails.<sup>138</sup> Namūnās or specimens used in the construction of the tents and sails were made on the canvass of cotton. The strength, lightness and other good qualities of the cotton were always kept in mind, while selecting the fabrics for these purposes. The quantity of cotton annually consumed in India for the production, manufacture of sail and tent cloth was very large. Abū-l Faḥl mentions 12 types of tents generally produced and used in imperial establishments.<sup>139</sup>

#### OTHER MANUFACTURES OF FIBRES

The hemp, flax, sunee, chunch and isbund, were some of the fibre producing plant during our period.<sup>140</sup> A demarcation line was distinguished by Roxburg, then the Superintendent of the Company's

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138. J. Forbes Watson, op.cit., p.85.

139. N.S. Gupta, op.cit., pp.114-115. On the top was the bārga when enlarged was able to contain more than a 1000 people. A plain bārga cost Rs.10,000 while the price of one full of ornaments was unlimited. The other types were: chubin, rāwati, do asigana māṅḍal, zamīndoḥ, māṅḍal, athkhamba, khargāh, the shāmīānā, sarparda and gulabar of different design and make. According to Abu-l Faḥl, to erect barga tent, 1000 specialized workers worked for a week with the aid of machines. This shows the vastness and system of erecting the tents and advanced level of technique and skill. The state expended huge money on the maintenance and the production sight of this department.

140. J.F. Royle, Essays on the Productive Resources of India, (London, 1840), p.333.

Botanical Garden in Calcutta between the species of hemp and jute in his letter to the Governor General in Council dated the 23rd December, 1794.<sup>141</sup> The main difference between pāt and sunn hemp was that the fibres of the former were far more softer and finer than the later which appeared coarse and tough. Fibres of sunn-hemp were utilised in rope making.<sup>142</sup> The malghumbihul, kumbhee, dhak, bhabhar, dab, surkura, masia, michat and bidasundi were other fibre yielding plants, though not jute.<sup>143</sup> Tapan Raychaudhuri has traced the earliest available references to jute cloth in the reign of Alivardi, whereas K.K. Dutta observed the prevalence of the weaving of jute cloths in Calcutta and at several other places in Alivardi's time. This is attested to by references to gunnies in the East India Company's investments from Bengal as well as in the list of articles sold in the Calcutta market. J.C. Sinha recognised that hand woven jute was a subsidiary industry of Bengal in the First half of the 18th century and by the middle of the 18th century there developed a fair export

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141. H.R. Ghosal, Economic Transition in the Bengal Presidency, 1793-1833, p.150.

142. W.W. Hunter, A Statistical Account of Bengal, Vol. III, (Delhi, 1973), pp.334-335.

143. J.F. Royle, Essays on the Productive Resources of India, p.233.

trade in gunnies. Reference of the gunny was made in a letter dated 22th April 1681.<sup>144</sup>

Cloth made of jute fibre was called tānt. The reddish variety of jute was called bon-pāt. It was employed for making the coarse kind of cloth called megillā in Bengal and another tānt was called choti.

It was the intense proto-industrial activities throughout the 18th century which intensified cultivation of commercial agriculture in late 18th century and the need to supply proto-industrial products to various international markets increased the need of packing materials. Added to this was the unavoidable need of jute as raw materials in many proto-industrial products like, gunny bags, jute cloths, rope, cotton jute mixed cloths, paper, carpets, chātee sometimes in shipping, in making fish nets, twine, cordage and canvas increased its cultivation to various parts of rural Bengal in the late 18th century.

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144. Tapan Raychaudhuri, "Non-Agricultural Production: Mughal India," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. I, C. 1200-C. 1750, (New Delhi, 1982), p. 272. Sann-hemp was undoubtedly found in all Mughal provinces. Cordage from coir to meet the requirements of local shipping in particular was also prevalent in Bengal. Ropes for packing silk-bales became a local specialized industry of some repute at a Qasimbazar suburb but in totality, information on packing material available in the contemporary sources is of scanty nature. Also see K.K. Dutta, Alivardi and his times, (Calcutta, 1963), p. 184. Jute was produced in Bengal during late 17th and early 18th centuries even in the absence of any large export trade. For early and middle 18th century information about jute see, J.C. Sinha, Economic Annals of Bengal, (London, 1927), p. 37. London, the 22th of April, 1681, our Chief and Council at the Bay quoted in the copies of letters from Court to Bengal, Fort St. George and Hughli.

Two species of jute were cultivated in India, C. Capsularis and C. Olitorius. The varieties of C. Capsularis were more numerous than those of C. Olitorius, the former being conspicuously wanting in permanency.<sup>145</sup>

Jute fibre was called pāt or koshtā while the plant was called naliā in Dacca and Mymensing districts, the best variety producing jute regions of East Bengal. The jute cultivation in these two districts of Bangladesh was introduced in the last quarter of the 18th century. At that time, jute was sold at these places at 8 ānas per maund and its fibres were mainly employed for making ropes. Little latter, sack cloths were manufactured for packing rice, salt and sugar and also for exporting to Calcutta market.<sup>146</sup>

In 1792 Atkinson, commercial Resident of Jangipur observed four kinds of fibre plants grown in the Murshidābād districts called ghore sunn, sanchipāt, coochmundan pāt and Anleah pāt. Jutes of various quality and variety were produced in almost all

145. The fruit of the former had a small rounded capsule while that of the later was elongated. The fibre of C. Olitorius was inferior to that of C. Capsularis, but the superior varieties of both species produced excellent fibre if properly extracted. The differences between the varieties had been precisely because the local conditions of soil and depth of water. Some of the races of each species had purple-red stems other green stems. The red-stemmed races gave inferior fibre than that of the green stemmed varieties. See, The Imperial Gazetteer of India, The Indian Empire, Vol. III Economic, (New editions, Oxford at the Clarendon Press, 1908), pp.46-47.

146. Jute was a rainy season (kharīf) crop. Its sowing begun in February and it was harvested upto September. See, Syed Muhammed Taifoor, Glimpses of Old Dhaka, (Dacca, 1956), p.8. Jute was cultivated in whole of Mymensing district, but in particularity in alluvial soil, formed by the 'Brahmaputra in the South-Eastern tract between Ghafargaon and Bairab bazar in the north of Dacca. 'The best time for harvesting was when the plant was in the flower and just before the appearance of the pods when the fibre was of very superior quality. See W.W. Hunter, A Statistical Account of Bengal, Vol. V, (Delhi, 1973), p.421.

the regions of Bengal.<sup>147</sup>

Therefore, in the last quarter of the 18th century jute cloths, tāts (jute carpets) were manufactured at Ghoraghat.<sup>148</sup> Ropes of many variety and quality was also manufactured during the last

147. See J.C.Sinha, "Jute in Bengal", JASB, (New Series), XXXVII, pp.152-153. In Dinajpur district ghore sunn was produced. In Nadia, Bogra and Mymensingh, sanchipat was cultivated. Amleah pat was largely utilised in gunny bags. The jute cultivated in Karimganj were superior in fibre, colour and length, Bhawan jute was good in length but inferior in other respects. Other variety were called Amrah sun, chandan sun and patua sun. See J.F.Royle, Fibrous Plants of India fitted for cordage, clothing and paper, (London, 1855), p.244. In Rangpur parbati and jat pāt were produced. The former was of superior quality, strong textured and of a light reddish colour whereas the later was of inferior quality of fibre and of a whitish colour. See W.W.Hunter, A Statistical Account of Bengal, Vol.VII, (London, 1876), pp.242-243. The desi jute was cultivated in Hughli district. The light alluvial soils were admirably suited for jute cultivation. Jute was chiefly grown on land which was liable to be submerged when the plants had made some progress. Good quality of jute, however, had been grown on fairly high land in Bengal, provided the cultivation was liberal and there was sufficient water and dampness during the whole period of its growth. See, The Imperial Gazetteer of India, The Indian Empire, Vol.III, Economic, (New edition, 1808), p.47. Some jute was sown in March and cut in July and was called aus or early jute which was inferior in quality. The other variety was sown in April and May and was cut in August and September and was called aman or late jute.

148. K.K.Dutta, Studies in the History of Bengal Subah, Vol.I, 1740-1770, (Calcutta, 1936), p.430.

quarter of the 18th century<sup>149</sup>. Further, during the last quarter of the 18th century the local, international and coastal needs of packing raw cottons, raw silks, organzine, sugar, indigo, opium, saltpetre and many other proto-industrial products and other items of export increased the supply of jute products. During the early 19th century Royle recorded the export of Indian Jute from Calcutta to many countries amounted to 14,565 maunds. These needs must have encouraged the production of a cloth called chatee during the last decade of the 18th and

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149. Royle believed that the length of fibres was largely obtained by twisting fibres together. By this method a certain degree of compactness was also obtained although the break was more frequent than slip out from the mass. This process also prevented the infiltration of water and the rope was preserved. Certain amount of twist was essential, any excess was injurious. Therefore, great precautions was required in twisting the fibres. First operation in making rope was the twisting of certain fibres into a thick thread which is called a yarn. These yarn vary in size, from 1/12th to a little above 1/9th of an inch in diameter. These yarn were then warped so that they may bear any strain equally. The next process was to twist a number of yarns (say from 15 to 25) into a strand in an opposite direction to that of the yarn so that any tendency in the yarns to untwist may be counteracted by an opposite tendency in the strand. Three of these strands formed a rope which Tomlinson called a hawser laid rope. The second laying was consisted of four strands and was called shroud hawser laid rope. The third laying was consisted of three hawser laid rope and called a gigantic rope or cable.

first decade of the 19th centuries.<sup>150</sup>

Very scanty or little or no recorded information is available in the contemporary sources regarding the organization of jute industry in Bengal. In the first half of the 19th century the cultivation of jute was carried under the system of advances by the capitalists who had made the advances at high rate of interest on their money advanced. Transactions between these petty dealers and the actual purchasers were carried on by means of trained brokers. In other places, the mahajan made the advance on terms that he was to be repaid in jute at the market rate of the day with a stipulated sum of money in form of commission. In other places the whole produce of the field was made over to mahajan, who deducted the amount of his advance and interest from the proceeds of the sale of the jute. Where jute was not grown under advances, the cultivators

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150. J.F. Royle, Essay on the Productive Resources of India, (London, 1840), pp. 114-115. Here Royle recorded the quantity of jute export from Calcutta Port. For the production of chatee in Bengal, see J.F. Royle, Fibrous Plants of India fitted for Cordage, Clothing and Paper, pp. 246-247. Two kinds of spindles were used in preparing chatee called takur and dhara. The dhara was a reel, on which a thread when sufficiently twisted was wound up while the takur was a kind of spindle which was turned upon the thigh or the sole of the foot. The ghunghuree, a kind of spinning machine was also used. The pieces were consisted of three or four narrow cloths sewed together. The pieces of four or five cubits long and from two to three cubits wide cost two to eight anas. Some of the pieces were sewed with red and black borders. Such cloths were more durable than the cotton. The chatee was also made from the same stuffs in three different qualities. This was always woven in pieces from 3 quarters to one cubit wide of which two or three pieces were sewn together into one piece before it was sold. The first was required and prepared for bedding purposes in the size from four to five cubits long and from  $2\frac{1}{4}$  to 3 cubits wide and sold at about Rs. 8 per 100 pieces. The second was prepared for covering bales of cloth was of the same dimension but more thicker than the former. 100 pieces cost Rs. 6. The third was intended for packing rice. This was about the size of 4 cubits long and  $1\frac{1}{2}$  cubits wide. 10 such bags cost Rs. 4 or 5. These were produced at Mālda.

151. W.W. Hunter, A Statistical Account of Bengal, Vol. 5, (Delhi, 1973), pp. 87-434.

took the raw produce of his crop in bundles, to the nearest hāt and sold it to petty traders called pāikārs bepāris and baniās etc. The petty traders, after buying the fibre, either disposed of on their own account or made over to the mahājans from whom they may have received advances.

From this it can be assumed that above systems of organization of jute cultivation also existed in most of the regions of Bengal in the later half of the 18th century. The organization of jute proto-industry in Bengal is still unknown. Therefore, the chances of transformation of jute proto-industrial system into capitalist industrial system proper was meagre in absence of any input provided to jute proto-industrialization from governmental and administrative apparatuses. In the course of 19th century when the jute proto-industry became more profitable, the process of industrialization in jute proto-industry was controlled by British Capitalists. This was because of enhanced requirements of packing materials.

#### I N D I G O

Indigo had a long history of its production in India. Pliny called it Indicum, and in the 'Periplus' it was 'Indian Black' exported from Barbaricon on the Indus. The word 'Black' may be instructive to its association with nīla. Indigo Fera,

as genus of herbs belonged to the Leguminous.<sup>152</sup>

Before the discoveries of new commercial route to India in the 1498, Indian indigo reached Europe through the Persian Gulf and Alexandrin. Even in the beginning of the 17th century, the English manufactures sent their white cloths to be dyed in Holland. The deterioration in the relation between Dutch and Portugal, forced the Dutch to explore new methods for the procurement and the supply of indigo directly from India. The skill of the Portuguese stopped short of utilising in home industries the materials which their maritime trade brought to their coastal shores. Hence, Indian indigo first exported to Holland and from there to whole of Europe. In 1631, Dutch East India Company exported enough indigo directly to Holland.<sup>153</sup>

In course of time, the colonialists (the Portuguese, the Dutch, the English and the French) accepted Indigo cultivation. Indigo cultivation spread very soon and later European skill and capital in Indigo cultivation killed the Indian trade in Indigo. Further, it was the growing demand of West Indian Indigo early in the 18th century in the British market that reduced Indian Indigo

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152. Indigo comprises some 250 or 300 species, distributed throughout the tropical regions of the globe, India having about 40 species. Of these 40 indigenous species 10 were occured throughout plains, and the Himalayan Hills of India upto the altitudes of 3000 ft to 5000 ft. About half of that number were temperate and widely occured between 6000 ft to 8000 ft. Bombay and Sind possessed 29 species in all and it had about 10 to the local forms, some of these were widely distributed to Madras and Ceylong, the Punjab and the North Western provinces possessed 2 local species, Madras 3 local species while Bengal had not possessed any species that was confined to Bengal. For this, see, George Watt, Pamphlet on Indigo, (Shilong, 1890), p.1.

153. Ibid, p.9.

early in the 18th century in the British market that reduced Indian Indigo in the British market. And finally, in 1724, Indian Indigo was omitted from the list of Company's investment.<sup>154</sup>

In 1747, most of the British colonies in West Indies abandoned Indigo cultivation for growing more profitable plantation i.e. sugar and coffee. As a result, Indigo supply to British market during the next few decades was reduced considerably. This reduction in Indigo supply was fulfilled by Indigo supply from the American colonies. It was also stopped owing to the American War of Independence. Now, the demand of Indian Indigo was revived.<sup>155</sup>

Therefore, European indigo planters were brought from the West Indies and were established in select districts of Bengal.<sup>156</sup> Louise Bonnard (1777) and Carel Blume (1778) were the earliest pioneers among European planters in Bengal who could equal the quality of their manufacture with West Indian Product. Louise Bonnard started a small factory at Taldanga in Hughli district and later he shifted his sphere of activity to his factory at Gondalpara near Chandernagar. Many West Indian slave planters were also encouraged to apply their experience in Bengal.<sup>157</sup> Other engagements of the same nature were successively made until the year 1788.

The early efforts of the Company to encourage the industry did not, however, yield satisfactory results. During the initial

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154. J.C.Sinha, Economic Annals of Bengal, p.178.

155. H.R.Ghosal, Economic Transition in the Bengal Presidency, (1793-1833), pp.73-74.

156. George Watt, Pamphlet on Indigo, p.11.

157. Chittabrata Palit, Tensions in Bengal Rural Society, (1830-1860), (Calcutta, 1975), p.96.

period of its production, the high cost of its production at home and fluctuations in demand made indigo an unprofitable export.<sup>158</sup>

First contract was made between Board of Trade and Mr. Princep in the year 1779-80. Princep introduced indigo into Hughli district in 1780 and the industry was well established by 1793.<sup>159</sup> From a contemporary account of the losses from Indigo industry, it appeared that there were losses with contractors which can be shown by the following statistics.

Cost and charges	£	30,207
Produced only	£	21,596

Loss £ 8,611, this is equal to 23%.<sup>160</sup>

These frequent losses compelled the Company to cease to purchase the production of private persons for atleast three years and opened up the trade in indigo to individuals and Company's servants under Company's protections, upon payment of freight, companies duties and charges.<sup>161</sup> This was aimed at creating competition and improving the quality of indigo as high as possible. Added to this was a reduction in the cost of manufacture. It might also afford the Company's servants a mode of

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158. H.R.Ghosal, op.cit., p.74.

159. Amiya Kumar Banerjee, West Bengal District Gazetteer, Hooghli, (Calcutta, 1972), p.287.

160. "Extract letter from the Court of Directors to the Governor General in Council Bengal dated 28th March, 1788." See, Report of the proceedings of the East India Company in regard to the Culture and Manufacture of Indigo, (London, 1838), p.8.

161. See, Report of the Proceedings of the East India Company in regard to the culture and manufacture of Indigo, (London, 1836), P.IV-V. Also see H.R.Ghosal, op.cit., p.74.

remitting their fortunes to Europe, which would be legal, advantageous and adequate. This flourishing industry was further encouraged by the Company by making large advances of money, secured on the indigo, on a plan of remittance to London and this course of action was followed for many years.<sup>162</sup>

During these years, the Board of Trade realised the necessity of improving the cultivation and manufacture of indigo as a staple product of Bengal of a quality fit for European markets.<sup>163</sup> The rapid decline of indigo cultivation in St. Domingo proved favourable to Bengal's indigo industry and trade. Mr Robert Heaven was sent to Bengal for bringing about improvement in Indigo cultivation and stayed there for 5 years.<sup>164</sup> Mr. Boyce was sent to Bengal for 3 years.<sup>165</sup> Qualitative improvement in Bengal indigo was traced out with satisfaction in 1792 by Court of Directors. Bengal indigo had already surpassed the American and French indigoes, but the Company's trade in indigo on the whole, was still unfavourable.<sup>166</sup>

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162. Report of the proceedings of the East India Company in regard to the culture and manufacture of Indigo, (London, 1836), p.V.

163. Bengal Board of Trade (Indigo), Proceedings, December 6, 1811.

164. "Letter to Bengal, 27th March, 1787." See Report of the proceedings of the East India Company in regard to Culture and Manufacture of Indigo, p.6.

165. Extract letter from the Court of Director to the Governor General in Council Bengal, dated 28th March, 1788;" in Report on Indigo, op.cit., p.10.

166. H.R.Ghosal, op.cit., p.74. That was why the Board of Trade in their minute of the 20th October, 1790, opined that until the indigeneous manufactures were able to produce superior quality of indigo, the trade in the commodity, could not be considered decidedly established.

In Bengal proper indigo manufacture appeared to have flourished best in Pabnā, Farīdpur, Nadiā and Jessore and many factories were established in these districts. The early records of the Company referred to indigo works also in Murshidābād, the 24 Parganas, Midnapore, Burdwān, Dinājpur, Rāngpur, Rajshāhi and Mymensing. During the later half of the 18th century indigo plantations were extended to other parts of the province. The manufacture of indigo in Birbhūm district was commenced in 1795 by John Cheap, Commercial Resident of Sonāmukhī and made considerable progress afterwards.<sup>167</sup>

In the last decade of the 18th century, indigo plantations and preparations considerably increased. It was not sufficient from the Bengali point of view yet it formed an important part of English indigo import from India as compared to its import from other European countries. This is evident from the following statistics:

Quantities of Indigo imported into England in the year 1789 from the under mentioned places:

Spain	-	318,782 lbs	
Portugal	-	96,647 "	
America	-	846,414 "	
East Indies	-	871,469 "	
Ostend	-	240,339 "	
Other parts	-	79,906 "	168

This statistical comparison demonstrated the magnitude of British industrial demand for raw materials from different European

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167. H.R.Ghosal, op.cit., p.77. Also see W.W.Hunter, The Annals of Rural Bengal, (London, 1868), p. 357.

168. Letter to Bengal, 6th May, 1791, Report of the Proceedings of the East India Company in regard to the culture and manufacture of Indigo, p.23.

and Asian countries during the last decade of the 18th century, the period of first industrial revolution. Thus, the British industrial need for raw indigo hindered the full blown development of proto-industrialization in indigo craft and its transformation in capitalist industrialization.

SUGAR - CANE AND SUGAR

On basis of available proofs and documents, the best authorities of ancient and modern times have opined that the original home of the culture and manufacture of sugar-cane and sugar was in China.<sup>169</sup> China practised the culture and manufacture of sugar-cane well before 2000 years when it was known and adopted in Europe. No mention was made in the pre and proto-histories of Egypt, Judea etc. It were the Greek physicians who for the first time have spoken of it under the name of Indian salt.<sup>170</sup> Strabo also referred to sugar-cane.<sup>171</sup> Dioscorides and Pliny assigned to it the sweet taste and other characteristics which compelled us to denominate it as sugar-candy.

It is not possible to provide a date of sugar-cane cultivation in India together with its adoption from China. It is assumed that India practised the culture of sugar-cane atleast from the time of the Buddha or little later. This is certified

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169. George Richardson Porter, The nature and properties of the Sugar-Cane with practical directions for the improvement of its culture and manufacture of its products, (London, 1830), pp.1-2.

170. Ibid, p.2.

171. D.D.Kosambi, An Introduction to the Study of Indian History, (Bombay, 1973), p.192.

from the fact that the Indian salt was brought to Greece and Rome from India within the Ganges and Arabia, but it was not cultivated or manufactured in these countries. <sup>172</sup> Marcopolo in 1250 spoke of Bengal sugar.

Although sugar-cane can be cultivated successfully in several sorts of soils but the most appropriate soil for the culture of sugar-cane is the mixture of clay with sand. <sup>173</sup>

The district of Burdwan may be considered as one of the most productive and highly cultivated and probably one of the most ancient sugar-cane growing districts of Bengal. <sup>174</sup> Many

172. George Richardson Porter, op.cit., pp.2-3.

173. S.H. Robertson, The Bengal Sugar Planter; Being a treatise on cultivation of the sugar-cane and Date tree in Bengal and the manufacture of Sugar and Rum therefrom, (Calcutta, 1849), pp.21-27. Also see, The Imperial Gazetteer of India, The Indian Empire, Vol. III, Economic, (Oxford, At the Clarendon Press, 1908), p.41. Manuring was most important in Bengal sugar-cane husbandry. Ploughing was constantly practised for properly preparing the lands to plant sugar-cane. In some regions ploughing was in operation from January to March and thus ploughed the land from 8 to 12 times previously to planting in April; while in other areas only two ploughing was in operation in March before the planting. Then land was watered. The ground so prepared was planted in Jan, Feb or March and even in April. Digging by kodal, lying up, weeding and watering were required for the proper growth of sugar-cane within a regular interval of time depending on weather and rain. The sugar-cane is fairly ripe never before than January under native cultivation and their usual time for cutting may be considered from the 13th of that month to the 13th March. The ripeness of the cane is determined by a trial boiling. If so many measures of juice gave a satisfactory weight of jaggery, harvesting operation was proceeded with. The produce from a bigha in clean canes, with a fair crop, varied from 130 to 160 bāzār maunds: 150 maunds per bigha may be considered to be a good average.

174. Ibid, p.16.

varieties of Sugar-cane were cultivated in almost every part of Bengal.<sup>175</sup>

It appears obvious from the testimony of the writers of Sultānate and Mughal periods that first class white sugar was manufactured from gur throughout Northern India, Burdwan and Murshidābād division in Bengal upto Gorakhpur in Oudh before the advent of the British.<sup>176</sup> The manufacture of sugar in India throve fairly well up to the time of Napoleon i.e. upto the beginning of the 19th Century and a large quantity of sugar was exported to European countries even then.

Milburn quoted the following passage from the petition of Calcutta Merchants to the government, dated 1776, "the annual exportation (of Bengal Sugar) was 50,000 maunds, which yielded a profit of about 50%".<sup>177</sup> But, afterwards for a decade or so, there was slump in the sugar trade precisely because of an exorbitant increase in the price of the article and to an increase in the charge of transportation. Consequently, Bombay

175. George Richardson Porter, loc.cit., pp.217-218 and also see S.H. Robertson, loc.cit., p.14.

i. Cadjodee, in purple coloured and yields a sweeter and richer juice than yellow or light coloured, but in less quantities and it is harder to press.

ii. The Pooree, light yellow coloured, including the white, but assumed a deeper yellow when it ripens or the soil is rich.

iii. Cullerah, grown in swampy grounds, light coloured and grows to a great height. Its juice was more watery and yielded a weaker sugar.

iv. The China cane, is most valuable kind, from its very hardy character, with standing attacks of white ants, jackals and other enemies. Punsaree, reonda, newar and kewahee etc. were other sorts of sugar-cane produced in Bengal.

176. M.P. Gandhi, The Indian Sugar Industry, its past, present and Future, (Calcutta, 1934), p.2.

177. Milburn, Oriental Commerce, Vol. II, p.270.

received her sugar supply from China, Manila and Java. Actually, Bengal imported 'candied sugar' from China.<sup>178</sup>

To remedy this state of sugar production in Bengal, Calcutta merchants suggested in their petition that Europeans should be encouraged to undertake sugar manufacture in Bengal on West Indian lines. The Company's government accordingly allotted a plot of land for sugar plantation. But the plan was not a success because of the infestation of white ants. In 1776, Mr Joseph Hodgson rented out a piece of land which he had planted with sugar-canes and erected sugar works on West Indian lines. He, likewise, established a distillery for rum which was productive of benefit to Bengal as well as to the Company. Finally, Mr. Hodgson was provided with all suitable encouragement towards perfecting this scheme.<sup>179</sup> In 1790, it was suggested that the export of sugar from Bengal might be augmented by partially taking of the duties levied on the article in other British settlements in the East.

Since, the demand of sugar during late 1780s and early 1790s increased owing to increased tea consumption from 1785, the price of sugar in England rose very high. Added to this, there was a deficiency in sugar's supply from the French Colony of St. Domingo. The crisis in course of time reached to such a magnitude that the British Public requested East India Company for relief. This request was accepted in the General Court of Proprietors of the East India stock, which made on the 15th

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178. Ibid., p.270.  
179. Letter from Court, dated 5th April, 1776, R.P. Patwardhan (ed.), Fort-William: India House Correspondence, Vol. VII, p. 149.

1792.<sup>180</sup> From then onward the Company regularly was importing sugar into England that fetched a profit of 53%.<sup>181</sup> The sugar merchants of England in consequence, applied to Parliament for a reduction of duties which was not finally granted. But this, however, did not appear that this denial prevented the Company from further providing stimulus to the culture and manufacture of the sugar-cane and its products in India.<sup>182</sup>

Another attempt in the direction of improving sugar-cane cultivation was made at this critical time by introducing the West Indian method into Bengal. In 1791, the Directors of the East India Company made an agreement with Lieutenant Paterson, granting him 600 bīghas of land of 100 cubits each, rent free, for a term of 12 years for the plantation of sugar-cane and engaged to sale the whole of its produce on favourable terms to the Company!<sup>183</sup> He worked on his project in Bīrbhūm districts. But, soon, he removed his area of activities from Bīrbhūm to Champaran, where some sugar was produced under his supervision.

Fine sugar was manufactured out of the juices of khajūr (date tree), nārkul (coco-nut) tree and other species of Palm.<sup>184</sup>

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180. Commercial General letter from Court, September 11th, 1811.

181. Bengal Board of Trade (Commercial), Cons., Dec 23rd, 1793.

182. G. Richardson Porter, The nature and properties of the Sugar-cane with Practical Directions for the improvement of its culture and the manufacture of its products, (London, 1830), pp. 212-213.

183. Ibid, p. 213. Also see Home Deptt. Public Cons., May 2nd, 1796, No. 12.

184. H. R. Ghosal, Economic Transition in the Bengal Presidency, p. 66. Also see J. F. Royle, Essays on the Productive Resources of India, p. 231. Also see his, Fibrous Plants of India Fitted for Cordage, Clothing and Paper, pp. 105-108.

Khajūr was found almost in every part of Bengal proper, but it flourished most congenially, in portions of Dacca, Mymensing, Sunderban districts.<sup>185</sup> Jessore, Faridpur, Bakerganj, some portions of Nādia, Barasat, Pabnā<sup>186</sup> and in 24 Parganas.<sup>187</sup>

Nārkul (Cocoa-nut) flourished on the coast of the southern provinces of the Indian Peninsula. It was also found on many parts of the western coast of the Bay of Bengal as well as in the southern parts of Bengal.<sup>188</sup> The cocoa-nut tree was valued for the sap procured by cutting the spathes of the flower-stalks, which was either drank in its fresh state, boiled down to coarse sugar or jaggery or allowed to ferment into spirit and vinegar.<sup>189</sup>

Early in 1793 the Commercial Resident of Shantipur proposed that engagements for procuring sugar from primary producers living

185. S.H. Robinson, The Date Tree: Aprizing essay on its cultivation and the manufacture of its juice into sugar, p.4. Only in the alluvial soils which cover its south eastern portion excepting only such tracts as suffer entire submersion annually from the overflow of their rivers, as is common. The land best suited for the proper cultivation and growth of date tree was laying within an area stretching east and west about 200 miles and north and south about 100 miles covering in total an estimated (rough) area of about 900 square-miles-within an irregular triangular space.

186. S.H. Robertson, The Bengal Sugar Planter: Being a treatise on the cultivation of the Sugar-cane and Date tree in Bengal and the manufacture of Sugar and Rum therefrom, p.45.

187. W.W. Hunter, A Statistical Account of Bengal, Vol. I, Districts of 24 Parganas and Sunderbands, (London, 1875, reprinted in India, 1973), p.140.

188. J.F. Royle, Fibrous Plants of India fitted for Cordage, clothing and Paper, p.105.

189. Ibid, p.106.

in the rural regions be made with the indigenous traders and pāikārs for specific quantities of gur (raw sugar) which, when received, should be paid at the market rate.<sup>190</sup> This provision was viewed by Board of Trade as exclusive dependency of the Company at the mercy of merchants and pāikārs, who would purchase the whole of the available quantity of gur and raise its price according to their choice.<sup>191</sup> Another suggestion by Commercial Resident of Rāngpur was made, who recommended direct advances were to be made to these people for the annual supply of the commodity.<sup>192</sup>

This system did not directly benefit the cane-growers. Complaints were made to the Commercial Resident of Sonāmukhī against the pāikārs who generally entered into contract with the cultivators "late in the season, long after the crops had been planted." Cane-growers, therefore, were provided little or virtually no incentive or encouragement to extend their cultivation.<sup>193</sup> The Company also failed to dictate the prices of the commodity with the contractors.

The Company and other foreign merchants exported some sugar to the markets of England, Europe, Africa, America and Asia. The quantity exported by foreigners was not negligible.

The date sugar as an article for foreign export was hardly in existence previous to the first inroads of the East India Company's trade monopoly in 1813. But it was manufactured locally

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190. Bengal Board of Trade (Commercial), Cons. June 24th, 1793.

191. Ibid, p.

192. H. R. Ghose, Economic Transition in the Bengal Presidency, p. 67.

193. Letter to Board of Trade, Nov. 17th, 1793, (Bengal Board of Trade-Commercial-Cons., Nov 21, 1793).

only to satisfy the wants of the native consumers in and around the few places of its production principally in Jessore and Fareedpore districts and for occasional transport to the principal markets of the adjacent districts like Murshidābād, Dacca etc.<sup>194</sup>

In 1792, it was recorded in an old minute of the Government, Board of Trade at Calcutta that the total production of date sugar in Bengal was then estimated at 15,000 maunds. Within a period of 31 years i.e. from 1792 upto 1813 - the total quantity of all sugars imported into England from the East Indies was estimated in the range of 1,000 to about 6,000 tons per annum except in the year 1801, in which it reached the level of 11,327 tons. In those days most probably all the sugar was exported from Bengal excepting an 'occasional small shipment from Madras'.<sup>195</sup>

Therefore, the possibilities of growing sugar industry as an industrial concern throughout the 18th and in the first half of the 19 century was essentially negligible. The steps towards organising Bengal's sugar production on West Indian lines, if not continuously and whole-heartedly yet haltingly, was a hindrance on the path to develop capitalism in sugar production. Even, the most modern invention connected with sugar-cane pressing, the process of sugar production, and most sophisticated chullahs were not introduced in Bengal's sugar production. Iron cylinder started to be imported from England and found its application in sugar industry only during the first two decades of the 19th century and that too on a very limited scale.

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194. S.H. Robinson, The Date-Tree: A Prizing Essay on its cultivation and the manufacture of its juice into sugar, (Calcutta, 1858), p.5.

195. Ibid., pp.5-6.

Primitive techniques were employed in sugar production.<sup>196</sup>

The methods utilised by Bengali manufacturers of sugar was very time taking which was evident from the following survey report of Major Moody undertaken in 1826. This survey report mentioned a comparative number of days, labour etc. required in different countries for the production of equal quantities of sugar viz.,

i.	In Guiana	- 206 days
ii.	Barbados	- 406 days
iii.	Tortola	- 653 days
and	iv. Bengal	-1200 days

Here labour power remained equal in each country.

#### O I L S

Large numbers of plants yielded oils by expression of their seeds. Of these sesamum, poppy and linseed etc. were most important. These oils substituted mustard and rape oils. The seeds of sunflower, safflower etc. also yielded oils in large quantities.<sup>198</sup>

196. George Richardson Porter held that "Iron cylinders have been brought from England. But the expense attending them caused their use to be dropped. It is found that a number of Bengal mills sufficient to express the same quantity of juice, did the business cheaper than the West Indian Mill."

Near Calcutta the mills utilised two small wooden cylinders placed horizontally and turned by two men with levers and cross-bar handles. See, George Richardson Porter, The Nature and Properties of the Sugar-Cane with practical Directions for the improvement of its culture and the manufacture of its products, p.219. In these wooden mills the cane was passed through the screw several times to extract properly the juice of sugar cane. This method of pressing sugar-cane was much more time-taking because sugar-cane (akh) was pressed many times. The chullahs on which sugar was boiled was also of primitive nature and much more heat was wasted. This was precisely the reason that the process of sugar production during the later half of the 18th century and the first half of the 19th century became very lengthy.

197. George Richardson Porter, loc.cit., p.227.

198. J.F. Royle, Essay on the Productive Resources of India, p.231.

O P I U M

The cultivation of the opium is believed to have been introduced in India during the 15th century. By the middle of the 17th century, India emerged as a major producer of the drug. Bihār including Banāras, and Mālawa, together with other parts of Central India were the principal opium producing regions of India. Some parts of Eastern Bengal were also famous for poppy cultivation of which Rāngpur was on the top. Poppy cultivation had been practised in Rāngpur, Mymensingh, Dinājpur, Bīrbhūm and various remote parts of Chittagong.

Opium was largely consumed by the people of southern, eastern and hilly areas of northern Bengal. It was largely consumed in Midnapore, Hijli, Balasore and Calcutta. Opium was consumed in large quantity by peasants living under the Garo Hills and by Garos themselves. A considerable quantity of opium was consumed by Assamese. Opium was also in demand in Bhutan and Tibet.

The production of alcoholic drinks from toddy sap, mahuwā and molasses were practised in Bengal. In Medinipur (Midnapur) valuable odoriferous oils from flowers and other scented substances' were manufactured for exportation.

It is, therefore, quite clear from this comprehensive analysis that agro-proto-industrial system in rural regions of 'pull areas' in some rural regions of 'neutral areas' and rural

199. Om Prakash, "Opium Monopoly in India and Indonesia in the 18th Century," IESHR, Vol. 26, No. 1, (Jan-March, 1987), p. 64.

200. B.C. Barui, "The Smuggling Trade of Opium in the Bengal Presidency," Proceedings of Indian History Congress, (1974), pp. 286-287.

201. Ibid., p. 287.

202. Tapan Raychaudhuri, "Non-Agricultural Production: Mughal India," Tapan Raychaudhuri & Irfan Habib (eds.), Cambridge Economic History India, Vol. I, C. 1200-C. 1750, (Delhi, 1982), p. 275.

203. Ibid., p. 275.

regions of 'Pull Corridor areas' of Bengal proper (West Bengal + Bangladesh) had its dense and far and wide network throughout the period under review. Important industrial crops like indigo-sugar-cane (akh), opium, tobacco, etc. were introduced and cultivated in the rural regions of 'neutral areas', 'push corridor areas' and 'push areas' only in the late 18th century. The rural regions of 'push areas', 'push corridor areas' and some of the parts of 'neutral areas' had to develop associated agrarian proto-industries dependent on the demand from outside these areas. Therefore, the proto-industrialization in agricultural products in these areas had made its road only haltingly. But this trend in the development of other branches of proto-industrialization is not traceable with certain possible short-term exceptions in the cases of iron and coal industries in the later 18th century.

This high watermark in the development of agro-proto-industrialization in whole of the rural Bengal in the 18th century did not offer an opportunity to make a transition to industrial mode of production rather proto-industrialization stagnated or transformed into de-industrialization. Sharp controversies have arisen around the question of de-industrialization among nationalist economic historians and modern Marxist

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historians of India and abroad (Europe). A.K. Bagchi maintains that the mature phase of capitalist industrialization is accomplished by firstly an increase in the proportion of national income generated by the secondary (industrial) sector, secondly, by an increase in the proportion of the population engaged in the secondary sector and finally, a continual increase in the degree of mechanization in industry. The mere lack of fulfilment of any of these pre-conditions can be envisaged as non-industrial or stagnation and in most of the cases, India witnessed the reversal for the 19th century. Bagchi blamed to the British exploitation of India 'through an exclusive royal monopoly but also through a collective, heirarchical, monopoly of which the major constituents were the European businessmen in collaboration with

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204. The political economists who have done some commendable works in the conceptual frame-work of de-industrialization and backwardness in the third world countries in general in the 19th century, Bill Warner, Gary C. Anders, J. R. Mandle, Nicos Poulantzas, Paul A. Brown etc. are most important. These political economists recognised the colonization of third world countries by metropolitan countries as the major cause for the de-industrialization and backwardness of the third world countries. Among the nationalist historians who have worked out the causes of de-industrialization in India in the 19th century, Dada-bhai Nauroji, Ranade, R. C. Dutta and later R. P. Dutta became important. Modern historians like Bipin Chandra, Tapan Raychaudhuri, A. R. Desai, Irfan Habib, A. K. Bagchi, M. A. Zaidy, Vic Zainy, L. Chakrabarty, Kuznets, M. Mukherjee, D. P. Bhatt, R. D. Gupta, Morris D. Morris, C. P. Simon, Arun Bose, R. P. Masani, J. Krishnamurty etc. have done some critical works directly or indirectly related the question of de-industrialization and backwardness of the Indian Economy in the 19th century. The nationalist and modern historians have viewed that the drain of wealth was the main cause of de-industrialization in 19th century India. It is very difficult for serious historians to view that the pre-colonial Indian Economy had been on the eve of an industrial revolution, only interrupted by the establishment of colonial rule! Recently Frank Perlin has given a new impetus by providing a view direction to the de-industrialization debate. See his "Proto-Industrialization and Pre-colonial South Asia, "Past and Present," No. 1, (1983), pp. 51-98.

some Indian comprador elements and the Indian Landlords and money lenders in the countryside' for the non-development of industrialization. In one of his papers Bagchi has taken pains to demarcate the processes responsible for the evolution of these factors. Only recently Frank Perlin has made some relevant suggestions with partial solution to the problem.

Perlin has replaced the concept of proto-industrialization by the broader notion of 'proto-capitalism within which,

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205. A.K. Bagchi, "De-industrialization in India in the 19th Century: Some theoretical Implications," The Journal of Development Studies, Vol. 12, No. 2, (Jan. 1976), pp. 137-144. Also see his "Some characteristics of industrial Growth in India," Economic and Political Weekly, Annual No. Vol. X, Nos. 5, 6, 7, p. 157. For further study of de-industrialization of India also see his, "Reply by A.K. Bagchi," IESHR, Vol. 16, No. 2, (1979), pp. 149-151. In most of the papers he dealt with de-industrialization of Bihar. And all of his studies are based on statistical analysis. He has recognized certain processes responsible for the development of de-industrialization in India in general and in Bihar in particular. One of the important exponent of his argument is that the absolute numbers of the population dependent on industrial sector decreased from 18.6% to 9.5% between 1809 to 1901. While Marika Viczainy refuted Bagchi's thesis on basis of qualitative evidences for the early 20th century. See his, "The de-industrialization of India in the 19th century. A methodological critique of A.K. Bagchi," IESHR, Vol. XVI, No. 2, (1979), pp. 105-137.

206. He (Perlin) has recognised the term 'proto-capitalism' as general and unspecific because he 'intended to avoid implying too much about the detailed character of such pre-colonial orders at a time when we still know far too little about them.' The use of the term 'proto-capitalism' according to him has two further advantages: first, "it avoids the dualist assumption that India, or any other region, must have possessed economics of a different order from those in which capitalism was generated, or India itself should similarly be divided into structurally discordant capitalistic and pre-capitalistic sector! Secondly, and more specifically, "Commercial capitalism" may thus be retained for the commercial and financial developments associated with towns, ports, traders and manufacturing regions, while at the same time being incorporated as an essential motor of the wider changes proto-capitalism intended to suggest. See his "Proto-industrialization and Pre-colonial South Asia," Past and Present, No. 1, (1983), p. 59.

institutions of commercial capitalism emerged which provided ground to examine the development of de-industrialization process in South Asia. He has employed 'proto-capitalism' to avoid some of the basic questions related to de-industrialization without coherently comprehending the basic tenets of 'proto-capitalism! Perlin, therefore, offered a different and broader perspective to analyse the question of de-industrialization or change in India not as the product of foreign colonial rule but also 'as one of a frame-work of relevance escaping national or continental boundaries, and instead including European traders, Asian commerce and Bengali agriculture as part of a single set of processes, developments and changing structures."

The fundamental defect of Perlin's thesis is the rejection of 'proto-industrialization' and the introduction of rather loosely the model 'proto-capitalism' to study the process of industrialization proper in South Asia; although regional and local monographs based on micro-level industrial investigation show the proto-industrialization during late 17th and 18th century India in general and in Bengal in particular was a well and wide spread phenomenon. This highly developed proto-industrialization made transformation to de-industrialization because of the defective mode of organization of manufactures in the 17th and 18th centuries where demand rather than supply played significant role, production cost was very small, merchant controlled the primary producers rather than the production process, risks involved in production was borne by the petty producers, Commercial rather than the industrial capitalists encouraged

the handicrafts, merchants did not control the productive forces, etc. These factors encouraged the circulating capital to penetrate more into the production process than fixed capital. Therefore, centralised manufacturing workshops based on private ownership did not develop. Although, there existed many state owned centralized manufacturing workshops, where thousand of workers worked to satisfy the needs of state functionaries. These state kārkhānas were managed and supervised by state appointed functionaries whose aim was to yield private income for themselves. Supply in a given time was not a problem to these state kārkhānas. Therefore, the chances of innovation and application of time saving devices in these state kārkhānas was an impossibility. European Company's factories were altogether different centralized organization.

Mobility in any form—beyond the movement of rural producers to the localized centres of production was actually strictly limited. Occupational mobility was negligible. The major example of occupational mobility was from agriculture to weaving. The evidence relating to artisanal mobility from one region to another was few.<sup>207</sup>

Finally, and most significantly, it was the Company's administration that deepened the speed of de-industrialization process by firstly introducing a monopoly in different branches of trade during late 18th century, by opening the trade to India for different merchants, by allowing a remission of export duties causing an immediate loss of £ 100,000 per annum during 1790s,

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207. Tapan Raychaudhuri, "Non-Agricultural Production: Mughal India," op.cit., p.285.

by employing artificial scarcity of market (demand) for Dacca  
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Muslins throughout Europe except London etc. Therefore, English  
colonial exploitation of Bengal's economy through various means  
was only a late comer in the domain of de-industrialization of  
Bengal.

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208. For details of the exploitation of weavers see, Despatch to Court August 24, Para 59, 1750, For the rise of the prices of raw cotton in 1738 see consultations, Dec. 11, 1752. and proceedings, April 29, 1767, Dutch Complain of English Monopoly of the Weavers are quoted in R.J. Long, Selections from Unpublished Records of Government, 1748-1767, Social Condition of Bengal, Vol. 1, (1869), pp. 23, 40, 503. For laying open the trade to India, see Charles Maclean, A view of the consequences of laying open the trade to India and C., (London, 1813), p. 8. For the restriction on fine Muslins see, Letter to the Right Honourable Henry Dundas, one of his Majesty's Principal Secretaries of State and C. from the Committee of buyers of East India Piece goods for Home Consumption, (London, 1792-93), pp. 6-7. But there were certain exceptions in regard with the proposed prohibition, they could not publicly exposed and they would nevertheless essentially be accepted by the private assortment of every retail dealer.

CHAPTER - IV

FOREST-LINKED CRAFTS

Proto-industrialization in Forest products first appeared in those 'pull areas' where forest was situated in abundance with easy availability of overland and riverine transports. The rural regions of such 'pull areas' were characterized by natural endowments of forests, rivers and ocean. Agriculture, in the most part of the year, in such 'pull areas' therefore, was very risky. The inhabitants of such 'pull areas' depended on double occupations: they depended on proto-industrial activities like fishing, furnitures, shipping and other local occupations for the most of the part of the year, but during harvesting and sowing they migrated little towards 'pull' and 'pull corridor areas' in search of short term temporary occupations in agriculture.

Those 'pull areas' which were situated near forests and rivers, mixed proto-industrial activities (agrarian and forest crafts) were a wide-spread phenomenon. Some of the inhabitants of such 'pull areas' were dependent on agrarian production plus agro-proto-industrial-occupations for their livelihood whereas others were dependent on agriculture plus forest-proto-industrial occupations. Sericulture, and other branch of raw silk were produced in these regions. Murshidābād, Shāntipur, Māldā, Qāssimbāzār etc. were important areas. 'Pull corridor' and 'neutral areas' were out of the operation of forest-proto-industrial system. 'Pull corridor' and 'neutral areas' played the role of markets for forest-proto-industrial products.

Certain types of forest-proto-industrial-production was operated in the 'push areas' of Bengal before the introduction

of mining farms. Before the late 18th century, double occupation was prevalent in 'push areas'. But after 1770s tripple occupations in some parts of 'push areas' was a normal mode of occupation. The inhabitants accepted forest-proto-industrial production as normal activities of their household only in the off-time or as leisure occupation. They also worked in coal and iron mines. During harvesting and sowing they sought part-time temporary occupations in agriculture. It, therefore, would be pertinent to explore the spread of forest-proto-industrial system throughout rural Bengal.

## S I L K I N D U S T R Y

### HISTORY

The original home of silk culture has been discovered in China. But it did not take much time to make its way in India. Although no reference of silk fabrics was made in the Vedas, it became common at the time when the great epics, the Mahābhārata and Rāmāyana, were composed.<sup>1</sup> Fabrics were manufactured out of the tassar silk, of eri silk or silk produced by worms fed upon castor leaf, Muggā silk, cricula silk and Burma silk.<sup>2</sup>

It is probably thought that sericulture, or the breeding of the mulberry silk worm for producing true silk was introduced into India in the fourteenth and fifteenth centuries. Sericulture proper reached India from China very slowly and by a long and devious route. Khotan learned the art of sericulture

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1. T.N. Mukherjee, Art and Manufacturing, (Calcutta, 1881), p. 331.

2. Ibid., p. 331.

only in the 5th century and Sassanid Persia shortly afterwards. Persian sericulture obtained another spurt of development from Mongol rulers in the 13th and 14th centuries. Ibn Battūta who visited Bengal in the middle of the 14th century does not refer to silk among the products of Bengal. But Ma Huan, the Chinese navigator who in 1432 left an account of Bengal, mentions the mulberry trees among the products of Bengal.<sup>3</sup>

During the Mughal period, the largest quantity of silk was undoubtedly produced in Bengal, but sericulture was also practised in Assam, Kashmīr and the Western Coast.<sup>4</sup> Bernier was also of the opinion that silk and cotton goods were so extensively manufactured in Bengal that she could be called the store-house of these two articles for both Europe and Asia. He further asserted that in the middle of the 17th century about 15 to 16 hundred people were employed in the silk factories of Dutch and the English merchants.<sup>5</sup>

#### ORGANIZATION OF PRODUCTION

##### MUGHAL PERIOD

It was mistakenly interpreted, that silk weaving was a minor industry in the time of Akbar and the subsequent decay on which so much stress has been laid actually did not affect

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3. Irfan Habib, "Agrarian Economy," Tapan Ray Chaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 53.

4. Irfan Habib, Agrarian Systems of the Mughals, (Asia Publishing House, Bombay, 1969), p. 52.

5. R.R. Ghose has quoted W.W. Hunter and Birdwood in his, Decline of Silk Industry in Bengal and How to arrest it, (Calcutta, 1915), p. 1.

the weaving industry. In the period after 1600, it might be affirmed that the export of manufactured goods was of course very small. Silk-goods were sent mostly to the Asian countries. The home market was limited and the demand was basically by upper classes of the Mughal nobility and which was supplied largely by the importation of foreign goods.<sup>6</sup> It was probable that a substantial proportion of the raw silk consumed in India was utilized for the production of the mixed goods. Silk stuffs were widely worn by the upper classes. Abū l-Fazl records that the taste for fine materials had become general at Akbar's Court. Barbosa also had noted the utilization of silk by the nobles of Vijayanagar. That was why, silk goods of various kinds were brought to India from the Far East, from Central Asia, from Persia and from the countries along the Eastern Mediterranean.<sup>7</sup>

Tavernier obtained figures of the output in the region in the middle of the 17th century, when the Dutch established themselves at Qāsimbāzār. At that time total output was about 2.5 million pounds, out of which one million pounds were consumed locally,  $\frac{3}{4}$  million were exported raw by the Dutch, and  $\frac{3}{4}$  million distributed over India and some parts of Central Asia.<sup>8</sup> The English East India Company's agents did not succeed till 1618

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6. W.H. Moreland, India: At the Death of Akbar, An Economic Study, (Sunita Publications, Delhi), p. 160.

7. Ibid., pp. 161-162.

8. Ibid., p. 162.

in making a contract for the purchase of 8,000 bales of silk and each bale had 180 lb.<sup>9</sup> The Bengal silk had not acquired much fame among English at this time. It was only after the establishment of a factory at Patna that the Bengal silk would pick up large sale in England as the English agents instructed the native weavers about the designs and dyeing popular in England.<sup>10</sup> From the surveys of W.W. Hunter and George Birdwood, we learn that "a certain silk merchant at Māldā exported to Russia three ships full of locally manufactured silk-goods and that Māldā alone used to send 50 ships full of silk and cotton goods to foreign countries every year."<sup>11</sup>

The silk bought at the best hands must be bought in the 'putta' or 'short skean' which was first wounded off from the 'Bag of the Worm! Its price seems to have varied from 15 to 19 ānas the half seer, 70 totās each. This was of three types viz head, belly and foot. The head and belly seemed to have been the only valuable sorts. There was better kind, called puttany which was priced from 5½ to 6½ rupees per seer."<sup>12</sup>

In the manufacture of silk, money was advanced to the people around Qāsimbāzār, Calcutta, Patna and other places, where large tracts of low land were taken into cultivation for the growing of mulberry plants and for the working of filatures.<sup>B</sup> The

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9. Tripta Desai, The East India Company: A Brief Survey from 1599 to 1857, (New Delhi, 1984), p. 19.

10. Ibid., p.

11. R.R. Ghose, op.cit., p. 1.

12. Shafaat Ahmad Khan, The East India Trade in the 17th Century in its Political and Economic Aspects, (Oxford University Press, 1927), p. 254.

13. S. Bhattacharya, The East India Company and the Economy of Bengal from 1704 to 1740, (Luzac and Company, London, 1954), p. 185.

different books were kept for the amount of silk, for the account of the factory which also involved the account of Europe dye, for the account of the money advanced on dādnī to the weavers (which was kept in the weavers Book), and the account of the weavers and merchants<sup>14</sup>. The balance of weaver's and merchant's account annually was copied in the factory books and sent to Hughli to be sent to England.

The Company was charged with the right to practice an authority over the factories and warehouses and had all the goods under its case and charge together with tāftās. The Company did set down the rates and prizes of all goods received and delivered. The prices of tāftās were set down in the Journal of the Weaver's book and was mentioned upon every piece by the Warehouse Keeper.

All the raw silks brought about by the Paikārs to the factory were well sorted out in the factory before prices were set out. It was the duty of Warehouse Keeper to look after the pricing, the number of the sortment upon the bags and the name of the merchant. This system properly established the weight of each sort as received in and delivered out. Warehouse Keeper maintained the columns of the weight of each sort in his ledger.<sup>15</sup>

The Warehouse Keeper prohibited the persons not entitled to enter into the warehouse from entering into it, where the

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14. Streyntsham Master, Agent of Qasimbazar, Tuesday the 2nd Dec, 1679. See Bengal and Madras Papers, Vol. I, 1670-1688. Imperial record department, (Calcutta, 1928).

15. Streyntsham Master, Esq, Agent Cossimbazar, Tuesday the 2nd Dec, 1679, See Bengal and Madras Papers, Vol. 1, 1670-1688, (Imperial record department, Calcutta, 1928).

raw silk was kept except the persons in the Company's service. It was the custom in the warehouse to weigh the whole silk of one sort to prevent theft and deceit in changing and mixing the several sorts of silks. This action of any native persons was productive of fine. That was the cause that in the warehouse, one sort of bags were opened up before they weighed. The raw silk so weighed was packed properly for England. It was the Company who bore the costs of packing stuffs and materials. An account of such expenditure had been maintained according to the order of the regulations of 3rd Nov. 1676, so that any kind of advantage on the part of warehouse keeper or any other had been handled either this year or hereafter.<sup>16</sup>

The risk of advancing money was naturally great. This was because, if any thing happened to the worms or cocoons to reduce the quality and quantity of silk or destroy the yield, together, which was usually the case during the initial period of Company's business, the man who had received the advance money were hardly, if ever, able to repay the amount.<sup>17</sup>

Therefore, silk-proto-industrial system was a wide spread phenomenon under the Mughals and was gradually growing towards the more mature phase of proto-industrialization. But, at this state of the proto-industrial phase, it is very difficult to envisage even very weak root of proto-industrialization in the direction of capitalist industrial production. The penetration of fixed capital in the process of production, bearing the

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16. Ibid.,

17. S. Bhattacharya, op. cit., p. 185.

high production cost and risk cost by the industrial capitalists, risk of non-supply of products to commercial and merchant capitalists by industrial capitalists, control and management of production process, productive forces and labour, skilled and unskilled were the fundamental factors promoting the process of capitalist industrialization. The silk-proto-industrial system in Bengal during late Mughal period was not even on formative stage compared with this standard. Production cost, risk factor, supply factor, penetration of fixed capital in the production process, control and management of production process etc. was bore and supervised by the primary producers and not by merchants who advanced money through intermediaries. This lag in the organization of proto-industrialization process in Bengal compared to British proto-industrialization process in the 17th and early 18th centuries had provided the leadership to England to lead other industrial countries on the road to capitalist industrialization later.

#### COMPANY PERIOD

The agents of the non-English European Trading Companies, free merchants and others greatly embarrassed the Board of Trade in the provision of Company's investment of clothes including silk by securing the goods manufactured by Company's advances.<sup>18</sup> One of the methods suggested by the Directors to be applied to abolish such attempts was to purchase the silk from

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18. Extract of the Company's instructions dated 29th March 1774 addressed to the Governor-General and Council of Fort-William, see Board of Trade (Commercial) General letters from the Court of Directors, 18th Dec. 1765 to 15th Sept 1785, pp.6-7.

the primary producers by giving an increased price.<sup>19</sup> This was aimed at taking the trade in silk out of the hands of other merchants and merchants and Companies of rival nations.<sup>20</sup> Cultivation of mulberry plant was to be encouraged by a deduction from rent as a bounty.<sup>21</sup>

The weavers were poor cottage workers earning commonly not more than 6 or 8 rupees a month from their labour and possessed no capital. Normally, the advances were received but the charge was commonly made that they were often forced upon the manufacturers by the agents of the Company. And once the advances were accepted, the weavers were prohibited from engagement for the supply of other customers until the contract with the Company had been completed. In order to enforce this regulation the native servants of the company were in the habit of visiting the weaver's houses and stamping the cloths in the process of manufacture with the Company's mark or chop.<sup>22</sup> Those weavers who failed to complete the supply of contracted-clothes at the end of the year were known as "in balance" to the company and till this balance continued the weavers were not allowed to supply clothes to other Saudagārs (merchants). It was not infrequently a matter of doubt as to which weavers were really

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19. Most of the regulations of this nature has been dealt in Production Organisation of Cotton.

20. Extract of General letter from the Court of Directors dated the 17th March, 1769, Board of Trade (Commercial), op.cit., p. 16.

21. N.K.Sinha, Fort-William-India House Correspondence, Vol. V, Introduction, p. 5.

22. C.J.Hamilton, Trade Relations Between England and India, (1600-1896), p. 150.

in balance to the Company.

The Company's servants at the factories and aurangs were constantly receiving orders to increase the supply of piece goods. The weavers behind-hand with their orders were in many cases harshly treated. This practice was abolished in 1773. The method of auctions in which silk was bought at public market was introduced. The order of the auctions had to be published in all the principal marts of Bengal. The servants of the Company now began purchasing from the native merchants at higher prices i.e. 25 to 40% higher in case of silk and cotton clothes and at an advance of 80% in price in the case of raw silk. Simultaneously, quality suffered. This price rise was supposed to be the result of collusive action between the native merchants and the Company's servants.<sup>23</sup>

All proposals for providing the investment by contract with dādni merchants, had a direct tendency to establish the worst kind of monopolies that caused without an immediate improvement, an immediate loss of 25% debasement of the manufactures and deficiency of quantity. The price of raw silk advanced 80% and piece goods from 50 to 60% since the year 1768 and that a further advance of 40% might possibly happen, in consequence of removing all restraints on commerce throughout the province.<sup>24</sup>

The agency system which had been generally in operation since 1753, through the medium of dālāls to a limited degree, was for the most part superseded by the system of contract

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23. Ibid., p.151.

24. Extracts of a General letter from the Court of Directors, dated 24th Dec, 1776, Board of Trade (Commercial), op.cit., p.103.

after 1774 and from 1778 contracts were provided preferably to Europeans, mostly the Company's servants themselves.<sup>25</sup>

For the sūsies of 50 and  $\frac{1.5}{8}$  and 40 and 2 fine, the merchants insisted upon an advance of rupees 2 per piece due to the excessive dearness of silk and apparently agreed to allow them 1 Re and 8 ānas per piece more than last year. On sūsies of 40 and 2, an advance of Re. 1.6 ānas per piece could be made. On account of this, the Court of Directors decided to advance Re 1, 12 ānas per piece on the muster of chuktaes. All other sortments of silk goods should remain at the same price as last year.<sup>26</sup>

About the year 1769 the Company introduced its own reeling factories under the charge of the commercial residents and it became necessary to observe the native silk reelers for the Company's factory working on basis of new method. As a result the company discontinued the practice of making advances. But the native silk reelers disliked working in the factories probably for two reasons. Firstly, they disliked the supervision and regular hours of work for which they were not used and secondly, the raw materials from which woven silk piece goods had been produced were retained entirely by the company. This was because the export of the reeled silk was likely to be profitable trade provided that the quality of the article should be improved. For this purpose the Company introduced its reeling factories.<sup>27</sup> Consequently, in their general letters

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25. J. Kumar, Company India: A Comprehensive History of India (1757-1858), (Patna, 1980), p. 47.

26. Letters to Court, dated 10th Jan, 1747-48, See K.K. Dutta (ed.), Fort-William-India House Correspondence, Vol. 1, 1747-1756, (Delhi, 1958), p. 195.

27. C.J. Hamilton, Trade Relations between England and India, (1600-1896), (Delhi, 1975), p. 155.

to Bengal, dated the 17th March 1769 the Company instructed that the manufacture of raw silk should be encouraged in Bengal and all manufactured silk fabrics should be discouraged. They also recommended that the silk winders should be forced to work in the Company's factories.<sup>28</sup>

The workman employed in silk factories were working on monthly wages basis. Generally, no distinction was made between superior and inferior workmen, although the more skilled reelers were paid an additional remuneration by way of reward. But at Mālda and Gunitia, the reelers were classified according to specialization and paid accordingly.<sup>29</sup> Both adults and boys were employed. Lord Valentia in 1803 visited the Company's silk factories at Jāngipur and noted that the boys had to serve a period of apprenticeship before they were promoted to the rank of reelers. Several thousand workers were employed in each of the factories according to him. He mentioned that about 3 thousand workmen served at the Jāngipur silk Kothi (factory) of whom 1200 were directly connected with the filatures. Gradually, the Italian method of reeling was adopted by many of these independent workers, who set up filatures of their own.<sup>30</sup>

The raw silk industry of Bengal especially of Bīrbhūm involved the following classes of people: chāsars or chāsnīgīrs (silk worm breeders and cocoon rearers), mulberry cultivators, nacauds (silk winders), morāndārs (skein makers), tabekdārs or

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28. Ibid., pp. 156-157.

29. H. R. Ghosal, op. cit., p. 45.

30. Ibid., p.

tagādeers (silk collectors), pāikārs (silk dealers) and merchants.<sup>31</sup> During early 18th century, the mandal of the respective villages worked as intermediary and was called pāikārs. During these years, they were few in number and they properly performed their duties. But, the diversification and the rapid growth of trade in the course of the 18th century, swelled the number of mandals. The next step of the mandals was to separate themselves from the chāsars or chāsnīgirs or rearers to whom they allow but a 'bare-subsistence'. The mandals had usually appropriated not less than 25% of the advances. The mandals dealt in cocoons with the company's advances and bidding against each other raised the cocoon prices. In order to maximise their profits

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31. Ranjan Kumar Gupta, "Birbhum Silk Industry: A Study of its Growth to Decline," IESHR, Vol. XVIII, No. 2, (April-June, 1980), pp. 212-213. During 16th and 17th centuries, the cultivation of mulberry plants, rearing of silk worms and winding off the cocoons were often done by the same cultivator. But, during 18th century, the development of the productive forces and the social division of labour gradually made occupations professional for different groups of people. It was the exorbitant rent of mulberry plant and the heavy cost of manuring that made only substantial peasants to cultivate the mulberry plant. The pāikārs bought cocoons from the chāsars or chāsnīgirs (silk worm breeders) with the money advanced by the owners of the silk manufacturing concerns and delivered the article to the later at some profit. The silk entrepreneurs employed nacauds, morāndārs, tabekdārs, etc. at their concerns for the production of raw silk.

they often supplied bad cocoons even if good ones were available.

In order to prevent this evil, the Directors in 1770 decided that three Superintendents should be sent out to the manufacturing of raw silk to inspect all the 'Ferett' and 'three lettered putney'. It was further directed that those pāikārs who discovered proper skill and care in procuring the investment and succeeded in reducing the outstanding balances at the close of the each bund had been preferred to be employed as Company's pāikār for the next season.<sup>33</sup> Other regulation aimed at abolishing this evil was that at the time of advances each pāikār had been called before the chief of the subordinate and council and were provided separately a copy of their outstanding balances if any with particularity of the advances last made to them. Investigation was made to examine whether he received the advances or not.<sup>34</sup>

The wages for winding was as follows:

To <u>nacauḡs</u> for winding one maund of silk	- 24-4-0
To <u>morāndārs</u> for making up skeins	- 2-4-0
To <u>tabekḡars</u>	- 4-8-0
To <u>sardārs</u>	- 4-0-0
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TOTAL	= 35-0-0

32. Ibid., p.222. Also see Extract of General letter from the Court of Directors dated the 23rd March, 1770, Board of Trade (Commercial), General letters from the Court of Directors 18th Dec 1765 to 15th Sept 1785, pp. 17-18. Mr. Barwell's correspondence comprehends that company's paikars always collected the third letter of putney to bring the Bauleah factory which was not fit for the investment of the company. This putney had been always sent to the members of the council of Qasimbazar as private trade. This was adjusted in the purchases of company, by the company's cash advanced to the pāikārs. The pāikārs gave reason for this was that since the rejected putney as well as the fine silks purchased with company's advanced money in lack of other fund and perhaps they were not paid for a considerable time for such rejected putney after the delivery at Qasimbazar, the further advances were absolutely necessary to avoid hindrance and diminution. This system enlarged the balances to pāikārs, because due care had not been taken at the close of the each bund for the amount of all the silk purchased with Company's money.

33. Ibid., pp. 18-19.

34. Ibid., p. 21.

Thus, the nacauds seldom earned more than one āna three pies per day, with estimated daily work at 2 chittacks of Bengal wound silk. For winding of silk at the factory, payment was made at the rate of Rs. 0-6-4 $\frac{1}{2}$  per seer-which was divided among nacaud at the rate of Rs. 0-14-1 per seer, to a tabekdār Rs. 0-1-4 $\frac{1}{2}$ , to a sardār Rs. 0-0-11. On an average a nacaud would wind off one seer channa in 10 days. It, therefore, would earn about 12 ānas 3 pies per month. A tabekdār being able to wind more silk could earn about the same amount. A sardār, supposing each sardār to have 15 nacauds under him would earn in a month Rs. 2-9-3. The agent, therefore, proposed that a nacaud should be paid at the rate of Rs. 0-5-6 per seer, tabekdār at the rate of Rs. 0-1-10 per seer and a sardār Rs. 0-1-4 per seer. At this rate, a nacaud and a tabekdār would earn Rs. 1-0-6 per month and a sardār would get about Rs. 3-12-0 per month.<sup>35</sup>

The quality of the silk was usually distinguished by the number of cocoons of which the thread was composed which was really a faulty mode of expression. Since the cocoons of Italy or Piedmont might differ from Indian or Chinese, a given number of each might form a thread of very different size. That was why, the better method of making the agents acquainted with the size was preferred by selecting samples of each kind.<sup>36</sup> Each kind was marked as A, B, and C, of which a sufficient number was supplied to the export warehouse and each filature with a specimen. Of

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35. N.K.Sinha, op.cit., p. 181.

36. Extract of commercial general letter from the Hon'ble Court of Directors to the Governor General in Council dated the 25th March, 1791, See General Letters from the Court of Directors, Board of Trade, (Commercial), 1790 to 1796, Vol. 3, p. 236.

these sorts the proportions was made up in the following order:

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A-1/9, B-4/9, C-4/9 etc.

The Company managed its rural manufacture by salaried officers like the commercial resident and by unpaid agents who agreed to supply the investment at given rates. Of the later class, only one specimen existed in Bīrbhūm. Mr. Furshard, a Calcutta merchant who had contracted for the supply of silk in Bīrbhūm where he built a factory. His successor (Mr. Cheap) had employed 2400 artisans in course of time for the single process of winding off the cocoons. This factory gave bread to 15000 persons if the multitude of mulberry growers and silk-worm breeders were included. Its annual outlays averaged £ 72,000 and the annual value of the general silk manufactures of the district exceeded £ 160,000 sterling.  
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Organizationally, Bengal's raw silk-proto-industrial system was on the verge of making transition to silk-industrial system but two factors were producing difficulties in this transition. Primarily, it was not the indigenous raw silk factories where proto-industrialization had developed to such a high magnitude rather it were European Factories that had made such progress. The production and organization of silk finished goods had not made any improvement. The demand and supply of raw silk in the

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37. Ibid., p.236.

38. W.W.Hunter, The Annals of Rural Bengal, (London, 1868), pp. 357-367.

middle of the 18th century increased.<sup>39</sup> In long-run, this development in the silk proto-industry was dangerous to the proper development of this proto-industry in Bengal. The silk proto-industrial producers (silk weavers and other silk workers) in absence of any job in silk proto-industry had to go for other proto-industries. This professional mobility gradually reduced the number of silk proto-industrial producers and later also reduced the indigenous silk weaving proto-industry.

The duties, freight duties, customs, charges and excise in inland Bengal, on river banks, on ports and abroad (especially in England) increased significantly. The magnitude of these duties can be determined by the receipt of government on the account of the goods imported by the company from 1756 to 1760 may vary moderately on average, be rated at a million per annum or more, amounting in the whole to 10 million.<sup>40</sup> This increased the operation of illicit trade of Spaniards, Americans, Britishers, and native merchants who

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39. Consultations, Dec. 9, 1791, R. James Long, Selections from unpublished Records of Government, 1748-1767, Social Condition of Bengal, Vol. 1, (London, 1869), p. 27. It is believed that it was essentially the political unrest that created disorganization etc. It was owing to the Marathas constantly entering Bengal, plundering and burning the people's houses and destroying the Chief aurangs. This led to the workmen to flee to distant part.

40.. See, An Essay on the Rights of the East India Company to the perpetuity of their trade, possessions and revenue, p. 18. Also see, Heads of a proposed speech by a Proprietor upon the policy of Renewing the Company's monopoly and C., (London, 1792-93), p. 11. Also see, Letter to the Right Honourable Henry Dundas, one of his Majesty's principal secretaries of State and C. From the Committee of buyers of East India Piece Goods for Home Consumption, (London, 1792-93), pp. 7-8. "Certain silk piece goods are absolutely prohibited from home consumption, but universally used, Cambricks were also strongly prohibited, the duty to government was lost by the measure but the consumption continued, the prohibition was withdrawn, the duty was restored and the consumption continued nearly the same."

had been used to reside in foreign factories. Calcutta served as the depot of the companies merchandize whereas Serampur, Chander-nagar and Chinsura functioned as godown for the goods crowded with seamen, agents and merchants etc.<sup>41</sup> This situation artificially increased the production cost of raw silk. If we include the importation of machines used in winding and reeling, the production cost rose even further. Therefore, indigenous enterprise did not stand before the competition from British and other European enterprise. In long-run, this branch of Bengal's industry had to decline. Raw silk was exported from Bengal previously but on an irregular basis and small scale. The regular export of raw silk from Bengal: it is believed by Rohini Mohan Chaudhuri had commenced in the year 1772. The annual average export for the 20 years from 1773 to 1792 was about 409,000 lbs.<sup>42</sup> This specialized proto-industrial activity accompanied by native and foreign concerted efforts that considerably increased the investment in raw silk production.

Investment of Raw silk to be provided for 1792.

<u>Aurang</u>	<u>Filature</u> Rs.	<u>Bengal</u> Rs.	<u>Wound</u>
Bauleah	4,28,200	46,500	-----
Commercolly	2,49,800	92,250	-----
Qāsimbāzār	1,87,500	X	-----
Jāngipur	2,33,000	X	-----
Gonlea	1,72,500	X	-----
Radhanagar	93,900	92,250	-----
Rāngpur	62,500	69,000	-----
Māldā	62,600	X	-----

Source: Investment of Raw Silk to be provided for 1792-Board of Trade (Commercial) proceedings, 23rd Dec. 1791, J. Kumar, Select Document on Indian Trade and Industry, (New Delhi, 1981).

41. Heads of a Proposed speech by Proprietor upon the Policy of Renewing the Company's monopoly and C., (London, 1792-93), p.7.

42. Rohini Mohun Chaudhuri, The Evolution of Indian Industries, (Published by the Calcutta University, 1939), pp.8-9.

Merchants financed handicraft production by extending loan capital and not risk capital. Therefore, the accumulated capital in the hands of commercial and usurer's capitalists did not find its investment in capital industry for manufacturing required machinery for mechanization in proto-industrial system. The unit of industrial artisan production was the small individual workshop. These units were not research and technological innovation oriented and thus, its effect on agricultural production or in handicraft industry was negligible.<sup>43</sup> In absence of mechanization of proto-industrial system in raw silk, industrial capitalism was very difficult to develop.

#### IMPROVEMENT IN THE MANUFACTURE OF SILK DURING MUGHAL PERIOD

The Persian, the Chinese and the Bengal silk of the first half of the 17th century appears to have been of inferior quality. The white twisted as well as twisted Chinese silk fetched little profit.<sup>44</sup> All these silks appeared regularly in the European Company's lists of export. The quality was not of superior

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43. V.I. Pavlov, Historical Premises for India's transition to capitalism, (Moscow, 1978), p. 102.

44. The Company to the resident and Council at Surat, March 16, 1638, (Letter Books, Vol. 1, p. 142), President Fremlen and Council, Abroad the Mary at the Mouth of the Surat River, to the Company, Jan 4, 1639 and President Fremlen and Messrs. Breton and Wylde at Surat to the Company, Dec 1639, all in William Foster, The English Factories in India, 1637-1641, pp. 56, 92, 216. It had been postulated that of the goods obtained in the William, the Persian silk was both deficient in weight and coarse in quality. Many of the China stuffs were 'rotten and demnified'. See William Foster, The English Factories in India, 1646-1650, p. 189, for the quality of Bengal silk. Out of the three samples sent to 'Agra, the first rated 2½ rupees the double seer of 40 (pice) was of coarse quality, the second rated 4¼ rupees, appeared good but in actual fact was not of very good quality and finally, the third rated at 7½ rupees seems quite satisfactory.

nature; yet the silks were extraordinarily cheap. Indian silk was 300% cheaper in England than Italian and Spanish silks.<sup>45</sup> Therefore, improvement upon the quality of Bengal's silk was required urgently to capture the European markets.

Previous to 1653, no significant measure was undertaken by European Companies to improve the reeling system of the native petty silk reelers. The Dutch Company introduced a unit for reeling raw silk at Qāsimbāzār, the principal silk emporium in Mughal Bengal in 1653. This was a measure designed to solve twin problems of the use of inferior grades of unreeled silk and the poor quality of the reeling of raw silk supplied by the merchants. The unit had the capacity to reel about 1,500 bales (227,625 pounds) of raw silk per annum and to employ over 3,000 men at the most. At the minimum level it employed less than 100 persons.<sup>46</sup>

In the initial stage, the unit was organized on the basis of contract system with a so called "Master reeler." It was the master reeler who had to provide the necessary equipment, accommodation for the reelers and required raw materials. The "master reeler" was also supposed to meet the want of a specified amount of properly reeled by a certain specified date against a certain amount of unreeled silk. He was paid in advance a sum of Rs.5 per maund of reeled silk. In 1662, the rate was increased to Rs.5.5 per maund. In 1660-61, out of 1,457 bales of raw silk exported from Bengal, around 1,427 i.e. 98% had been reeled in this unit.<sup>47</sup>

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45. A Treatise concerning the East India Trade: Being a most profitable trade to the Kingdom and best secured and improved by a Company and a Joint Stock Company, (London, 1680), pp. 7-10.

46. Om Prakash, The Dutch East India Company and the Economy of Bengal, 1630-1720, (Princeton University Press, 1985), p. 113.

47. Ibid, p. 114.

Toward the close of the very first year of the establishment of the unit at Qāssimbāzār, the master reeler was under debt to the company to the extent of Rs.2,255 for undelivered reeled silk. The promise to redeem this debit in instalments over a period of time failed and the capacity of the unit was reduced by 50%, since we find that out of the 1,388 bales supplied by Bengal factors in 1664-65, only 158(11%) had been reeled in the Unit. The corresponding figures for the years 1668-69 were 1,653 and 113(7%) respectively.

In 1670 - the Company appointed a new master reeler against a fresh contract.<sup>48</sup>

The basic organizational structure of the unit was changed in 1674. At this stage the Company assumed all risks and the

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48. Ibid, p.115. The main provisions of which were as follows:

- " 1. The amount of reeled silk the master reeler was supposed to supply against a given amount of unreeled silk was to be determined on the basis of a sample reeling of three seers of unreeled silk in the presence of the factors.
2. The rate per maund of raw silk reeled was increased to Rs.5.75, and the master reeler bound himself to pay Rs.5 per maund to the artisans. He also agreed not to charge dasturi (customary charge) from the reelers.
3. The Company undertook to provide foot soldiers to compel the runaway artisans to return to work. The Company also agreed to provide a clerk to the master reeler to assist him in the maintenance of the account.
4. The Company undertook to provide adequate unreeled silk to the master reeler to provide year-round employment to the artisans engaged by him.
5. The master reeler in return assumed responsibility to clear the bad debts outstanding in the name of his predecessor."

The contract was witnessed and guaranteed on behalf of master reeler Abhay Ram by two leading merchants, Deep Chand and Jai Chand.

master reeler was appointed as the manager of the unit at a salary of Rs.200 per annum and the unit was now regarded as full fledged manufacturing enterprise of the Company. A conspiracy by the leading silk merchants of Qāssimbāzār in 1700 increased the price of raw silk from Rs.5 per seer to Rs.6 per seer ostensibly revived the Company's interest in the unit. Again from 1709 onwards, the Company made a major effort to establish its own raw silk reeling unit. The arbitrary rise in the price of raw silk by the private local merchants in 1714 to Rs.5.37 per seer enabled the factors to make an all-out attempt to get all the silk they wanted reeled in the unit. Around 1715 the Company further expanded the capacity of the unit and an additional working space was constructed to accommodate as many as 4000 reelers.

Prior to 1658 no measure was undertaken by English to improve the quality of silk. It was in 1658 that the English first took much interest in improving the quality of silk and resulted in the production of better silk goods at Qāssimbāzār. In 1658, the English, invested Rs.50,000 in improving the quality of tāftās

49. On Prakash, *op.cit.*, p.117.

50. S.P.Sanger, "Indian Silk Fabrics in the 17th Century," *Indian Journal of Historical Science*, (Hereafter cited as *IJHS*), 15(i): 30-43, (May, 1980), p.35. Tāftās were recognised as grass cloth by foreign travellers for an item of export from Bengal and Orissa. They were some kind of red species. It was also called as 'cloth of herbs' and was a kind of silk. Fitch recognised a great store of tāftās in 1585 in Orissa which called yerna. Tāftās is a Persian word, originated from 'tāftān' meaning 'to twist, to spin'. According to Draner's Dictionary, it was a name given to plain woven silk. In more recent times, it was signifying a light thin silk stuff with considerable lusture and gloss. Abū-l-Faḡl included tāftās in the list of silks in the Āin. Richard Temple called it as a "smooth watered silk stuff." Mr. Crooke has maintained that tāftās were originally 'all plain silks' a generic name for plain silk. The term tāftās has also been employed to denote the mixed fabrics of silk and wool. Tāftās was made of two different types of thread with reflections of both the colours in the cloth. Trevenier found that the tāftās were made of silken cloths. Tāftās exported from Bengal to England were gummed there, after which process they became as glossy as her Italian silk.

at Qāssimbāzār. By 1665, the quality of tāftās was much improved. The Portuguese also undertook measures to improve the quality of tāftās at Hughlī and Qāssimbāzār. They also sometime set up establishments for the processing of cloth especially bleaching, and dyeing as also for winding and reeling of silk. For these purposes, the Company employed weavers and artisans purely as wage workers and even brought expert throwsters, weavers and painters from Europe who instructed local artisans and weavers in those arts. Through this they tried their best to bring about an improvement in the quality of the goods together with the manufacturing system in the region.<sup>51</sup> The English Company's factors (the court) complained about the defective practice of dyeing silk in the gum and instructed as early as 1663 that the tāftās should be purchased in an ungummed state. The demand for ungummed silk into England from Bengal increased because British technicians were willing to improve the quality of Bengal silk by introducing a superior experiment which had the capacity to make the Bengal silk equal in quality to Italian silk. In 1673, the factors traced defects in the colours of tāftās, especially the shades of black and green.<sup>52</sup> In 1668 Roger Fowler was sent out by

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51. Sushil Chaudhrai, "Textile trade and industry in Bengal Subah, 1650-1720," *IHR*, Vol. 1, No. 2, (Sept, 1974), p. 275.

52. C. R. Wilson, The Early Annals of the English in Bengal, (Calcutta, 1895), p. 46. The improvement was so great and the importation of Bengal's silk into England had so increased from the route round the cape of good hope that in 1680 the Turkey merchants, who previously monopolised this branch of English commerce commented and made formal complaint to the king. They commented on the export of precious metal from that country to Bengal in return of raw silk which had destroyed the Turkey trade. During the late 17th century, it was the imported Bengal silk into England that satisfied the English manufacturing. In a way, it impoverished the English. But, it had increased the silk manufactures of England four-fold. Indian (Bengal's) silk was classified into bad, good and indifferent.

the court as the dyer to Qāssimbāzār at a salary of £ 60/annum. In 1670 John Nayler came to Bengal on contract for four years at a salary of £ 50 per annum. Richard Mosley came out in 1669. Anthony Smith came out in 1672 and became a silk weaver in 1675.<sup>53</sup> These artisans, weavers, winders, painters etc. were instructed to keep their art secret from the natives.

From the analysis of the manufactures of silk throughout the 17th century Bengal, it can be asserted that no steps were undertaken by the native artisans, Mughal State, rich merchants and rich artisans to improve the quality of silk goods. This does not mean that the silk cloths were not produced during the period under review. Many kinds of inferior quality of silk cloths were produced in Bengal. Among these Punjah or Punjam (a skein of silk or cotton, consisting of 120 or 60 threads, prepared from the warp), tāftāwale (striped tāftā), sarcenett (a fine thin woven silk), arindi (silk cloth spun by eri silk worm), the susi of Malda for export to England, rasta or raster (silk cloth for turbans), nihali (used for bedding sheets), atlas (silk

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53. George Browery, A Geographical account of Countries round Bay of Bengal, 1669 to 1679, (ed.), R.C. Temple, (Cambridge, 1905), p.214.

stuff), alācha or aliya etc. were important.<sup>54</sup> Mr Yusuf Ali believes that alācha was probably introduced by Mughals in Bengal.

Improvements in the technique of dyeing, bleaching, winding, reeling etc. by the introduction of European machines and technicians were effected. These improvements were introduced and to improve the quality of raw silk suitable for European markets and English manufactories in England because Bengal's silk was far more cheaper and had the potentialities to tap the European silk markets. It, therefore, is possible to generalize that silk-proto-industrial system was deep-rooted in the 17th century Bengal.

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54. S.P. Sangar, "Indian silk fabrics in the 17th century, IJHS, 15(i):30-43, (May, 1980), pp. 30-40. According to R. Temple, the word Punjam or Punjah had been brought to Bengal by the factors trained in Madras, as it represented a Tamil or Telgu word. Vast quantities arindi were produced in the country about Ghoragha, beyond Sherpor Murcha in the Bogra district of Western Bengal. The usual dimension was 8 X 1½ yards and one piece of this cloth cost only ½ rupee. Rasta or raster is a word of doubtful origin. It was a 'silk cloth for turbands' with gold and silver stripes running through it, corresponding to dastār, which is generally of fine muslin. In 1680 the court ordered 6000 pieces of striped rastas of different colours. Atlas was imported from Bengal to England in the early 17th century. The demand of atlasses increased around the year 1681. See London, the 22th of April, 1681, our Chief and Council at the Bay, quoted in copies of letters issued from Court to Bengal, Fort St. George and Hughli, Home Miscellaneous Records, (Hereafter cited as HMR). Yusuf Ali calls it as Indian Satin. Atlas was pun and known in India as early as the 13th century. Frayer wrote about atlas in 1673 and recognised it as rich in Apparel. The cloth was also referred in other 17th century accounts like William Hedges's Diary, where he postulated that tāftās and atlasses were appeared in the warehouse in Bengal in 1683. Alācha, referred in English factory records as alijah, was a Terki word. Its Hindi rendering was 'ilācha'. It was a silk cloth with a wavy patterns running breadthwise. Alācha was described as a silk cloth, 5 yards long with wavy like pattern running in the length on either side. William Hedges in his Diary described it as a kind of silk cloth corded or striped with gold and silver. In the Āin, Abū l - Faḡl also referred it as tārahār or corded.

but the chances of its transformation into industrialization proper were very scanty. The explanations are twofold: first, in the absence of any improvement in the methods and techniques of silk finished goods, there were high possibilities of its decline in course of time. Second, technically English silk manufacturers were far superior in producing qualitatively better raw silk. If the demand for raw silk from English manufacturers declined both the branches of Bengal's silk industry had no option but to decline and the workers to migrate and to take up agriculture.

In the first half of the 18th century, silk was wound with few primitive implements. The silk worms were placed in boiling water in earthen reeling basins. Cowdung was utilised as fuel. The silk thread was then wound off the cocoons upon the reels made of bamboo. The main fault in this method was the inequality in the thickness of the skein followed by frequent breaks which impeded operations in the weaving factory.<sup>55</sup>

#### IMPROVEMENT IN THE MANUFACTURE OF SILK DURING COMPANY PERIOD

In the later half of the 18th Century, the Company's personnels realised that the staple of Bengal silk had the potentiality to attain the quality equal to Italian or Spanish sorts, if it was reeled and winded in Italian manner and was productive of least waste. It was again maintained that silk with improved quality fetched much higher prices as compared to its earlier quality. It is estimated that first letter silk of Commercolly fetched 25 to 30% more prices if it was reeled and winded in

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55. Sabyasachi Bhattacharya, "Cultural and Social Constraints on technological innovations and Economic development: Some case Studies," IESMR, Vbl. III (1966), p. 242.

Italian or Piedmont manner. Even the lower letters i.e. D and E might be manufactured for answering the use of the Spanish and Calabria silk. The selling price of this silk was 20% more than the present price. This was why that the improvement in culture, manufacture and preparation of silk was required urgently.

It was in the year 1757, that Mr. Richard Wilder reputed for being perfectly acquainted with the culture and preparation of silk in every stage, was directed by the personnels of the Company to proceed to Qāssimbāzār for bringing about various changes and improvements in winding the silks. He succeeded in achieving his goal and stayed there till 1761. On 17th April, 1758 an agreement was made with all the merchants of Qāssimbāzār to prevent the sardārs (or the head of the silk winders) from winding off silk in their houses. This regulation was aimed at producing very good effects for the Company.

In 1765-66, Mr. Joseph Pouchon, who had exhibited to the Bengal Government samples of much more superior silk wound under his direction from cocoons collected near Calcutta was instructed by government to carry on the improvements begun by Mr. Wilder at Qāssimbāzār. In 1768 the Court of Directors

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56. Extract of General letters from the Court of Directors dated 31st Jan. 1770. See Board of Trade Commercial, General letters from the Court of Directors 18th Dec, 1765 to 15th Sept. 1785, p. 16.

57. Report on the proceedings of the East India Company in regard to the trade, culture and manufacture of Raw Silk, (London, 1836), pp. IV-V.

58. Letter from Court dated 17th March, 1769, see N.K. Sinha (ed.), Fort-William-India House Correspondence, Vol. 5, 1767-1769, (Delhi, 1949), p. 176.

approved that proceedings of government that recognised the importation of raw silk as the chief means of bringing home (England) their surplus revenue. This was regarded as the prime concern of the Company for the national benefit.<sup>59</sup> Mr. Aubert one of the Superintendents of Filatures at Rangpur died at Madras. Realizing the significance of the introduction of new mode of winding at that (Rangpur) Aurang Mr. Phipp one of the assistants at Qāssimbāzār had been appointed there.<sup>60</sup>

The only improvement successfully introduced at a very early period was an improvement in reeling. The Novi pattern of reeling, the main principle of which was the crossing of threads on the same reel was successfully introduced in 1770 by Messrs. Wiss and Robinson. They were assisted by a staff of reelers and mechanics chosen from Italy and France and provided with tools, implements and models.<sup>61</sup> The November bund had demonstrated progress and improvements in the manufacture of silk. Wiss method principally twist the silk, it winded of the cocoons and gave it a roundness and evenness.<sup>62</sup> Four Italians named J. Ruggiero, Dominicus Poggio, C.F. Bricola and Augustus Della Casa were also

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59. Report on the proceedings of the East India Company in regard to the trade, culture and manufacture of Raw Silk, (London, 1836), pp. V-VI.

60. Letter to Court of Directors, dated 5th July, 1771, See Board of Revenue, General letters to the Court of Directors, 1771-1785, Vol. I, 30th August 1771 to 24th April 1772, pp. 6-7.

61. Art in Industry through the Ages, Monograph Series on Bengal, (Delhi, 1976), p. 15. Also see Sabyasachi Bhattacharya, "Cultural and Social constraints of technological innovations and Economic development: Some case studies," IESHR, Vol. III, (1966), p. 243.

62. Letter to Court dated 12th Dec, 1770, See Bisheshwar Prasad (ed.), Fort-William-India House Correspondence, Vol. 6, (Delhi, 1960), p. 247.

engaged as drawers and winders.<sup>63</sup> The Filature System of reeling involved the construction of a spacious building, a concrete furnace for each basin and the installation of a cog-wheeled apparatus which would draw the yarn from cocoons and reel it at one go. The threads drawn from the cocoons for winding of the yarn had to be crossed many times to provide the yarn roundness and evenness. The threads were passed through loops to guide pegs in an oscillating bar facilitated the even spread of the yarn along the breadth of the reel.<sup>64</sup> But Wiss's proposal of upper room building, containing 56 furnaces and costing Rs. 20,000 for the purpose of winding silk in the year 1770 had not been accomplished. He (Wiss) demanded an increase in the salary of Italian winders under him. This demand was fulfilled and the government raised their salary from £ 31 to £ 50 each per annum exclusive of the £ 10 to be remitted home to their families.<sup>65</sup>

Mr. J. Robinson, an English expert in the working of filatures was sent to Rāngpur and provided with some of the best workman that could be procured in the country. Persons were instructed by him until the arrival of three Italians, Francis Clerici, Pielo Spera and Paulo Eria who were to serve in the filatures which Mr. Robinson established.<sup>66</sup>

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63. Report of the Proceedings of the East India Company in regard to the Trade, Culture and Manufacture of Raw Silk, (London, 1836), p. XI.

64. Harbans Mukhia, "Social Resistance to superior Technology: The Filature in 18th Century Bengal," IHR, Vol. XI, Nos. 1-2, (July, 1984-Jan, 1985), pp. 57-58.

65. Letters to Court dated 12th Dec, 1770, Bisheshwar Prasad (ed.), Fort-William-India House Correspondence, Vol. 6, p. 247.

66. Report on the proceedings of E.I.C. in regard to the Trade and Manufacture of Raw Silk, (London, 1836), p. XI.

From the informations of Mr. Wiss and Robinson it appears that the natives of Bengal were found to be expert in reeling silk at one operation from the pod. The country method was capable of producing silk of any quality with well preserved length and colour, free from foulness.<sup>67</sup> The most significant difficulty in the way to the success of the new mode was the very high rate cost which the natives demanded for their silk pods. In course of time, buildings for holding 100 furnaces each were erected at Qāssimbāzār, Bauleah, Commercolly and Rāngpur.<sup>68</sup> The silk reeled off from Pouchon's method was estimated at a profit of 7% whereas that of Mr. Robinson's at a loss of only 1% upon the sale of those assortments respectively in Europe.<sup>69</sup>

Mr. Wiss, further postulated that one of the capital defects of their filature silk had arisen from the bad condition of Cog wheels. This machine cracked and was damaged owing to the heat of the sun and damp of light. 500 sets of cog wheels, made of Brass in a simple manner, each set was the proper complement for one Furnace and to each Furnace three reels.<sup>70</sup> This machine was not liable to be out of order. By help of this Brass machine, double crossing was obtained. This machine rendered the thread perfectly round, closed the gum more, and cleaned the silk from dirtiness of the worms by squeezing twice the water out which rendered it much

67. Extract of consultations dated 12th April, 1773. See Board of Trade (Commercial), General letters from the Court of Directors, 18th Dec, 1765 to 15th Sept, 1785, p. 64.

68. Letter to Court dated 30th August, 1771, See Bisheshwar Prasad (ed.), Fort-William-India House Correspondence, Vol. VI, 1770-1772, p. 300.

69. Extract of consultations dated 12th April, 1773, op. cit., p. 64.

70. Extract of general letters from the Honourable Court of Directors dated the 14th July, 1779 per Duke of Kingston received 1st July, 1780. See, Board of Trade (Commercial), General letters from the Court of Directors, 18th Dec. 1765 to 15th Sept, 1785, p. 202.

brighter. These machines were easily fixed with four screws on the farms. This machine proved pertinent to spin a silk of 4 to 5 cocoons with similar consistency and quality of silk of 7 and 8 cocoons spun without it.<sup>71</sup>

The two threads of silk were first to be passed from the Bason through the iron holes from where they were placed in the wire bearers and carried up and fixed as usual to the reel. The spinner then might give 7 to 8 turns of the winch on the right hand of the machine and they would produce 2 and more crossings with which Italian silk had been spun observing that more crossing were to be given in proportion as they spin finer.<sup>72</sup> Sensible improvements had to be obtained by winding the silk with the double crossing machines and it was recommended to be adopted in future. Although the spinners were unable to wind much silk in a day by using the double crossing machine, yet the Company was interested in perfecting that branch of her trade.<sup>73</sup> The double crossing machine together with better sent out silks made only 4% waste which was about 7 to 8% formerly without using the double crossing machines. This machine equalled Piedmont silks in sophistication.<sup>74</sup>

Mr. Speke had introduced the method of dividing the share

71. Mr. Wiss's observations upon the utility of the models, crossing machines and Brass Cog wheels for the improvement of the manufacture of Raw silk in Bengal, as mentioned in the Company's general letters dated 14th July, 1779, Ibid, p. 209.

72. Ibid, p. 211.

73. Letter from Court, dated 11th July, 1782, see B.A. Saletore (ed.), Fort-William-India House Correspondence, Vol. 9, 1782-85 (Delhi, 1957), p. 54.

74. Copy of letters from Mr. Wiss to the Court of Directors, dated 26th Feb, 1784, See Board of Trade (Commercial), General letters from the Court of Directors 18th Dec. 1765 to 15th Sept, 1785, p. 301.

of his silk, by getting the spinners to tie a thread when they reach the half way of wounding the same. Wounding was done at the advice of Mr. Baumgater, which was absolutely appreciated by the buyers. This was a time saving device and advantageous to the buyers. Through this method the silk might be wounded off in the mills in half the time.<sup>75</sup> Therefore, Mr. Wiss suggested the adoption of this method.

Mr. Aurbert William was further directed to proceed to another provincial aurang with Anthony Broche, Anthony Burngneir and John Peter Angoia etc.<sup>76</sup> The efforts of government in 1771 to introduce the B. Mori of China and the subsequent attempts of Messrs. Furshard and Captain Kyd in the same direction, were unsuccessful. In 1796 Mr. Atkinson again advocated the introduction of a superior race of silk-worm and a better system of management.<sup>77</sup>

As a result of all these activities, a number of reeling factories were established about this time and the cultivation of mulberry was extended to the province of Bihar. From 1771, supplies of seeds were obtained from China for the purpose. The Company had directed her servants at Canton to supply silk worms eggs and of the Mulberry plants on which the worms were fed.

In March 1773 the President and Council reported that the new mode of winding was making progress which is evident from the price rise of silk. The raw silk of Radnagar in the Burdwan province was procured previously on an arbitrary rate i.e. Rs. 6 per seer and accounted for the great partial profit gained on that.

75. Ibid., p. 302.

76. Report on the proceedings of East India Company in regard to the trade, culture and manufacture of Raw Silk, (London, 1836), p. XI.

77. Art in Industry through the Ages, Monograph series on Bengal, p. 15.

assortments at the sales in Europe. With the removal of the restrictions and with a general freedom of trade the price of silk increased from 6 to 9 rupees per seer. Later, the provision of 700 maunds of Commercolly raw silk was purchased by Kinker Mundel at the rate of Rs.9-10 as sicca per seer, and this was accepted at the report of the Company's Export Warehouse Keeper and examiner. Again, proposals were tendered through the Chief of Qāssimbāzār for the provision of 70 maunds of filature silk upon muster, at the rate of Rs.14.8 for the first and 14 for the second assortment and accepted at the report of Company's export Warehouse Keeper and examiner.<sup>79</sup>

As a result, the importation of silk into England increased significantly that is estimated by the Court of Directors at 540,000 small pounds. From 1776 to 1785 the imports of all kinds of silk from Bengal appeared to have averaged 560,283 annually small pounds while the importation from Italy, Turkey etc. did not exceed 282,304 pounds.<sup>80</sup>

A letter from Company's resident at Jangipur to the Board of Trade of the 25th April 1796, contained a proposal for the introduction of breeding house for the purpose of producing silk

78. Letter to Court dated 17th October, 1774, See R.P. Patwardhan (ed.), Fort-William-India House Correspondence, Vol. 7, 1773-1774, (Delhi, 1971), p. 298.

79. Ibid, pp. 298-299. Order was made to erect a temporary building at Jangipore, and the same was at hand when proposals were made to the Company through the Chief of Qassimbazar for the provision of 1000 maunds of Filature silk, to be manufactured at Jangipur and delivered by March 1777 at the rate of 14 sicca rupees per seer of 72 sicca weight. At the same time offer was provided for 800 maunds of the Bengal assortment at the rate of 10 sicca Rs. per seer.

80. Report on the proceedings of the East India Company in regard to the trade, culture and manufacture of Raw Silk, pp. XXIV.

worm's eggs to be distributed to the cocoon cultivators at lower rates than the market prices. The purpose of this breeding house was to get delivered the whole harvest cocoons by the cultivators rather than the reserve any part of it for seed. For the seedlings, the cultivators obtained the high quality of the cocoons from the breeding house.<sup>81</sup> This led to an increase in the demand of raw silk to England during the following decades to more than 5,60,000 "small pounds" a year.<sup>82</sup>

With the introduction of a number of time saving devices, innovations of new methods of reeling and winding and encouragement to the culture of raw silk great numbers of silk weavers were out of employment. The usual buyers were loaded with heavy stocks of unsaleable silk, the Company had stored a huge quantity of unsold silk in the warehouse. To guard against such losses and to secure Bengal the advantages anticipated from increased production, the Court were led to adopt the further measure of causing the surplus quantity of silk beyond what the market could take in the raw state to be thrown into organzine.<sup>83</sup>

By 1796 February the reputation of Bengal organzine silk was established and its demand increased considerably. This can be displayed through following table.<sup>84</sup>

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81. Letter dated 7th May, 1800. See Board of Trade (Commercial) General letters from the Court of Directors, 20th Jan, 1797 to 1804, p. 123.

82. H.R. Ghosal, op. cit., p. 41.

83. op. Cit., pp. XXV-XXVI.

84. This is evident from following data. "A considerable number of the most eminent houses in the trade united in addressing a memorial to the Court in which they stated "that the Bengal raw silk could be successfully brought into use in their respective manufactories to a very considerable extent, in lieu of a proportion of the thrown silk supplied from Italy and hope that the Court would preserve in the measure, as it would not fail of proving highly beneficial to the national interest."

Quantities of Raw silk thrown into organzine on account of the East India Company from 1794-1800.

Year	Bales	Lbs.
1794	29	4,214
1795	125	18,132
1796	190	25,948
1797	150	19,961
1798	69	9,085
1799	120	16,426
1800	158	20,511

Source: Report on the proceedings of the East India Company in regard to Trade, Culture and Manufacture of Raw Silk, (London, 1836), p.7.

In Feb 1799, the reserve of organzine amounted to 498 bales. "We reserve ourselves the liberty of selling the further quantity not exceeding 1200 bales, as soon after its arrival as it could be got ready. These 498 bales, sold at an average also of 18.8 or equal to 28 the great pounds and as the consignments received by the ships which arrived in February last amounting to about 2870 bales will enable us to avail ourselves of this reserve, we have declared 1100 bales for sale in the month of June!"<sup>85</sup>

It, therefore, would be appropriate to sum up, that during the later 18th century in Bengal, proto-industrialization in raw silk production in its reeling, in its winding, in colouring and bleaching had reached an advanced stage. In bleaching and colouring, household

85. Letter dated 29th May, Board of Trade (Commercial), General letters from the Court of Directors, 20th Jan, 1797 to 1804, pp.88-89.

workshops played an important role. But, in the operation of reeling and winding many centralized workshops (kārkhānas) were established in different towns of Bengal where most of the modern facilities relative to the modern system of reeling and winding were available.<sup>86</sup> Better management facilities were found in these European factories in Bengal to manage and guide the reelers and winders to manufacture good quality of raw

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86. One of the most important facilities available in the Companies factories was the arrangement of space and large number of shelves to keep good cocoons brought from different rural areas of Bengal. Care must be taken to arrange well ventilated and airy room. Directors of Filatures must unremittingly attend to the placing of the cocoons on the shelves. They must be in particular careful to guide that no "greater a depth than 5 or 4 inches of cocoon be placed on any one shelf and that they be regularly twined once or twice every whilst the sun is above the horizon!" Another advantage of a factory was the provisions for water reservoirs, for preserving a greater quantity of water. It made winding of the cocoons very easy and gives a rich gloss and brilliancy to the silk. Clean water promoted the ability of spinners, quantity and quality of silk. In absence of appropriate reservoir facility, raw silk produced would be of very bad quality. Bad cocoons bruised the good cocoons and all such cocoons grew mouldy, fouled the water thereby causing the silk to be of bad colour. Water became thick and could no longer be fit for winding them off, which made them run upto the iron, stopped its holes and frequently occasioned the threads to break while the twisting cross was often pulled asunder. The raw silk produced through this method was defective, uneven and produced many evils. Thus, there was a loss or waste in winging off at mill from 25 to 30%. Thirdly, every contractor or Director of the Filature was instructed to take special care to have always a large quantity of dry wood ready for the use of his filatures because the 'Antient Method' of killing the worms by exposing the cocoons to the heat of the sun diminished the yearly product of silk by 1/8 atleast. By this facilities, the Companies servants were able to save atleast from 12 to 15% of silk which had been occuring in winding off the silk through Bengal method. See our Governor General and Council at Fort-William in Bengal, Board of Trade (Commercial), General letters from the Court of Directors, 18th Dec. 1765 to 15th Sept. 1785, pp. 173-181.

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silk. In these Factories it were the European Company's management who bore the production cost, risks involved in the process of production and were responsible for the timely supply

87. Spinning of silk in the rainy season were most liable to grow mouldy and it would not be spun too fine nor too coarse. If it was made of 5 or 6 cocoons, it would occasion a prodigious waste in winding off at the mill and it was made of 18 to 20 cocoons, the silk would be black. Therefore, the Directors of Filatures were instructed to spin the silk of June, July and August bunds with 7 to 8 or 9 to 10 and 10 to 12 cocoons, observing always to fill three reels a day in order to dry the silk. The cocoons of September and October bunds spun of 5 to 6 cocoons and of 6 to 7 cocoons. The inferior silk of this cocoons were spun of 10 to 12 cocoons. The cocoons of November and March bunds were spun of 5 to 6 cocoons. The Overseers were employed to instruct, examine and guide the spinners, winders and reelers. In order to obtain very high quality of silk, the overseers must not insist on more work being performed in a day than was found practicable. The Directors of Filatures provided samples of silk to be manufactured from the cocoons of each bund in the qualities outlined above; spun by a capable spinner under the guidance of the Chief Director, who must not leave the case of superintending the spinning of samples to any other person.

The Directors must take care in following manner:

(i) The proper number of new cocoons must be employed in each thread according to the quality of the silk; (ii) that 4 new and 4 old cocoons did not make the silk thick, but that they were equal to 6 new cocoons. The same proportion must be observed for all other qualities; (iii) that the spinner did make 12 crosses atleast for silk of 5 to 6 cocoons, 10 crosses for that of 7 to 8 cocoons, 8 to 9 crosses for that of 18 to 20 cocoons, these crosses made the thread round, provided the silk a good body; (iv) whenever the thread broke, the reeler must instantly stop the reeling, must turn back till be found the thread, must cleanse the skeins from the thread; (v) the reeler must avail the time to clean his silk from the pelicules or innemost coat of the cocoons and must also straighten the threads under the plaits, by forming the string between the two skeins. This direction must be followed at every beat because it made winding easier and profitable, any neglect in this process was productive of waste, reduction in value and least profit.

The overseers at the factory were instructed to perform the following duties with utmost care: (i) that the silk must be made of the exact number of cocoons prescribed; (ii) that the spinners must make many crosses; (iii) that the spinners must let nothing to ascend on the reel that was not to be crossed; (iv) that there must not be too many cocoons in the Pan at any one time, lest the thread should become entangled; and finally; (v) that the cocoons be sufficiently cleaned in order to produce clean silk. See, Ibid, pp. 182-188.

of raw silks demanded from abroad. The Management of the European Company not only controlled, instructed and guided the primary producers in spinning, reeling and winding but also controlled the whole process of production through Directors of filatures, master reelers, master winders, overseers etc. The Company's merchants provided the work place, machinery to work with and other compulsory tools and raw materials. They employed workers on wage labour basis. Here, the penetration of fixed capital in the production process was direct and it played comparatively important role in the production than circulating capital. But, even in these highly advanced centralized manufactories. The Europeans were instructed to keep their art of reeling, winding and spinning secret. They were only instructed to impart the Bengali primary producers to imitate perfectly. The machinery required in the process of winding, reeling and spinning silk were imported from England, Italy and Spain, not manufactured in Bengal. No indigenous entrepreneur had undertaken any enterprise in culturing, manufacturing and preparing raw silk based on the technique of European factories in Bengal.

It was the social resistance to this superior technology i.e. the Filature System of reeling and winding that offers an appropriate explanation for the none transformation of this highly advanced silk-proto-industrial system into capitalist industrial system. Sabyasachi Bhattacharya has challenged the existing explanation and posited an alternative by remarking that the new technology brought in its train extraneous control over the artisan's process of production. It was the loss of artisans mastery over his labour process that he was resisting in adopting

the filature system.<sup>88</sup>

Harbans Mukhia has offered a different explanation for the resistance of the mass adoption of Filature System in Bengal. Mukhia's analysis is based on the lower rate of wages given to the Filature winders and reelers of Bengal. The prime motive of British East India Company in improving the quality of Bengal silk was to remain in competition with the Italian silk vis-a-vis the products of other regions in the European markets. For this, the Company had to control the price through administrative intervention. Since, the Company had a monopsonic control over its purchase in Bengal, it dictated its price. And its price in Bengal had been pre-determined by prices in the European market through the administrative mediation of the Company, without much success due to the private economic interests of the Company's officials. As a result, despite the cheapness of the workers, the price of Bengal filature silk surpassed that of Italian silk. This rise would make Bengal Filature Silk uncompetitive in the market while any lowering of its price would drive the Indian artisans into winding silk.

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88. Under 'country wound silk' the production activity i.e. cocoon rearing, winding and reeling etc. were performed around the domestic varandah in which the entire household participated in varying degrees, whereas under filature system a different work culture was implied in which a concrete building with furnaces and machineries presumably at some distance from the residential parts of the town was required. Under the new work culture, the winders had to perform a careful job of winding "even silk in the lower reaches of the reel, loosen up a bit and let some coarse yarn get into the middle reaches and be very particular about the higher reaches that were most open to inspection." See H. Mukhia, "Social Resistance to Superior Technology: The Filature in 18th century Bengal," IHR, Vol. XI, Nos. 1-2 (July, 1984-January, 1985), pp. 58-59.

The productivity of filature silk was much lower per unit of labour and per weight unit of cocoons compared to country silk. If a person could wind 4 skeins of silk of the filature in a day, he could do 12 of the country variety or khamru silk. Besides, a maund of cocoons yield between 2.5 and 3.5 seers of khamru silk and a half seer less when wound off the Filature. Then, there was the 'waste silk' as a bye product, weighing 2 to 3 seers for a maund of cocoons, its sale itself could meet the cost of winding khamru silk, leaving wide margin of profit off the sale of 'country wound silk'.

If the productivity differential between the 'country wound silk' and 'filature silk' was in the ratio of 3:1, the price differential was on average in the ratio of 1:1.25. This would be evident from the following figures.

Year	Country Silk (Rs. as ps per seer)	Filature Silk (Rs. as ps per seer)
1774	9 to 10	14
1775	8-8 to 10-15	12-8 to 13-8
1776	8-8 to 10-10	Not available
1777	8-8 to 10-8	10-8 to 13-8
1778	8 to 10-8	11-6 to 12 (Yellow variety) and 13(White variety)
1779	8	11-10 to 12
1780	8-6 to 11-2	11-10 to 12
1781	8-12-6 to 11-2	11-10 to 12
1782	7-12	8-12
1783	7-12	8-12
1784	7-12	8-12
Average	8-14-1	11-13-1

Sources: General letters from the Court of Directors, 21st Sept., 1785 to 28th April, 1790, Board of Trade, (Commercial), Vol.2, p.95. Harbans Mukhia, "Social Resistance to Superior Technology: The Filature in 18th Century Bengal." IHR, Vol. XI, Nos. 1-2 (July, 1984-January, 1985). p.62.

This data demonstrated that in any particular year the ratio does not seem to have exceeded 1:1.5 'when other "side benefit" of 'winding country silk' on to the higher productivity of labour' which was realized by labourers immediately after having some experience.

Theoretically, two options were open to the Company: economic and administrative. In the case of former, the Company had to promote the production of filature by making its price attractive enough for the artisans to compensate him for the relative advantages of winding khāmru silk which was ruled out because of the compulsions of a highly competitive European market where silk was ultimately to be sold. The Company chose to use the later option, although it too was quite impracticable. The Company's jurisdiction of administrative intervention to control the price of khāmru was limited to Bengal in our period, because the 'country wound silk' had an all India market. As it happens the Company chose to make administrative intervention in exercise of the first option, namely by determining the price of Filature silk, without being in a position to control the economy of silk production as a whole.

#### BASKETS AND MATS

The mal jhum, simbhaloo, jhuo and furash, with a species of willow had their osiers employed in making baskets.<sup>89</sup> In Bengal

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89. J.F. Royle, Essays on the Productive Resources of India, p. 233.

bamboo, cane, reeds, grasses especially the mūnj as well as the leaf of the coconut and date palm had been suitably utilised for making baskets and mats.<sup>90</sup> Two varieties of reeds called pāṭī and nal grew indigenously in several of the swamps. The former were used in making fine mats (chatai) whereas the later for coarse mats (maḍur). A superior kind of reed called kāṭī, was extensively used in mat-making in some parts of Debipur.<sup>91</sup> Among some other articles excluding basket and mats were the oval patras of Bengal, boxes made of rattan cane designed for keeping cloths and other domestic articles. The oblong jhāmpis were made of finely sliced bamboo used for keeping valuable documents; table mats, etc.

Baskets and mats were made almost everywhere in Bengal from the flexible lātās, bāns, khāgra, hoglā as well as of the date palm and tad leaves. The old and, therefore, stronger shoots of the plants were always preferred.

The basket made may be either woven or coiled, the former made up of warp and weft strands; the warp strands were fixed while the weft ones cross and recross the warp. Different varieties of baskets were woven in Bengal.

(1) Chequered work kind: In this, the warp and weft strands were of equal thickness and width, each strand woven alternatively over and under the other to make a chequered design. Warp formed the one colour, the weft the other.<sup>92</sup>

Twill work - In this kind of baskets the weft strands pass over and under two and more warp strands at a time. This produced a

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90. Ibid., p.233. Also see Rustam J.Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p.141.

91. W.W.Hunter, A Statistical Account of Bengal, Vol.I, (Delhi, 1973), p.36.

92. Rustam J.Mehta, op.cit., pp.141-142.

diaper design. Twill and chequered type of weaving might be practised simultaneously for producing infinite variations of design and colour.

Lakṣmī caskets; In Bengal this was produced with double walls, cane inside, and bamboo twill work outside. This was covered with cloth of a rich red colour. Added to this, shells were sewn to draw floral designs. Heavy baskets or jhuris, were made of wicker work. Here, the warp strands were thicker and stiffer in comparison with the weft. Twined work, here also the warp strands were thicker and stiffer than those of the weft, but 2 or w shaped wefts were used at a time and the strands were half, twisted. The warped, plain, and diagonal designs were drawn.

Coiled baskets were also made in different sizes for different purposes. The better class baskets had a separate woven border which might be fixed to main body of the basket through long stripes of cane. Beautiful decorative basket was also made in Bengal with floral, geometrical and figured designs produced by addition of different coloured strands as well as additional accessories like cowrie-shells, beads etc.<sup>93</sup>

Excellent mats were manufactured at Raghunathbari, Kasijora and Narajol.<sup>94</sup> For mat weaving coconut-palm, data-palm leaves, bamboo, grasses, reeds, and cane etc. were used. The bamboo mats known as dorma were hanged on the walls of houses in East Bengal. Dorma mats were made at Nuddea.<sup>95</sup> The better class of mats were made

93. Ibid., p.142.

94. W.W.Hunter, A Statistical Account of Bengal, Vol. III, (Delhi, 1973), p.149.

95. George C.M. Birdwood, The Industrial Arts of India, Part II, (Piccadilly, 1880), p.298.

either of the sītalpātī grass called cool mats or of mādur grass. The fine mats called masalandas were chiefly made in the Midnapore district. sītalpātī mats were made at Mymensingh, Bakerganj and Shahabganj in the Dacca division of Bengal. The mādur grass was steeped in water for atleast 24 hours and then sliced to the required thickness. Then, it was dyed with red colour. The kusuma were made of kusā grass and the excellent sītalpātī of the maranta grass that grew wild in marshy places were also made. Smoothness of texture had been envisaged in these mats. A gloss nut had been seen in the inferior kinds. The figured sītalpātī mats were made in the district of Faridpur and Sylhet. Ivory mats were produced in the district of Sylhet.<sup>96</sup>

Mats of Midnapore in Bengal were noted for classicial mosaic designs and plaiting.<sup>97</sup> Excellent mats were manufactured at Raghunathbari, Kasigora and Norajol. These mats were exported to Calcutta from these places. Jessore district was famous for mats and baskets, made by the mochis and doms for local use.

96. Ibid., p.298.

97. Rustam J.Mehta, op.cit., p.142.

TIMBER - BASED FOREST CRAFTSSHIPPING INDUSTRY

The increased and highly diversified proto-industrial activities in 'pull; 'Pull corridor', 'neutral', 'corridor', 'push corridor' and 'push areas' of rural Bengal and the supply of these proto-industrial products to various national, international and coastal markets compelled the merchants, native and foreign to realise the importance of easy and quick transportation. Inland roads were not capable of connecting different national and international markets. These markets could be connected through shipping only. Therefore, the need to supply the various proto-industrial products to various national and international markets provided catalytic to ship-building industry on river and sea-coasts like Hughli, Howrah, Chittagong, Salkea, Calcutta etc.

During the 14th, 15th and 16th centuries, the large vessels which were brought into operation in long distance maritime traffic were of two kinds: those constructed according to long-standing Indian design and were built along-both the western and eastern shores of this sub-continent as well as along East African coasts and in Red Sea, South Arabian and Persian Gulf ports etc. The Indian type ships were often large, upto 350 or 400 tons, carrying several masts and were generally built of teak logs sewn or stitched together, though nails were also used at times. The second was quite different from Chinese or Indian-type junks, which by the 15th Century or even earlier were utilised by mariners of Indonesia and Burma and were beginning to be employed by Bengalis. These were made of teak, used iron nails in their

construction and generally carried three or four masts and were so made that their hulls were divided into a series of watertight compartments. When the strokes became useless, it was repaired with a new layer of strakes by placing it over the old ones, sometimes three or four layers were utilised before it was finally retired from service.<sup>98</sup>

Junks were much superior in quality and design to Indian style-large ships used in the Indian Ocean. In Eastern Indian waters the tradition of building medium size ships had existed. Some of these were flat bottomed coasters as sāmpāns, while others were of different design found in Burma and were called pāngā-javas and lancharas.<sup>99</sup>

Akbar's admiralty had broadly speaking four functions to perform. The first was to look after the supply of ships and boats for the purpose of navigation and supervise their building. The second was to arrange those ships and boats especially built for the transportation of elephants. The third were those constructed as to be employed in sieges while the fourth were meant for the conveyance of merchandise. There were also ships which were utilised and served for convenient habitations. There were also pleasure resort boats built with convenient apartments and others on which there were floating markets and flower gardens.<sup>100</sup>

The growing commercial mindedness of the Mughal nobility, central as well as provincial, and members of the royal family

98. Archibald Lewis, "Maritime skills in the Indian Ocean, 1368-1500," Journal of the Economic and Social History of Orient, Vol. 16, Pt. II-III, (Hereafter cited as JESHO), (1973), pp. 247-248.

99. Ibid, pp. 248-250.

100. Radhakamal Mukherjee, Indian Shipping, (Calcutta, 1912), p. 206.

including kings, princes, princesses and ladies of the harem for extra income, played a vital role in constructing ships and boats of various kinds and for various purposes. Thus, Jhāngīr, Nūrjahān, Shāh Jahān and even Akbar's widow, the mother of Jahāngīr owned ships. Later on, we find that princess Jāhānārā had ships of her own and also freighted her goods in Dutch and English ships. Dārā Shikoh and Aurangzeb also owned their fleet of ships that traded with Red Sea ports and Africa. <sup>101</sup> Ships were owned by prominent nobles such as Āsaf Khān, Sāfi Khān, Mīr Jumla etc. It was also fairly common for nobles both high and low to freight their goods on the ships of the one or another of the European nations.

The demand of cheap and finished commodities in bulk required by a middle stratum in the society during early as well as late Mughal period provided every possible fillip to develop inland navigation because of the absence of any alternative medium through which bulky goods could be transported quickly and cheaply. <sup>102</sup>

The second task of Akbar's admiralty was the supply of able men, of efficient mariners who knew the nature of tides, the depths

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101. Satish Chandra, "Some Aspects of the Growth of Money Economy in India during 17th Century," IESHR, Vol. 3 (1966), pp. 321-328.

102. R.P. Misra, Inland Water Transport in India, (Mysore, 1972), p. 18.

to be avoided and the character of the prevailing winds.<sup>103</sup>

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The third task of the admiralty was to watch the rivers for which an active, resolute man was appointed. This man had the duty to settle every problem relative to the ferries, regulated the tonnage and provided travellers with boats on the shortest notice. This officer was also entitled to prevent boats from travelling in the night except in case of necessity and emergency. The Fourth duty of the admiralty was to impose and appropriate the custom duties.<sup>104</sup>

A striking change was noticed in the construction of ships as the result of piracy by native and European people.<sup>105</sup> It was not that the better type, well-equipped ships were displacing the less efficient ship, but the outer appearance of the Indian built ships changed considerably. This was especially accomplished in Eastern India by widely using teak as substance in the construction of ship. It had the property to resist the effect of salt water and weather for an incredibly long time, lasting upto 50 years and even more compared with 10 or 12 years of English oak. The life

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103. Radha Kamal Mukherjee, Indian Shipping, p.207. Thus every ship required the following officers to properly look after the ship: The nakhuda, Commander of the Vessel, Mu'allim, who knew the soundings, the situation of the stars and guided the ship safe to her destination. The tandil, who was the chief of the sailer. The nakhudakhasb, whose duty was to provide fuel for the people and assist in loading and unloading the ship. The sharhang, who had superintended the docking and launching of the ships. The bhandāri, store keeper, the karrāni, the ship clerk, the sukangir, of whom there were sometimes 20 in a ship. The panjari, whose duty was to look out from the top of the mast and give notice when he saw land or ship etc. The gumti, those particular khālāsis who threw the water out of the ship. The gunner, differed in number according to the size of the ship. The khārwah, common sea men, employed for setting and furring the sails and in stopping leaks and in case of the anchor sticking fast in the ground they had to go to the bottom of the water to set it free, the top andāz (gunner). Their number varied with the size and needs of the ships. Also see A.J. Qaiser, "Merchant Shipping in India during the 17th Century," Medieval India: A Miscellany, Vol. II, (Asia Publishing House, New Delhi, 1972). p.96.

104. Ibid., p.208.

105. T.S. Sanjeeva Rao, The Short History of Modern Indian Shipping, (Bombay, 1965), pp. 32-33.

of these ships were further increased certainly by "seathing." The design of the ships with practically vertical sides made the ships stronger, roomier, stiffer and more sea-worthy than a ship with least breadth upon the upper deck. It was not completely without drawbacks. These were their slow speed but soon it was remedied by the Indian builders who adopted several of useful techniques of English ships. By a closer observation of the English models, Indian shipbuilders "began to produce vessels with all the strength of the traditional Indian ships with all appearance and speed of English Indiamen. They were probably the finest ships in the world."<sup>106</sup>

Bengal was naturally endowed with extensive timber. In the Sarkar of Bazuha, timber of long length suitable for large ships could be produced. Chittagong produced very high quality of timber and that was why shipbuilding was very active in the region.<sup>107</sup> Ships of 400, 500 or 600 tons were built at Hughli, Jessore, Pipli and Balasore. Ship building activity in the region had become a regular phenomena on such a scale, that near Dacca colonies of carpenters had been established. Ship yards or naval arsenals with thatched roofs were called nausal.<sup>108</sup>

The Bengal ships were very cheap. This fact is evident from the records of the English East India Company which noted in 1634 that the English Company bought a small frigate of 30 tons for Rs. 900 i.e. Rs. 30 per ton. The factors remarked that the price was deemed very cheap.<sup>109</sup>

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106. Ibid., p. 33.

107. A. J. Qaiser, loc. cit., p. 161.

108. Ibid., p. 161.

109. Ibid., p. 161.

Shah Jahan developed the Bengal nawara which consisted of 70,000 personnels, besides soldiers. The Mughal nawara was no match to that of Arā Kanese in Bengal who also had their fighting vessels armed with guns and cannon. Despite its large dimension with their guns, the Indian ships could not well defend themselves.

The Indian ship-builder's idea of tonnage was apparently based on weight rather than on space. The Indian expressed the capacity of their vessel in terms of cargo-weight. The Persian sources invariably interpreted linear measurement of the ship i.e. length.<sup>110</sup>

A regular pilot service had been established as early as 1668 in Hughlī and with increasing efficiency and operation, the hazards of navigation of the Hughlī steadily diminished.<sup>111</sup> From Company's records it is possible to postulate that time and again the Company's captain and pilots of vessels up and down the Hughlī were severely rebuked for conducting, piloting or giving directions for the safe navigation of vessels belonging to other traders. And that was why, that the Company laid strict injunctions upon all their servants.<sup>112</sup>

Since 1686, Charnock had been repeatedly urging the Company to make Sutanuti in Bengal as its major base. Equally importantly, he also realised the need for an adequate port accessible both from sea and from the Bengal hinterland with reasonable safety where ships could ride. He found Sutanuti most suitable, possessing most of these advantages and prospects. It was a secure position for a naval power. For economic prospects, it was an appropriate site because provisions and articles for foreign export were in

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110. Ibid, p.169.

111. N.Mukherjee, The Port of Calcutta, A Short History, (Calcutta, 1968), p.26.

112. Ibid, p.26.

plentiful at its hāts and bāzārs which were easily accessible. Being nearer to sea than Hughlī, Sutanuti afforded greater facilities for sea borne trade and for withdrawal with safety in case of a reverse. The choice of Sutanuti for making port was further influenced by the fact that river at the point of Howrah Bridge then was at its narrowest and, therefore, most easily crossed. Of all the places to which ocean going vessels could proceed, Calcutta offered the best anchorage because the Calcutta reach known as the long reach had deep water along the eastern bank from the site of Howrah Bridge right down to Garden reach. This stretch of water could easily accommodate hundreds of vessels of that time. From Indian point of view the vicinity of the site to Kalighāt was a favourable contributory factor. <sup>113</sup>

Since about 1750, approximately half of India's sea borne trade passed through the port of Calcutta. With the expansion of British dominion in India the port came to occupy a larger hinterland comprising the entire of north and part of Central India. Now Calcutta enjoyed the role of a tunnel for the collection and overseas distribution of commodities produced over a wide hinterland comprising Bengal, Bihar, Orissa, Assam, U.P., Punjab, Central Provinces and even Nepal. <sup>114</sup>

Ship-building industry of Bengal was further stimulated by the outbreak of a famine in the Carnatic and by Hyder Ali's invasion in 1780. This, consequently, increased the demand of grain from Bengal to the English settlements on the Coromandel Coast. <sup>115</sup>

113. Ibid, p.23.

114. Ibid, p.33.

115. Radha Kamal Mukherjee, Indian Shipping, p.247.

Military supplies were also required to the British settlements on the Coromandel coast, that opened the eyes of Europeans to the necessity of ship-building in Bengal.<sup>116</sup>

Before 1780, Bengal was almost entirely dependent on Surat, Bombay, Daman and Pegu for shipping.<sup>117</sup> During these period the East India Company contributed considerably to the construction of the Bengal Marine, thus continuing the work of the Mughal Emperor in connection with the nawara. The first attempt to ship building were made in district Sylhet, Dacca, Chittagong etc. But it was Calcutta that soon acquired fame as the centre of regular ship building.<sup>118</sup> The First vessel built on the river Hughli, at Calcutta was the Amazon of 138 tons was launched in 1769. The second was Minerva of 180 tons was launched in 1770.<sup>119</sup>

With the increased commerce from hinterland, the Company was forced to pay utmost attention to transportation as a measure of security. River navigation was the only means to draw the attention of Company's Directors and servants to be exploited. Hence it became the greatest beneficiary of Company's policies and programmes.

In 1768, the Court of Directors suggested some further improvements in the management of the marine establishment of Bengal especially related to Pilot service. This service was placed on a better footing for the benefit of the private trade as well as

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116. H. R. Ghosal, Economic Transition in the Bengal Presidency, p. 152.

117. John Phipps, A Collection of Papers, relative to ship-building in India, (Printed by Scott and Company, Calcutta, 1840), p. XI.

118. Radha Kamal Mukherjee, Indian Shipping, p. 247.

119. John Phipps, loc. cit., p. XI.

their own. Now, they introduced the training system and young seamen were sent under the denomination of volunteers to the Bengal Presidency for training on board the pilot ships. Later, and especially after training, these cadets eventually rose to the office of mates and masters according to their merits. The salary of these cadets were 40 shillings per month during the period of training.<sup>120</sup>

With the increased proto-industrial activities and with increased volume of traffic by the Calcutta Port, the necessity of docking facilities was naturally experienced. For repairing, the Company's vessels were sent to Bombay. This caused inconvenience to the shipping. Keeping in mind these inconveniences, in 1765, the Master attendant brought this to the notice of the Calcutta Council and asserted the urgency and the importance of building docks at Calcutta. The construction of a wet dock was for many years recognised as one of the most significant way of improving the Calcutta Port. In 1780 Colonel Watson founded a Marine yard at Kidderpore. He also received a grant of land from the East India Company for docking purposes and commenced it in 1781. The first dry dock in Calcutta was built by government in 1790 on the site of what later became Bankshall Ghāt,<sup>121</sup> was a small one. Subsequently, several large docks were constructed at Howrah and Sulkea. In 1803 the Kidderpore Dock was founded by Mr W. Waddel,<sup>122</sup> Company's master builder.

120. N. Mukherjee, op.cit., p. 30.

121. Ibid, pp. 30-31.

122. Radhakamal Mukherjee, Indian Shipping, p. 248.

Another substantial private venture in the 18th Century leading to the improvement of the Port of Calcutta was the excavation by Major W. Tilly of the silted up channel of the Ganges known as Tolly's Mullah. It was excavated in 1776 under a temporary grant of land with the right to levy canal tolls and was opened to navigation in 1776 and became a useful navigable canal.<sup>123</sup>

An act of 1772 had empowered the Company to build or hire ships in India for local trade and defence. Agency houses of Calcutta invested their capital in the construction of their own ships. The Calcutta shipyards grew up independently of the government. To Col. Henry Watson, the Government's Chief Engineer, unquestionably goes the credit of having established the first dockyard in Bengal. The work was started in 1780 and he spent Rs. 10 lakhs on these docks.<sup>124</sup>

Ship-building industry in Bengal was further encouraged by the Government in 1795 by abolishing the duties on timber imported by sea from the upper provinces.<sup>125</sup>

From 1781 to 1800 inclusive 35 ships with a total tonnage of 17,020 were built on the Hughli chiefly at Calcutta, in 1801 19 ships were built of 10,079 tons.<sup>126</sup> A considerable sum was expended in Calcutta in ship-building of which a major portion was payment of wages to native artificers and labourers.<sup>127</sup>

Among the Calcutta ship-builders, who flourished during the late decades of 18th Century and early decade of 19th century the

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123. N. Mukherjee, op.cit., p. 32.

124. S. B. Singh, European Agency Houses in Bengal, (Calcutta, 1966), pp. 18-19.

125. Ibid, p. 20.

126. Radha Kamal Mukherjee, Indian Shipping, p. 247.

127. Ibid, pp. 247-248.

names of Foreman, Bacon, Hudson, Gillet, Larkins, Glass, Blackmore, Waddel, J. and R. Khyll, M. Smith, J. Foster and others immediately come to the mind.<sup>128</sup>

Calcutta afforded every possible resource for the building of any number of ships. Timber and plank of larger dimensions were to be had in abundance. The markets were plentifully supplied with Iron, copper, lead, cordage, spars and other stores required for fitting out ships. Extremely expert workforce in wood, iron, and brass might be available in abundance.<sup>129</sup> The materials of which Bengal ships were constructed consisted of teak timber and planks imported from Pegu, saul and sisoo timber from Bihar, Oudh and the inexhaustible forests of the northern boundaries of Bengal and Bihar.

The ribs, knees and breast hooks or what was generally dominated the frame of the ship were composed, generally, of sisoo timber. The beams and inside planks were constructed of saul, the bottom, sides, decks, keels, stern posts were made of teak. Teak was an excellent material for the purpose of ship-building. Teak grown on the Malabar Coast and near Surat were better in quality than the teak imported from Pegu.<sup>130</sup> Sisso was well suited to ship-building, from its size, form, and firm texture. Saul was next suited to ship-building, from its size, form, and firm texture. Saul was next suited to ship-building industry. Sisoo produced crooked timbers, knees of every shape and dimensions, for vessels of all forms

128. John Phipps, A Collection of Papers, relative to Ship-Building in India, (Calcutta, 1840), p. XVI.

129. James Kyd, esq., "On Indian timber and ship-building" Copy of a letter to Admiral Drury in 1808, written at his particular request: in, A Collection of Papers relative to ship-building in India, (Compiled), John Phipps, (Calcutta, 1840), p. 7.

130. Anthony Lambert, (1802), "First Paper on Ship-building in Bengal," John Phipps (compiled), op. cit., pp. 4-6.

and of every magnitude, even for a ship of war of first rate. saul furnished excellent beams, knees and inside plank.<sup>131</sup>

Iron was brought from Europe in bars and manufactured in Calcutta for the various processes and purposes required in ship-building industry. Sheet copper, copper bolts and lead were also imported from Europe. The composition work for the rudder braces was composed of zinc, the produce of China although a little zinc was also imported from Persia and Pegu. Anchors were brought from Europe. The largest iron work could be made well and cheap in Bengal. The standing rigging was of hempen coir, ejoo, and plantain rope, the produce of India. The convass was generally of Bengal make. Blocks were mostly of Bengal make. Block sheaves were made of Lignum vitae. It was imported in great quantities by the Americans at a less price than it was at in England.<sup>132</sup>

Saul was an excellent timber, very much like the oak in quality but more heavy and doubly strong, it grows to very large dimensions upto 90 feet and proportionally thick. Murang saul was an excellent durable timber. It was used for keels, stern-posts, beams and where straight timber was required, also for plank of the bottom and plank for lining. Its use might be advantageously extended to all the thick outside plank and to all the frames. If it was procured crooked, it was appropriately applied to every part of a ship except the deck plank and thin planked exposed to the weather because it shrank and wrapped with the sun.<sup>133</sup>

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131. Ibid, pp. 5-6.

132. James Kyd, esq, "On Indian Timber and Ship-Building." Copy of a letter to Admiral Drury in 1808 in John Phipps (Compiled). A Collection of Papers Relative to Ship-Building in India, p. 8.

133. Ibid, pp. 11-12.

Sisoo grew in a variety of shapes well adapted for the framers of ships, excellent where either always wet or dry prevailed, but where it was in the reverse and shut-up from the air, its decay was rapid. It might be utilized with advantage where it could be kept dry for long and toughness was acquired such as for caps, drumheads capstands and also used for making most excellent blocks, adapted for lining between decks and where splinters were feared, on account of its toughness and it has been accordingly in some frigates been used for that purpose.

Calcutta was hitherto supplied with spars for lower masts and bowsprits, with teak from Rangoon. Top masts and lower yards had also been made of teak. It was not generally in abundance in Calcutta. Pine spars of large dimensions were sometimes imported from Malacca. There was generally enough of top gallant spars for the demand of this port of Riga Pine, brought out as spare stores in Indiamen; American pine by the Americans, and Chinese pine for very light purposes, brought by the country ships. There were plenty of pine spars in the Nepal Hills and also in the forest bordering on Rohilkhand.<sup>134</sup>

Besides the English rope manufactured from Russian hemp, the shipping in Bengal as well as other parts of India, were supplied with rope made from coir, ejoo, plantain and Sunn. The coir was well known, highly prized for its elasticity and lightness, the ejoo for its elasticity, and the plantain for its strength. The Sunn indigenous to the country easily available and cultivated

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134. Ibid, p.15.

and could be procured in the greatest quantities for making good cordage. Various reports regarding the durability of the Sunn in different circumstances comprehend that when prepared carefully, it was very little inferior, if not equal, to the best Russian hemp. Mr. Harton and Mr. Jones recognised it equal, if not superior to that of European hemp. The Court of Directors, in a letter on the Bengal Sunn, in 1803 stated that Bengal Sunn when made into rope in the common way, was very inferior to Russian hemp, but when made by the Patent register mode, the 3 to 6 inches was equal or far superior in strength to the best hemp of the world.<sup>135</sup> The report of Marine board stated that Sunn of Bengal was very bad. It was used as others as jib-stays, top-sail braces and some as cables. They all found it to keep stretching till it broke and in wet weather it lasted the shortest time of any.<sup>136</sup>

Shows and sloops, constructed basically for the navigation of the river, were chiefly employed in loading and unloading the Indiamen and such other large ships to receive and discharge their cargoes at Diamond Harbour and other stations near the sea, where open boats could not be used with safety. The tonnage in 1802 belonging to the port of Calcutta exclusive of river craft appeared to be 67 ships, 50 snows, etc. and 1 yatch, of these the aggregate burden was 36,082 tons and estimated value sicca<sup>137</sup> Rs. 46,79,000.

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135. Ibid., pp. 17-18.

136. Ibid., p. 18.

137. Anthony Lambert, "First Paper on Ship Building in Bengal," written in 1802, John Phipps, (Compiled), A Collection of Papers relative to ship-building in India. (Calcutta, 1840), p. 5.

ACCOUNT OF VESSEL BUILT IN BENGAL SINCE 1781 TO 1803

<u>Place of Manufacture</u>	<u>Ships</u>	<u>Snows</u>	<u>Tonnage</u>	<u>Value when equipped for sea</u>
On the Ganges	38	39	24,580	Sa. Rs. 37,09,000
Chittagong	7	29	7,450	7,05,000
Sylhet	2	13	2,640	2,65,000
Bakerganj and other places in the Sunderbans	9	12	4,410	4,25,000
Total in 22 years	56	93	39,080	Sa. Rs. 51,04,000

Source: Anthony Lambert, "First Paper on Ship-building in Bengal (1802)," John Phipps (Compiled): A Collection of Papers Relative to Ship Building in India, p.5.

It, therefore, would be appropriate to conclude that ship-building industry was essentially an important consequence of intense proto-industrialization in most of the rural regions of Bengal. Shipping industry as a significant branch of proto-industrial system developed only in those 'pull areas' of Bengal, situated adjacent to ocean. This branch of proto-industrialization was further helped by the supply of proto-industrial products to different national and international markets. Previous to 1750s Bengal was transporting her proto-industrial products on ships built at ports like Surat, Bombay, Daman, Pegu etc. Ships from these port cities to Bengal was not sufficient. That was why individuals were attracted towards this branch of industry. The

earliest efforts in the direction of manufacturing ships were made in the areas of Sundarbans, at Chittagong and at Sylhet.<sup>138</sup>

In the course of 18th century, the easily transportable system available for the various proto-industrial products from the hinterlands of Bengal proper, Bihar, Orissa, United provinces, central provinces, Awadh etc. to Calcutta through rivers made Calcutta the very busy entrepot in the late 18th century. This advantages in the course of late 18th century encouraged the shipbuilding industry of Calcutta and later it became a very considerable branch of home manufacture.

But the most sophisticated, newly acquired technological knowledge of Europe did not find its application in Bengal's ship-building industry. Steam ship which was introduced in England in the 18th century and played the vital role of one of the most significant carriers of industrialization in England, was a very late comer in the history of Indian technology. Hence, the possibilities of shipping-proto-industrial system to make transition to capitalist industrial system was negligible.

#### FURNITURES

Furniture of various quality had been made in ancient India. But the four post bed which came into use with Western influence was unknown in ancient India. Only the Indian charpai, low

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138. Anthony Lambert (esq. 1802), "First paper of Ship-Building in Bengal" in John Phipps (compiled), A Collection of Papers, relative to ship-building in India, p.6. In the ships built at these places, green timbers and bad materials were utilised unskilfully. These ships were made in haste and constructed unskilfully. That was precisely the reason that these ships decayed quickly and defamed the reputation of ships built at these places. These problems compelled the ship builders to change the area of ship-building industry from Chittagong and Sylhet to Calcutta, Hughli and Howrah.

cot being a rectangular frame of wood, roped across for the mattress was used. In high circles the cots were to be strung with broad bands of tape plaited across the frame or covered with wood or even ivory if it could be afforded.<sup>139</sup>

Chairs were introduced by Europeans in India.

Supplementing the wood, silver, copper and gold were allowed to be used in the making of thrones. Iron was prohibited to be used in the throne. Non-gritty sandstone was used. The colour used in the throne were guided by the situation of the planet for the personage concerned. Thus, blue coloured stone was to be used for saturn, a yellow stone over venus. Crystal was allowed to be freely used.

The Indians knew the art of veneering, so popular in the west, but was no longer practised in India on any considerable extent. This was in fact no craft of 'Humid climate!

Marquetry work, not true inlaying was very popular in India. The materials used for marquetry designs varied widely; from ivory and horn either uncoloured or coloured in green, blue, ebony wood, red wood, tin, silver and rarely to even some other materials.

Painted furnitures and other articles of domestic use were popular, especially in the traditionally Indian style of furniture. Latter, they adopted the fashion acquired by the city rich. This was known as the kamāngin work, after the word kamān, a bow on which this kind of painting used originally to be done.

During 17th and 18th centuries, Bengal see the utilization of 'Goan furnitures! Refinement of taste might be envisaged on the 'Goan furnitures! The slow ebb of Portugues styles and the influence of French type of furnitures were easily traced. Increasing number of chairs, beds, tables, settees, benches, chest of

139. Rustam J. Mehta, The Handicrafts and Industrial Arts of India. (Bombay, 1960), p. 44.

drawers, and stools were manufactured. Teak, ebony and blackwood were utilised for the purpose. Inlaying with ivory, bone, rosewood etc. became common. Preference was provided for the production of furnitures for religious purposes like choir-stands, credences, church benches, and such other pieces not primarily meant for domestic uses.

From this micro-level study of Forest-proto-industrial system in 'pull', 'corridor', 'neutral' and 'push areas' of Bengal, it is possible to postulate that the Forest-proto-industrial activities in its initial phase was not an 'omnipresent' phenomenon in rural Bengal. Some of the Forest-proto-industry through-out our period flourished only in the 'pull areas' of Bengal. The most significant among such proto-industry of Bengal was ship-building. In actuality, ship-building initially flourished in those 'pull areas' which were situated in the vicinity of ocean and forest. But, later the need to supply the proto-industrial products of 'pull', 'corridor', 'neutral' and 'push areas' to distant markets shifted the centre of ship-building from Sunderbans to Calcutta regions.

Production of silk cloth, raw silk and sericulture was a wide spread phenomenon in 'pull', 'neutral' and 'corridor areas' of rural Bengal. Silk-proto-industries during early 17th century were established in the regions of forest situated near navigable rivers or oceans. This outlet enabled the area consisting of Qāssimbāzār, Hughlī, Murshidābād etc. to establish silk European factories. In the late 17th and early 18th centuries Māldā, Shāntipur, Commercolly, Ghorāghāt, etc. became an important centre of silk proto-industries. It was only in the late 18th century that silk-proto-industries exploited the 'push areas' of Bengal like Bīrbhūm, Burdwān, etc. It

was essentially the efforts of English East India Company's servants that important reeling and winding factories were established.

Chairs, cots, carts, pālki, chariot, haudah, basket were some of the forest-proto-industries which were widespread through the rural areas of Bengal. These proto-industries could not make any contribution to transform themselves into capitalist industrialization. Their role in such transformation would be only subsidiary. This was because such proto-industries could hardly make any contribution towards primitive accumulation of capital, organization of such proto-industries was still in primitive form. Jajmānī system was the basic form of organization.<sup>140</sup> Chairs, cots, carts, pālki, haudah, basket etc. had no foreign demand. No intermediary was functioning between primary producers and foreign merchants. No possibilities were available for emerging the primary producers as industrial entrepreneurs. Therefore, such proto-industries had very minor role to play in such transformation.

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140. Tapan Raychaudhuri, "Non-agricultural Production: Mughal India," Tapan Raychaudhuri and Irfan Habib (eds.), op.cit., p.281.

CHAPTER - V

MINERAL AND METAL - BASED CRAFTS

Before 1750, production in metal was mainly confined to 'pull' and 'pull corridor areas' of Bengal. Metals like iron, copper etc. were not mined in Bengal. Bengal was largely dependent upon the import of these metals from different European and Asian countries. These metals had to be transported in the 'pull and 'pull corridor areas' of Bengal because of easy availability of ocean and river transportation.

These imported metals were largely utilised in manufacturing house utensils. House utensils and jewellery of various metals and alloys were produced by simple mechanical methods in rural and urban Bengal. Mechanical time saving devices and mechanical devices for wasting very little raw materials had not been innovated and introduced in these proto-industries of rural Bengal. These occupations were most probably full time employment. Specialised occupations grew in producing house utensils and jewellery.

It was only during 1770s that mining iron and coal was undertaken by the servants of East India Company, but it made little progress in the 18th century. These iron and coal mines had been established mostly in the 'push' and 'push corridor areas' of Bengal. Bīrbhūm, Burdwan, Raniganj and later Durgapur became important centres of iron and coal mining. Since the mining production in Bīrbhūm and Burdwan was not diversified in the 18th century, tribals who found employment in these iron and coal mines were not employed permanently. Most of these tribals obtained employment in these mines only temporarily that is in the off season especially when sowing and harvesting had been finished. These tribal

persons had to depend during the last decades of the 18th century mostly on mining and other occupations because they obtained agricultural employment only for short period. They, therefore, depended on double and in some cases on triple occupations.

#### MINES AND MINERALS

The exploitation of minerals was regarded as a subject of considerable interest by the compiler of the Ā'in-i Akbarī, Abū-l Fazl. The production of gold in India appeared to have been negligible. Abū-l Fazl tells us about the washing of the metal from the river sand. Silver, too, was obtained in only trifling quantities<sup>1</sup>. The other metals chiefly consumed in India were quick silver, tin, lead, zinc, copper and iron.

It was in the areas of mining that the 'push,' 'push-corridor' and to a little extent 'neutral areas' had occupied a leading place spatially in the later half of the 18th century. It was the 'push areas' of rural Bengal, where the iron mines, coal mines and some other mines were first established. The 'pull,' 'pull corridor' and some of the parts of 'neutral areas' had to depend on 'push,' 'push corridor' and some of the parts of 'neutral areas' for the supply of raw iron, coal and other minerals. The 'push areas' of Bengal in course of the late 18th and early 19th centuries was full of iron, coal and other mines with large numbers of pākā goods (finished goods) manufactories. During these years mineral proto-industries with other allied proto-industries had been established in the 'push,' 'push corridor' and some of the parts of 'neutral areas'

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1. W.H. Moreland, India at the Death of Akbar, An Economic Study, (Delhi, 1987), p. 138.

— because of the easy availability of related raw materials. Iron workshops were also found in other areas of Bengal. With the increase of iron and coal mines in 'push areas; 'push corridor areas' and some of the parts of 'neutral areas' of Bengal, the application of iron in some of the rural as well as urban proto-industries increased to some extent.

### IRON

Mining in India was carried on a limited scale even before the advent of the British rule in the country. The art of smelting iron and the manufacture of steel were known to India from very early times. Large ancient heaps of slag in various parts of India at Salem and Hydrābād in the South, in Orissa and the central and north western provinces demonstrated that the use of iron was common in India from 2000 B.C. to 400 B.C. and a considerable operations were carried on down to about 1400 A.D.<sup>2</sup> The manufacture of wrought iron by a direct process was wide spread in the country before the date of the most ancient historic records. References regarding the production of the Wootz were also available in original historical records. The cementation process significantly utilised in Europe for the manufacture of the first qualities of steel was also practised in India. The Nizām's dominions furnished the material from which the famous Damascus blades of the middle ages were made. The Damascus steel was exported from India for centuries via Persia.<sup>3</sup> Forged iron bars of large size have also been found in temples of considerable antiquity in many part of

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2. Rohini Mohun Chaudhari quoted C.B. Chartes, Address before the Rotary Club. See, The Evolution of Indian Industries, (Published by the Calcutta University, 1939), p.95.

3. Ibid, p.96.

India. During the early British rule iron was found in Ballasore and Bīrbhūm.

These simple and compulsory demand for iron for domestic use compelled the people to exploit the ores available in the country. The primitive iron-smiths faced little difficulty in securing sufficient supplies of ore from local deposits. The smelting of iron in India was concentrated in localities where wood fuel was available in large quantities and in nearer byregions.<sup>43</sup> It was Darbys who in his workshop at Coalbrookdale in 1709 successfully experimented and converted coal into coke that laid the foundation of the modern iron industry although the potentiality of coal as a suitable fuel for smelting iron was recognised for many centuries. The production of iron through the new method was so economical that England increased its production significantly and started to exploit foreign markets for the disposal of the products of her mines.

It was the wasteful and uneconomical methods adopted and pursued by the Indian smelters that comparatively placed them at a great disadvantage. The adverse effect of foreign competition upon the smelting industry was the gradual abandonment of the industry to the point of extinction.<sup>5</sup>

During the Mughal period, the production of iron was much more diffused. Abū-l Fazl noted that the production of this metal was carried on in the Mughal provinces of Bengal. But regarding the quantity of iron produced during Mughal period, we can form

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4. Ibid, p.97.

5. Ibid, p.97.

only a vague idea. Many of the modern uses of the metal were of course unknown and Indian constructional methods are distinguished by the absence or economy of iron. The output was mainly devoted to the manufacture of tools, implements and arms etc. Abū-l Faḥl provides some data regarding the cost of some of these articles in northern India, but it is difficult to make a satisfactory comparison.<sup>6</sup>

In Bengal proper, extraction of iron from its ore was a flourishing industry in Bīrbhūm. The iron ores of Bīrbhūm occurred in beds towards the base of laterite deposits.<sup>7</sup> The iron mines of Bīrbhūm were situated in the western and north-eastern parts of the district, particularly in tappet Sarhet-Deoghar. The region was rocky, and covered with dense forests. Reclamation of forests, enabled people to found their residences over there, and thus villages big and small were established which also became the site for iron manufacturing aurangs or centres very nearer to the iron mines.<sup>8</sup> The bed generally could be found from 15 to 50 feet below the surface of the earth which was on an average about 5 feet thick. In this bed the ore occurred in their seams in irregular bunches.<sup>9</sup> The ore was not only abundant but also contained a high percentage of iron averaging over 40% and occasionally went upto 60%.<sup>10</sup>

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6. W.H. Moreland, India at the Death of Akbar, An Economic Study, (Delhi, 1987), pp. 140-141.

7. Durgadas Majumdar, West Bengal District Gazetteers, Bīrbhūm, p. 227.

8. Ranjan Kumar Gupta, "Iron Manufacturing Industry of Bīrbhūm: A Study of its growth and Extinction," Journal of Indian History, (Hereafter cited as JIH), Vol. 38, Parts I-III (April, August, Dec, 1980), p. 94.

9. Ibid, p. 94.

10. Durgadas Majumdar, op.cit., p. 227.

Iron manufacturing estates of the districts were separated and formed into Lohā maḥal in 1765, with an annual jama', of Rs.8,850. It was the ijāradārs of the Lohā Maḥal who were entitled to collect their dues from the iron smelters. The Raja of Bīrbhūm appropriated his rent from the ijāradārs and sā'ir from the smelters and the bepārīs. Since these levies were not too heavy, onerous and oppressive and since the socio-politico-economic structure of the district was more or less stable, the production of iron industry was going on smoothly.<sup>12</sup>

After the defeat of the Nagar Raj and the collapse of the administrative set up of the district, the industry rapidly declined. Chaos and confusion encouraged the paharias to increase their depredations which resulted in closing many a manufacturing centres of iron industry.<sup>13</sup>

The first application to work the iron mines by an improved system was made by an Indian, named Indra Narayan Sharma in 1774. The government accepted the proposal of Indra Narayan Sharma to lease out the iron mines of Bīrbhūm district to him on condition that he would be required to pay an annual rent of Rs.5000 after the fourth year of occupation.<sup>14</sup> Indra Narayan selected a vast jungle tract around the village Satgachia in Moliarpur Paṅgana

11. See Ranjan Kumar Gupta, The Economic Life of a Bengal District Birbhūm: 1770-1857, (Calcutta, 1984), p.197. Also see his, "Iron Manufacturing Industry of Birbhūm: A study of its growth and Extinction," JIH, Vol. 38, Parts I-III. (April, August, Dec, 1980), p.95.

12. Ranjan Kumar Gupta, "Iron manufacturing industry of Birbhūm: A Study of its growth and extinction," Ibid, p.45.

13. Ranjan Kumar Gupta, The Economic Life of a Bengal District Birbhūm: 1770-1857, p.198.

14. Durgadas Majumdar, West Bengal District Gazetteer, Birbhūm, p.227.

and decided to set up his iron works there with a view to manufacturing the article on a large scale. The choars and mountaineers infested the malgajari lands and caused the ra'iyat to desert the regions, engaged themselves in working of iron.<sup>15</sup> In September 1774, Indra Narayan again submitted a petition to the Honourable Company for a 7 or 8 years lease of his selected lands through Burdwan council. Another proposal was also placed for the clearance of the jungle and manufacture of iron in mountainous part of the district of Birbhum.  
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In 1770, Messrs. Motte and Farquhar were provided the absolute privilege of manufacturing iron in the Honourable Company's possessions in the country. The first place to be selected by the Company for setting up furnaces was Jharia. In the same year Mr. Farquhar requested for altering the terms because he discovered the ores of Birbhum as far more suitable for the purpose than those of Jharia. In 1779, after further correspondence, an advance of Rs. 15,000 was made by the government to Farquhar to enable him to complete his Furnaces.  
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Between 1779 and 1788 Farquhar remained deeply engrossed with furnaces at Deocha. He proceeded with his plan of manufacturing pig and cast iron after the European Method but little or virtually no information was available to demonstrate the success of the plan. During these years Birbhum hook iron exported to Calcutta for sale at a competitive rate of Rs. 5 per maund against the English ore at

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15. Ranjan Kumar Gupta, loc.cit., p. 199.

16. Ibid., p. 199.

17. Durgadas Majumdar, op.cit., p. 227.

at Rs.10 and 11. The Bīrbhūm hook iron was mostly produced by the direct native process rather than European Methods.<sup>18</sup> Farquhar had to face hostility from Raja of Bīrbhūm from his first residence to the district. In 1777, Raja had increased the jama of the Lohā Maḥal from Rs.766 to Rs.3266 but jama' was settled at Rs.766. But the relationship between the two had never become cordial. There were other irritants too like recurring disputes with jāgīrdārs in connection with the right to the rent of the Lohā Maḥal and the customs on the product. In course of time, Bīrbhūm became a theatre of protracted civil rebellion, that paralyzed the administration, trade and industry of the district. Farquhar retained his lease till 1795. After 1795, it was incorporated with Bīrbhūm zamīn-dārī and had the total jama' of sa. Rs.904-905.<sup>19</sup>

Between 1793 and 1799, Bīrbhūm zamīndārī, was divided into different maḥals of lots and put to auction sales for the realisation of ṣadr jama! The iron mines of the region were distributed among various estates creating conditions for further applications. And finally, in 1798 Baisnat Charan Hajara of Burdwān had purchased the Lohā Maḥal at Rs.7000.

Motte and Farquhar had observed that iron produced in Bengal would also be very much suitable for manufacturing garrison, gun, carriages, shots, shells and artillery, besides the construction of sugar mill cylinders, boilers for sugar works, salt works and saltpetre works etc. These could profitably be supplanted by articles

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18. Ranjan Kumar Gupta, "Iron manufacturing industry of Birbhum: A Study of its growth of Extinction," JIH, Vol. 38, Parts, I-III, (April, August, Dec, 1980), p.99.

19. Ibid, p.100.

manufactured from Bīrbhūm.<sup>20</sup>

The indigenous enterprises may be divided into three types:

- (i) Tribal household industry;
- (ii) Market oriented craft groups;
- (iii) Proto-capitalist enterprises.<sup>21</sup>

But in Bengal and especially in Bīrbhūm two types of manufacture were in vogue; the first was the Tribal household industry; and the second was Bengali speaking market oriented crafts groups.<sup>22</sup> The first type of manufacture was practised in the western most part of Bīrbhūm by tribals inhabiting that area whom H. Torrens recognised as Santhāls, while V. Ball interpreted that they were really a local tribe, an offshoot of the Munda Kolis. They were the people, who were mentioned as chauris in the application of Indra Narayan Sharma who proposed to employ the former in the mines of Bīrbhūm on a large scale in 1774.<sup>23</sup> A group of Tribal called Agarias dug out the ore, taking a paṭṭa from the zamīndār in whose estate it might be found. These diggers brought the raw iron to Lohārs formerly directly and later indirectly. Gradually, in between the diggers and Lohārs there appeared a new class of people called the beparīs who bought the article from iron diggers at a trifling price and sold it to the saloi with a handsome profit. The saloi at the Kotsal extracted the iron in its raw state by smelting.<sup>24</sup>

20. Ibid, pp.98-99.

21. Sabyasachi Bhattacharya, "Iron smelters and the indigenous iron and steel industry of India: From stagnation to atrophy," See Surajit Sinha(ed.), Aspects of Indian Culture and Society, (Calcutta, 1972), p.132.

22. Hitesranjan Sanyal, "The Indigenous Iron Industry of Birbhūm," IESHR, Vol. 5, No. 1, (March, 1968), p. 102.

23. Ibid, p.102.

24. Ranjan Kumar Gupta, The Economic Life of Bengal District: Birbhūm: 1770-1857, p.203.

The second type of manufacture carried on by the Bengal speaking people was concentrated in the North Western Part of the district in which ore and timber for preparation of charcoal fuel were easily obtainable.<sup>25</sup> Type two of the enterprises is difficult to categorise. It came into existence in areas where specialised production for the market by skilled craftsmen had developed. Close relation with local markets could easily be envisaged; the processed iron being invariably sold in the local bāzār or to the itinerant merchants.<sup>26</sup> The efficiency of labour of these groups of artisans and the output per worker was much higher in comparison to type I labourers. And finally, the technology and techniques on which the workers were working was sophisticated and superior to that of the denizens of the type I enterprise system.<sup>27</sup>

In type one the furnaces were small and were not utilised for long periods. This was because the iron smelting tribes were habituated to migrate from place to place continually, in search of spots where the timber and ore were readily available. Furnaces used in type II were not superior technically to those used by the tribals but were on a much larger scale.<sup>28</sup> In these furnaces, the ore was in direct contact with the fuel. Smelting was entirely with charcoal. No stimulant like flux etc. was utilised to enable the process of smelting. The manner of working was apparently wasteful; but this had the advantage of producing a pure quality of iron.<sup>29</sup>

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25. Hitesranjan Sanya, "The Indigenous Iron Industry of Birbhum," IESHR, Vol. 5, No. 1, (March, 1968), p. 102.

26. S. Bhattacharya, "Iron smelters and the indigenous iron and steel industry of India: From stagnation to atrophy," See Surajit Sinha (ed.), Aspects of Indian Culture and Society, p. 137.

27. Ibid, p. 137.

28. Hitesranjan Sanya, loc. cit., p. 102.

29. Ibid, p. 102.

In 1845 W. Jackson found that smelting was done in two stages in circular kilns, the iron in mass taken out from the bottom. Each smelting took 4 days and nights, producing 25 maunds of pig iron.<sup>30</sup> This amount of kachha iron produced about 19 to 20 maunds of pure iron by smelting for a day or two at the kamarsal.<sup>31</sup> Oldham stated that the furnaces were working throughout the year with only occasional stoppages during festivals, etc., provided the proprietors stocked sufficient iron ore and charcoal before the commencement of the rainy season. The kachha iron was sold to the refineries or kamarsals who converted kachha iron into pākā through the method of refinement in open hearths. The refining was really a kind of puddling process permitting the iron being brought out and hammered for a longer time to make it thoroughly malleable.<sup>32</sup> These were wrought iron in bars,<sup>33</sup> unfit for any heavy work.

The first process to be utilised was the smelting of the iron ore into blooms. In this process some carbon was absorbed in the bloom iron. It was essential to expel the carbon and other impurities in order to refine the iron into wrought iron by alternate heating and hammering. Steel was produced either on the principle of carbonization of wrought iron or by decarbinization of cast iron. The first method involved the utilisation of crucibles.<sup>34</sup>

30. Ibid, p.103.

31. Ranjan Kumar Gupta, "Iron manufacturing Industry of Birbhum: A Study of its growth and extinction, "JIH, Vol. 38, Parts, I-III (1980), p.102.

32. Hites ranjan Sanyal, op.cit., p.103.

33. S. Bhattacharya, "Iron smelters and the indigenous iron and steel industry of India: From Stagnation to atrophy," Surajit Sinha (ed.), Aspects of Indian Culture and Society, (Calcutta, 1972), p.142.

34. Ibid, p.143.

In the neighbourhood of kotsal, the dakisal grew up both under the management of salois, who were of blacksmith caste. In spite of their low rank in the caste hierarchy, the salois held a prestigious position in the society by virtue of the considerable wealth they possessed. The shashas and the mehtars served under the salois at the monthly rate of Rs. 3 and 4 respectively. The kāmārs (blacksmith) fashioned the articles and supplied them to the village community in exchange for paddy, rice, cloth, etc.<sup>35</sup> The blacksmith caste rendered industrial service in return for a fixed share in the agricultural produce of each village household. They were commonly called lohār. The contribution of each peasant household to maintain the lohār essentially depended on the owning ploughs of the household and, of course, on the local customs. The lohār repaired the agricultural implements free of cost. For manufacturing new implements, he was supplied with the raw materials and a special payment was made particularly in the form of a dole of grain. In Northern India, generally, the service relationship was characterised by fixity of tenure: a group of agricultural families offered work to the same lohār family and the lohār had an absolute and heritable right to render service to traditional jajmāns.

In 1800 there were 100 iron mines in Bīrbhūm district. Native furnaces were in operation at town centres vis. Balia, Narayanpur, Deocha, Dhanara and Ganpur. Each furnace produced an

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35. Ranjan Kumar Gupta, op.cit., p.105.

estimated outturn of 34 tons of iron annually. Total production of raw iron was estimated at 2380 tons annually from all the 70 furnaces. Thus final cost came to 6-65 per ton. Even then it did not reach the sophistication of English iron and did not compete with English iron at the prices prevalent in Calcutta during our period.<sup>36</sup>

Three stages of production of iron in Bīrbhūm district of Bengal was practised: mining, smelting and refining. These works were performed by different sets of people, each functioning separately and entirely independent of the other. Since the ore of Bīrbhūm was scattered and little concentrated, the produce of any place was immediately exhausted and the locations of the workshops changed. Perhaps the industry had never proved sufficiently profitable to bear the cost of charges of carriage of the raw materials.<sup>37</sup>

The iron production of Bīrbhūm played an important role in meeting the demands for iron in medieval Bengal since the iron manufacturing industries of Bankura and Manbhūm were never known to have assumed a significant portion of the total. Merchants from Murshidābād came to Bīrbhūm to purchase the articles at the works. The industry for manufacturing iron articles developed at Dubrajpur, Kharun, Lokpur, Rajnagar, Ranpurhat etc.<sup>38</sup>

The production of charcoal depleted timber supply very quickly. It was estimated by Sir D. Brandis that 1,40,000 tons of wood was required to produce 35,000 tons of charcoal. To obtain an annual production of 35,000 tons of charcoal an area of 437 square miles of wooded land was needed in the tropics. The indigenous method of charcoal making was very simple: green wood was burnt

36. Durgadas Majumdar, West Bengal District Gazetteers: Bīrbhūm, p. 228.

37. Hitesranjan Sanyal, op.cit., p. 104.

38. Ibid, p. 105.

in holes in the ground. S. Bhattacharya has quoted an officer's estimate of the Geological Survey of India and according to that the above method of making charcoal was wasteful, producing only 90 tons per square mile, whereas drying the wood before burning and the use of proper kilns would have increased the quality and quantity of charcoal.<sup>39</sup> The hard wood of deciduous trees growing upto the elevation of a thousand feet was preferred by the charcoal makers for charcoal making. In some places cheaper bamboo charcoal was also used. The high quality timber for charcoal making in absence of any alternative use was uneconomic. This would have considerably increased the environmental pollution through smoke produced during charcoal making and pig and wrought iron making processes.

Iron must be regarded as one of the most important ingredients of speeding up the process of transition from proto-industrialization to capitalist-industrialization proper because iron contributes significantly to the manufacture of machines and finally, speeds up the spread of capitalist industries. Bengal's iron mining industry during the initial phase of its development was organized indigenously, but in the course of the late 18th century indigenous enterprise paved the path for the establishment and the development of foreign (English) enterprise. These foreign enterprises were least interested to develop the iron mining of Bīrbhūm and Burdwān rather they were interested in yielding high profits.

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39. S. Bhattacharya, "Iron smelters and the indigenous iron and steel industry of India: From Stagnation to atrophy," Surajit Sinha (ed.), Aspects of Indian Culture and Society, p. 144.

The iron ores occurred in Bīrbhūm and other regions of Bengal were of magnetic oxide and rich red and brown haematites. These iron beds occurred towards the base of laterite deposits. The ores occurring in these 'push areas' were described as iron sand, disseminated through coarse reddish sand resulting from the decomposition of soft granite. These ores of iron did not possess the property to produce high quality of iron.

The Bengal's furnaces used for the production of pākā iron were frequently not larger than a chimney pot and long a time was required to produce a few pounds of iron in weight. These furnaces were not utilised for longer periods. Through this method some quantity of wrought iron and natural steel was produced. The blast was produced by bellows very unlike those of Europe. Larger bellows made of buffalo hide were also utilised. In some parts of rural Bengal, bellows of a very different and ingenious construction were in use.<sup>40</sup> These furnaces, bellows were older technology of producing iron which was actually not the time saving device. These malleable iron in bars was unfit for any heavy work. These iron bars were used by lohārs and kāmārs for manufacturing simple implements, they were hardly used in the making of capital machinery for the development of capital industries.

These defects in iron ores, bad furnace, bellows etc. hindered the production of machinery for capital industries. In the direction of technological innovation for producing good quality of iron suitable for the production of machines, Bengal in general

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40. John Percy, Metallurgy: the art of extracting metals from their ores and adapting them to various purposes of manufacture, (London, 1864), pp. 254-257. For a detailed description of size of Furnaces also see V. Ball, The Jungle life in India, (London, 1880), pp. 224-225.

and Bīrbhūm in particular lagged behind. Here, again, Bengal was lagging far behind England. This backwardness hindered the transition of proto-industrialization into capitalist industrialisation.

### COAL

In studying the development of the mineral resources of India after Western methods, we must emphasize to study the coal mining industry. The utilisation of coal as an article of trade was unknown to the people of India. No reference regarding coal mining was made in contemporary chronicles. In the month of August 1774 an address from Messrs. John Sumner and Grant Heatly acquainted the Company regarding the discovery of certain coal mines in the district of Patcheat and Bīrbhūm in Bengal. Consequently, a set of proposals for working coal mines and selling coal in Bengal had come up.<sup>41</sup>

In 1774 Warren Hastings granted a mining license to two servants of the East India Company. Messrs. Heatly and John Sumner, the former discovered the coal in the Patcheat and Bīrbhūm which was known as the coal-fields of Bengal.<sup>42</sup> Latter Mr. Redferne subsequently joined the firm, who applied for working and selling coal in Bengal and its dependencies.<sup>43</sup> The partners agreed to pay a royalty of 1/5th of the total value of the coal raised by them to the Government. They also agreed to supply to Government, for a period of five years, 10,000 maunds or 366 tons of coal per annum at a price of Sikka Rs. 2.12.0 per maund, or 8,35,6 d per ton, that was perhaps

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41. Letter to the Court of Directors dated August, 1774, See Board of Revenue, General letters to Court of Directors, Vol. 2, 1773 to 1774, p. 71.

42. The Coal Fields of Bengal and Chhotanagpur, p. 3.

43. W.W. Hunter, A Statistical Account of Bengal, Vol. IV, (Delhi, 1973), p. 122.

equal to the value of English coal in India.<sup>44</sup>

In September 1775, the Firm of Messrs. Sumner and Heatly delivered 2500 maunds of coal to the Company's military stores but it furnished no report. In 1777 another consignment of 2000 maunds was delivered to the Company and the military store-keeper who used in the Company's ordnance factory and reported it to be unsatisfactory. It is stated after trial and comparison that English coal was far superior. Consequently, Government ordered the return of this coal to the proprietors. This hampered the growth of this

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44. Ibid, p.123. The Firm of Sumner and Heatly proposed the following terms to the Government: which is given in R.M. Chaudhary's, The Evolution of Indian Industries, (Calcutta University, 1939), pp.99-100.

1. That an exclusive right be granted to them for 18 years, of working in coal mines and selling coal in Bengal and its dependencies.

2. That in case they discover any copper, lead or any other mineral or metal except iron they agree to pay a fifth of their produce to the Honourable Company.

3. That they will furnish the Honourable Company with ten thousand maunds of pit coal every year for five years to come at the price of two Arcot rupees and three quarters per maund and after the expiration of five years they will at the market price of the time furnish the like quantity.

4. That if the mines fail or do not turn out of a quality required for the Company's work they may be allowed on the above terms to dig any other mine that they may discover in course of their work. The Revenue Council of Bengal granted to lease to Messrs. Sumner and Heatly as asked for, subject to the following conditions:

1. That they shall not compel people to work for them;
2. That they do not erect gunges or golas of any kind;
3. That the Europeans or any other persons employed by Messrs. Sumner and Heatly shall be liable to be recalled by the Chief and Provincial Council of Burdwan without a reason assigned;
4. That they shall not receive or grant protection to any rai-yats who may desert from the farmers or officers of Government with balances due on account of the rents.
5. That they shall not transfer the grant to any other persons unless by express permission of the Board.

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industry in absence of market. Another reason which chilled the enthusiasm of the enterprisers was that Government recognised the impropriety of permitting their revenue and judicial officers to engage in speculation and prohibited the lending of money on such accounts. But in the meantime, the importation of coal by the Government of India was the subject of comments by the Court of Directors.

In reply to a letter the Military Board expressed doubts as to the availability of coal in India. On 8th April 1808, the Court of Directors in their letter recognised the enormous expense due to the exportation of coal to India. Rennel's Map of Bihar in 1778 announced the existence of a coal mine near Palamu. The existence of coal at Burdwan has been known as early as 1804 and it was communicated to Major General Hardwick.<sup>46</sup>

The second important ingredient of the carrier of industrialization was the tapping of the sources of energy. In case of industrial revolution in England, it was the deeper exploitation of coal mines that played the role of 'pusher' and 'puller'. This important source of energy supply came very late in the domain of proto-industrial system of Bengal. This was one of the most significant factors that hampered the rate of transformation of proto-industrial system of Bengal into industrial system.

The organisation of coal mining was wholly controlled by the British Company's servants who always preferred their own profits rather than Bengal's industrialization.

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45. Ibid, p.100.

46. Ibid, p.101.

The coal excavated from these mines were far inferior in quality compared to British coal. Bengal coal, therefore, could not be used industrially for the manufacturing purposes. It had to be purified first to be utilised industrially.

The techniques of mining used in Bengal were borrowed from England during the initial stage of its development. There were many defects in the coal mining of Burdwan. Lighting, ventilation, provisions for water transport, machines for excavation etc. were some of the burning problems in coal mining during our period. These drawbacks of coal mining of Bengal hampered the transition of proto-industrialization into industrialization.

#### DIAMOND

Diamonds were also found in Samealpur on the border of Bihar and Bengal. Towards the end of January and commencement of February from the town of Samealpur and also from neighbouring regions covering 20 cosses higher up the same river and from some small villages on the plain, people in large numbers from both the sexes and of all ages assembled to work for finding out the diamonds.<sup>47</sup> The experts knew the property of sand containing diamonds.

It was from this river that all the beautiful points came called 'pointes naive' (natural points) but large stone was rarely found. At the mine of Samealpur in Bengal, they weighed by ratis. Rati was 7/8th of a carat or 3.5 grains.

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47. Tavernier; Tavernier's Travels in India, Vol. II, translated by V. Ball, (New Delhi, 1977), p.66. When they searched out small stones, resembling 'thunder stones; they commenced to search in the sands of the river at the town of the Samealpur and proceeded up streams to the mountains. In the place where they believed that there were diamonds they excavated the sand. They circled these places with stakes, fascines and clay, in order to remove the water and dry the sport. Then they took out the sand but did not excavate below the depth of 2 feet.

It was, first necessary to ascertain the weight of the diamond. Secondly, it had to be found out whether it was a thick stone, square shaped, with all its angles perfect or whether it was of a beautiful white water and bright, without points and without flaws.<sup>48</sup>

#### CORUNDUM

The term corundum denotes the dull coloured and non-transparent forms of natural alumina since the introduction of a large number of Indian specimens of this metal into Europe towards the end of the 18th century. It was a modified form of the Sanskrit word korund. India was the home of corundum.<sup>49</sup>

Large deposits of the common form of this mineral had been found in India. The most highly celebrated specimens of its transparent, red variety—the ruby—had been obtained from the famous mines of Burma. Kashmir mines were noted for the size and transparency of the blue variety, sapphire.<sup>50</sup>

The great hardness of the common variety of this mineral created a considerable demand for it as an abrading agent in metal.

48. Ibid, p.74.

49. V. Ball and T.H. Holland, A Manual of the Geology of India, Economic Geology, Part I, Corundum, (Calcutta, 1898), p.1.

50. Ibid, pp.1-2. It was the East India Company which transported it to England in the later half of the 18th century. The English lapidaries recognised it as oriental varieties without the knowledge of chemical and physical relations of different minerals. Therefore, we have the oriental Topaz, the Oriental Emerald, the Oriental Aquamarine, the Oriental Amethyst, and the Oriental Ruby. The history of its identity is obscure. King opines that Epiphanius (A.D. 400) classed the Ruby and sapphire together, whereas Marbodius (11th century) included also the yellow variety i.e. Oriental Topaz. Muhammad Ben Mansur (12th century) classed together the different varieties of corundum on basis of their hardness and gravity.

work and stone cutting, both in India and Europe. It were Rome de lisle, Greville (1798), Count de Bournon (1802) who classified ruby, sapphire and common corundum scientifically.

The transparent and coloured forms of corundum was classed as 'perfect' corundum used in gems whereas colourless corundum were described as 'imperfect'. The two principal 'perfect' varieties of the corundum were the ruby and the sapphire, both of which connected with India. The classic authors of Europe make frequent mention of the wonderful attributes of the ruby and sapphire in medicine or in magic, brought from east.

It was the superior workmanship of European experts that declined the trade of the Indian lapidary. During 19th century rubies, sapphire etc. were cut.<sup>51</sup> Tavernier gives an account of the large rubies. Many of the famous rubies known in Europe can be recognised to be of Indian origin on account of the way in which they are pierced through the middle.

#### OTHER MINERALS

Various other minerals like borax, alum and ochres were produced on a small scale, but met the local requirement after they were supplemented by imports.

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51. Ibid, p.57. According to Mr W. Hoey (1880) rubies and sapphire were cut by Indian lapidaries after three principal styles or bandish: (i) taura, that is, level above and below, with bevelled edges; (ii) mathaila, level below and round upper surface; (iii) tilakridar, level below and cut in facets above. The begri (lapidary) who cuts a ruby or sapphire was paid according to the bandish which was as follows: (i) taura, one rupee per rati; (ii) mathaila and (iii) tilakridar, eight ānas per rati. Higher rates were, however, paid to ensure good workmanship on stones of exceptional value.

Small quantity of silver ore had been dug out of the mountains of Bengal, copper was found on their slopes of these mountains. Small particles of gold had been washed from the river beds.<sup>52</sup> From the import lists of various East India Companies, it is evident that copper was imported into Bengal by different East India Companies.

Minerals like soap stone was found in large quantities in Singhbhum and Manbhum in the Chottanagpur division of Bengal. A black chlorite was obtained from the Nilgiri state close to Balasore.<sup>53</sup>

Clay produced in Bengal was of three kinds:

- (i) Black moist smooth clay;
- (ii) A red hard clay which contained black angular concretion, sometimes indurated;
- (iii) A yellow hard clay that contained much ochre, sometimes in a sort of veins. It also frequently contained rounded pebbles and seems to be a rock in a state of decay, suitable for potter and all of them became red in the kiln.<sup>54</sup>

The sands found in Bengal are of two kinds: (i) large grained dark coloured sand mixed with black mud when water is found in this. This sand is of bad quality: (ii) a fine light coloured sand of quartz and mica. This sand is of high quality.<sup>55</sup>

52. W.W.Hunter, The Annals of Rural Bengal, (London, 1868), p.2.

53. George C.M. Birdwood, The Industrial Arts of India, Part II, (Piccadilly, 1880), p.159.

54. Montgomery Martin, The History, Antiquities, Topography and Statistics of Eastern India, Vol. II, p.813.

55. Ibid, p.813.

In January 1778 Mr.Keir had informed the Court of Directors that he had succeeded in making potash with great expense.He requested to permit him to sell potash duty free.Since the Company was interested in providing every encouragement to the undertaking, Mr.Keir was exempted from the payment of duties on potash till the 19th October 1779.<sup>56</sup>

During the same year Messrs.Motte discovered a lead-mine in Kamgur, Messrs.Motte presented a plan for the working of the lead-mine.The Court of Directors instructed the Provincial Council of Burdwān and Collector of Kamgur to furnish the Court of Directors with every information necessary to guide their judgement in the proposed plan.<sup>57</sup>

#### JEWELLERY

Making jewellery of different size,form,texture,delicay,design etc. was a very old art of India.With the advent of Muslim rule into India,jewellery had a new lease of life.The Sultānate as well as the Mughal emperors injected a new vitaility and creative desire,a fresh impetus into a decaying art by patronizing craftsmanship and infusing new ideas that they had brought with them from their homelands.Hindu and Muslim arts reached its high water mark under the Mughals.

It was during this period that the enamelled jewellery took many of the attributes of the delicate beauty of the painted miniatures of the Mughal school.The backs of ornaments were superbly enamelled with beautiful designs,floral and geometrical with birds

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56. Letter to Court of Directors, January 1778, Board of Revenue, General letters to the Court of Directors,Vol.4, 1777 to 1780,p.61.

57. Ibid, p.61.

and beasts, trees and flowers. This was probably to preserve the gold from constant contact with the human skin and this must have given the jeweller further scope for exhibiting his skill and art. Generally, the front of the jewel was ornamented with precious stones held in place by pure gold bands called the kundān.

Gold and silver filigree was practised on wide scale at  
Cuttack, Dacca, Murshidābād etc.<sup>58</sup>

The Mughals were great lovers of precious stones, especially pearls and diamonds. The decorative motif of the Muslim period was chiefly floral. Mohan Mālā consisting of golds beads formed in the shape of metons, was an especial favourite. The champākali in the representation of the buds of the champā flower was equally popular.

The round plain bracelets or kārās were generally terminated in the heads of elephants or lions, while the flat bands of the jhoomer, ornaments for the head, ended in the representation of a peacock's head with all the details and the beak and eyes in rich enamels. The fish was also represented.

The coming of Europeans in general and British in particular into India contributed considerably to the decline of India Jewellery. Plain ornaments made of solid gold was widely brought into use. Silver began to be used with greater frequency. The 'open claw' setting gained popularity gradually under western influence. The quality of enamelling steadily deteriorated.<sup>59</sup> Cire perdue or lost wax technique was used in the production of metal figures.

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58. See S. Bhattacharya, The East India Company and the economy of Bengal, From 1704 to 1740: (London, 1954), p. 189. Also see Shivchandra Jha's, Studies in the development of capitalism in India, (Calcutta, p. 37.

59. Rustam J. Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p. 19.

The gold was imported from abroad in the form of ingots. The old gold, was refined and further used in manufacturing ornaments. The finest gold was the kundān, while tezāb-ka-rāwā was the gold refined from old ornaments by professional refiners.

Pure gold was very rarely used in making ornaments because of its softness. It was generally alloyed with another metal like silver, and was called phika. Pitaka was an alloy of gold, silver and copper, white swānsā was gold with a small proportion of copper.

The jeweller used borax (sohaga) as a flux in making it hard. The ornaments when made were successively polished with mango parings, salt, sal ammoniac, alum and a kind of iron oxide or rough called manik-ret.<sup>60</sup>

After preparing the skelton ornament the sonār sent it to the charters for engraving to the jaria or munas sakar or kurdān-sāz for setting the precious stones, to the mināsāz for enamelling.

Different types of ornaments were cast in moulds rather than beaten out of the metal. In this process, model (ṇamūnā) was first drawn.

Gold gilding was quite common with method prevalent in Western countries. The garm-mulamma method of laying gold leaf on articles made of inferior metals was interesting. The article was first carefully washed and the parts to be gilded covered with mercury. The gold leaf was pressed into place with agate-tipped probes called mecharis and the article finally cleaned and polished carefully.

Hard alloyed gold was more suitable for fashioning the then designs during late 17th and early 18th centuries. The carat system

of making gold alloys had been imported from the West. Sometimes Platinum was used to produce white lustre. From the west also came the idea of polishing gold ornaments to a higher lusture. Alloying and the use of gold of less purity and polished ornaments first came into popularity in Bengal.

Uncut gems, faceted and cut stones, especially rose cut, had become the fashion.

A different style of work was 'Bidri' which may be called damascing in silver.<sup>61</sup> Bidri were practised at Murshidābād.

From this critical examination of the metal proto-industrial products, it is possible to postulate that these proto-industries were highly developed through out the rural Béngal. The production of these proto-industries was solely based on house-hold basis with help of some outside labourers. These proto-industries were entirely controlled and organised by the master artisans. Techniques and machines utilized in these proto-industries were not based on the modern sophisticated technological innovations. Furnace, curcible, katari, hammers, āra, etc. were of very old type. Modern and sophisticated curcible, furnace and hammer did not find application in these proto-industries. Risk involved in these proto-industries was born by the primary petty producers. The risk

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61. Bidri work was of two kinds: (i) The teh-nishan in which the design was deeply cut and (ii) the zar-nishan or zar buland, certainly inferior to the former. In zar nishan the design was first engraved, silver leaf placed on it and rubbed with the finger so that the lines of the design were transferred onto this silver foil. Then it was cut out into the desired shapes, the edges of each bent over and the depression thus formed filled with soft lead. The pieces were then pressed into the engraved on the lines and areas of the design and gently hammered and punched all round fill the applied decoration was fixed to the base metal.

of supply in time was also borne by these proto-industrialists. Any delay in the supply of the products of these proto-industries was accomplished by simply increasing the working hands. These proto-industrialists had hardly an insight in the technological innovation or they hardly had information channels to know new and sophisticated technological knowledges and its application. Before the mid-18th century these proto-industrialists had to depend upon the import of raw materials for these proto-industries from Western and Asian countries which was stopped in course of time when exporter countries developed her own such capitalist industries. These drawbacks in the organization, control, application of technological innovation, delay in supply etc. stagnated the proto-industrialization of rural Bengal.

#### UTENSILS FOR DOMESTIC USE

Previously almost all the household articles were made of pure copper, but in time it partly gave way to its alloys. Under this head came brass and later bronze. Brass was the alloy of copper and zinc whereas bronze was the alloy of copper and tin. The use of copper in course of time, as household utensils had been discarded but it nevertheless retained its prominence in religion. That was why, copper was chiefly employed in the manufacture of sacrificial vessels at least in Bengal.<sup>62</sup>

The advent of Muslim rule in India, did not completely abolish the use of copper in the manufacture of ordinary utensils for Muhammadan households. Since brass was less liable to be pollute and more cheaper, and properly cleaned by all castes, it was applied for the manufacture of articles of common and constant use chiefly water vessels and cooking pots. Bronze was costly, less

62. Art in Industry through the Ages, Monograph series on Bengal, (Delhi, 1976), p. 277.

liable to be tarnished and affected by acids and salts was employed for making dishes, plates, cups, drinking vessels etc.<sup>63</sup>

Three classes of metal workers were noticed in Bengal by contemporary chroniclers: the first working in gold and silvers, the second in brass and copper and finally, the third working in iron and steel. Most of the castes without distinction seem to have trespassed into the hereditary profession and were seen busy hammering copper, moulding brass, polishing bronze and selling the utensils to wholesale merchants, retail shopkeepers and wandering hawkers. Hence, social and professional stratification was gradually taking a definite shape in Bengal during our period. That was precisely the reason that in the hilly tracts of West Bengal metal artisans were recruited or gradually evolved from the aboriginal or semi-aboriginal iron smelters.<sup>64</sup> The metal workers were further sub-divided in eight classes.

Lohar kāmār, who worked in iron; pitule kāmār, who worked in brass; kānsārī kāmār, who worked in bronze; swarna kāmār or (sonār) who worked in gold; ghātra kāmār, who made imitation fruits in iron, figures of owl, the vehicle of the Goddess of wealth and who used the charcoal lift behind of wood with which dead bodies had been cremated; chānd kāmār, who made brass mirror; tāmāra kāmār, who worked in copper; and dhora kāmār, who worked in iron.<sup>65</sup>

The imported copper was solely used for the manufacture of copper vessels. Only sheet copper was used for such purposes. Old copper collected in the country and imported copper bricks and

63. Ibid, p.277.

64. Ibid, p.278.

65. Ibid, p.278.

files were melted for making brass and bronze.<sup>65</sup>

Imported sheet brass was only used in the manufacture of hammered utensils while country brass both for hammered and cast vessels. Superior quality of brass was made by special orders. Pure bronze was only employed in the manufacture of plates and other articles that had to be made by hammering. Inferior brass was made of 3 parts of copper, 2 parts of zinc, and one part of lead, bronze consisted of 7 parts of copper and 2 parts of tin. For cast articles an impure alloy called bhāran or taul was chiefly utilized. This was usually made by adding some brass or zinc into pure bronze or some tin into brass. Bhāran was brass with little admixture of tin to give it a whitish appearance which was looking like kānsā. A kind of bronze, called gun metal was made in some places with 1 part of tin to 10 part of copper. Sometimes, for making bhāran soft and easily workable lead was mixed with it.<sup>67</sup> Utensils were either hammered into shape from sheet-brass, or sheet copper or from country brass or cast into moulds or partly cast or partly beaten. Sheet brass or sheet copper were never melted and made into cast articles but were always beaten into shape

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66. Ibid, p.280.

67. Ibid, p.282.

and joined if an article was made of several pieces.<sup>68</sup>

Dacca was famous for the production of a considerable quantity of gold and silver plate with fine original design and excellent workmanship chiefly for export to Calcutta. At Chittagong, also, the manufacture of gold and silver vessels was a growing craft. Gold and silver smiths of these places could not execute coloured work, rather they were expert in executing plain work to pattern. They did not have any design of their own.<sup>69</sup>

Kānsā plates were a speciality of Burdwān and Midnapore districts of West Bengal. Several other places in the Burdwān division were noted for their metal pots and pans. Nadia and Pannihatti were also important places for the production of kānsā plates. All sorts of domestic utensils in brass and bell metal were made throughout the Rājshāhī division particularly at Murshidābād and Māldā. Brass and bell metal utensils were made in several places, especially in the neighbourhood of Bansbaria and Kamarpara. Brass ware was manufactured particularly at Nabadwip and Meherpur in Nadia district. Bidoi ware was produced by

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68. Ibid, p.282. "All caste articles are always beaten never moulded. If a plate or any other article consisting of one or more pieces of the metal is required to be made, the copper or the brass sheet is first marked out by a pair of compass and the piece or pieces cut off by a kind of scissors called catāri. It is then made into the required shape by alternate heating and hammering and finally, turned in the lathe. Some of the larger vessels, specially water and cooking pots are made of two three or four pieces. Each piece is first reduced to shape by continual hammering and afterwards joined together by means of borax and a solder, which is a kind of hard brass, being an alloy of copper and zinc. The final polish is given in the lathe. Beaten bronze articles require more frequent heating in the fire and hammering as it is brittle and readily breaks under the hammer. Bronze articles require to be tempered by dipping them in water."

69. George C.M. Birdwood, The Industrial Arts of India, p.150.

some workman at Murshidābād through the process of inlaying with silver, a kind of pewter that was blackened with sulphate of copper. Brass and bell utensils of a superior kind were manufactured in large quantities at Khagra, Belhampore, Kandi and Baranagar<sup>70</sup> in the district of Murshidābād. Here, another class of artisans was celebrated for the manufacture of musical instruments and the tubes of hookās.<sup>71</sup>

From this detailed and comprehensive survey of metal products, and various minerals, it becomes obvious that these proto-industries in 'pull; 'corridor; 'neutral' and 'push areas' of Bengal were in a flourishing state. The possibilities of making transition from these proto-industries to capitalist industries were scanty.

The chances of time saving technological innovations for these proto-industries were very rare without which the transition from proto-industrial relation to industrial relation was an impossibility.

Metal products like house utensils, jewellery, etc. prevailed in a wide range of rural areas of Bengal throughout our period. Here, again, these proto-industries were very backward in regard of the application of technological innovations. The furnaces, bellows and crucibles utilised in these proto-industries

70. Imperial Gazetteers of India, provincial series, Bengal, (New Delhi, 1979), pp. 324-444.

71. W.W. Hunter, A Statistical Accounts of Bengal, Vol. 9, (London, 1876), p. 154. Also see B.C. Allen, E.A. Gait, C.G.H. Allen, H.F. Howard, Gazetteer of Bengal and North-East India, (Delhi, 1979), pp. 327-328. Also see W.W. Hunter, A Statistical Account of Bengal, Vol. III, (Delhi, 1973), p. 149. Brass and metal ware was also manufactured at Islampur in the Jamalpur sub-division, and at Kagmari, at Tangail. Brass and copper utensils for the domestic use of Hindus such as cups, plates, cooking pots etc. were manufactured in the town of Midnapore.

were very small and primitive in form and structure. A lot of time was consumed to produce small quantities of finished goods. These proto-industries were organized, controlled, risk factor in production as well as in supply were borne by the primary producers. The merchant capitalist and their intermediaries were not involved in controlling the production process, in organizing the industry and in supplying the raw materials to the petty producers. The supply of finished goods was again controlled by the primary producers. Therefore, the merchant capitalists did not take the pains to employ the new techniques prevalent in other countries. Neither they had undertaken the project to innovate new techniques of production of time-saving devices. Consequently, these proto-industries did not make transition to industrial relations of production.

The most significant inputs to the transition from proto-industrialization to industrialization proper were the iron and coal. British industrialization was accompanied by the introduction of iron and coal in the production of machines and energy. Indian iron and coal mining which were largely situated in the 'push areas' of Bengal were entirely dominated by British capital. The British capitalists who dominated the iron and coal mines of the 'push areas' of Bengal were guided by fetching high profits for themselves rather than the improvement of these mines.

The raw products (i.e. raw iron and raw coal) of these mines were not of good quality. The finished products of these qualitatively bad raw iron and coal were not utilised industrially for the production machines suitable for other proto-industries.

These drawback in mineral products of the 'push areas' of Bengal hampered the transition of proto-industrialization into industrialization proper.

CHAPTER - VI

OTHER CRAFTS

Marine proto-industries during the period under review were found more or less throughout the rural Bengal. Most of the marine proto-industries were densely established throughout the length and breadth of the 'pull' and 'Pull Corridor' areas. It was the geographical set up of the 'Pull areas' of Bengal that proved suitable for the extensive and intensive establishments and development of marine proto-industries. 'Pull corridors' in rural Bengal were adjacent to the pull areas of Bengal. Hence, subsidiary proto-industries grew here extensively. Fishing, working with sānkha, and salt manufacture were the most important marine-proto-industries in the 'Pull' and 'Pull Corridor' areas of Bengal.

Fishing and proto-industries related to fish catching were practised in 'neutral' and 'push' areas. Fishing and allied proto-industries were not the year round industries of these areas. These proto-industries were only seasonal. During most part of the year, the primary producers were dependent on agricultural employment. They took up fishing and other allied proto-industries only during rainy season when fishes flooded most of the parts of these areas of rural Bengal.

Other marine proto-industries like manufacture with sānkha and salt were generally confined to 'pull' and 'pull corridor' areas because of the easy availability of natural raw materials. These marine proto-industries throughout our period were not pushed or pulled towards 'neutral', 'push corridor' and 'push' areas of rural Bengal.

Proto-industries in pottery and ivory were developed in

those are as where raw materials were available easily and in abundance. Pottery proto-industry was organized on the basis of jajmani system. The contemporary documents are silent about the mode of organization of ivory proto-industry.

#### SHELL CRAFTS

The conch-shell industry was one of the oldest proto-industry in the delta but was confined entirely to the town of Dacca.<sup>1</sup> Hence, the shell bracelets and ornaments of coral of Dacca, fine and delicate in form and texture formed an important local industry.<sup>2</sup> Besides bracelets of conch shells,<sup>3</sup> bangles of various designs and patterns formed a considerable proto-industry of Dacca.<sup>4</sup> Amulets, charms, table napkin, rings, brooches, churis, chains, rings, buttons etc. of various designs and patterns were also manufactured. These articles were sometimes set with pearls or gold.

The shells brought to Balasore from Maldives, Ceylon, Madras and sometimes also from Bombay were sent to Calcutta where they were purchased by the merchants or their agents sent from Dacca. The work of the shell cutters or sāṅkhārī was divided into three branches, namely, the pointing of the shells, sawing them into rings, here the shells were first prepared for the saw by having the points knocked off with a hammer, they were then sawn into rings<sup>6</sup> and finally, polishing, carving and joining the different

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1. S.G. Panadikar, Wealth and Welfare of the Bengal Delta, (Calcutta, 1926), p.63.

2. Dr. Anjali Chatterjee, Bengal in the Reign of Aurangzeb, 1658-1707, (Calcutta, 1967), p.85.

3. Birdwood, op.cit., p.229.

4. S.G. Panadikar, op.cit., p.63.

5. Ibid, p.63.

6. W.W. Hunter, A Statistical Account of Bengal, Vol.V., (Delhi, 1973), p.111.

pieces.<sup>7</sup> These rings were either coloured or left plain as the case may be. The shell bracelets were the outcome of an elaborate process. The rings, neatly engraved with different devices and brilliantly coloured, were artistically joined together to form beautiful chains and bracelets.

The work of polishing the bangles by rubbing them against a sand-stone could be done by all men and even by boys. But the ornamental designs and patterns could be worked on the bangles with fine tools by expert artisans only. The other articles were made out of the parts that remain after the bangles were cut out and beads were made out of spirals.<sup>8</sup> The saw used was shaped like an arc of a circle, without teeth, but the lower edge was notched and the edge was oiled to make it cut freely.

The shells from which these bracelets were made were univalves. Titkauri s̄ankhā, univalve and a valuable shell was brought from Ceylon; p̄atī, another univalve shell were imported from Ceylon. Dhālā and jahājī shells were also brought from Ceylon. Garbaki shell came from the Madras Coast. The sur̄ti, doānā-p̄atī and ālā-bilā kinds of shells were brought from Bombay.<sup>9</sup>

The manufacture of mother of pearl-button was another important cottage industry, which existed mostly in number of villages in Dacca district. The shells were obtained from fishermen generally through middlemen. Men cut out suitable pieces from the shell and the rest of the work was performed by women with very simple implements. The buttons were not of uniform size, shape and thickness and the holes in them were not equidistant from each other.<sup>10</sup>

7. S. Bhattacharya, op. cit., p. 189.

8. S. G. Panadikar, Wealth and Welfare of the Bengal Delta, p. 64.

9. W. W. Hunter, A Statistical Account of Bengal, Vol. 5, p. 112.

10. S. G. Panadikar, op. cit., p. 64

## FISHERY AND FISHING CRAFTS

In India fish formed an important article of internal trade and fishing provided employment for several distinct classes of people. Most prominent among these were the jāliā kaivertas whose main occupation was fishing and the Muslim kabaris who sold fish.<sup>11</sup> In 1757-1766 the total jama' of the maimahal of Chittagong district on fisheries amounted to Rs.1480 or 52000 dams.<sup>12</sup>

Fishing industry was one of the important indigenous industries of the delta. In the delta regions and most probably in other regions of Bengal, middle-men known as the ijāradārs secured leases of fishing rights along rivers and bills from landlords either annually or for a term of years. Ijāradārs supplied boats and nets to fisherman who paid from Rs.1 to 5 a month per boat and they had only their labour to supply in the business. Many simple and complex methods were applied for fishing purposes in tanks, ponds, marshes and rivers.

### SALT INDUSTRY

From very early days salt had been one of the principal articles of inland trade in Bengal. The salt was produced from the earth found impregnated with sea salt at the mouths of the Ganges, in the 'pull areas' between Balasore and Chittagong.<sup>13</sup> In Bengal proper, salt was manufactured in those 'pull areas' that were situated along the sea coast of Bengal from Chittagong

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11. Dr. Anjali Chatterjee, Bengal in the Reign of Aurangzeb, 1658-1707, (Calcutta, 1967), p. 83.

12. Ibid, p. 84.

13. W.K. Fiminger, Fifth Report from the Select Committee on the Affairs of East India Company, Vol. I, (Calcutta, 1917), p. 37.

to Jaleswar which extended over a huge area about 700 square miles. Fuel wood, necessary for boiling salt was easily available from the coastal forests.<sup>14</sup> The East India Company divided the salt producing area into various agencies in the closing years of the 18th century. Hijli and Midnapore formed two important agencies. Salt was also produced in the 24 Parganas, Noakhālī and Chittagong. Rock salt was manufactured in the 'push areas' of Bengal. Some amount of salt was manufactured in the 'corridor' and 'neutral areas' of Bengal. Every agency was divided into the aurangs and the aurangs were divided in numerous hoodas or independent jurisdictions.<sup>15</sup> Tamluk had four hoodas, while Murshidābād had seven. Noyna, Sabang or Mohar were important centres of salt manufacture in the Tamluk agency. Tamluk contained about 16,867 bighās of Jalpai lands (Fuel lands) and around 29,787 bighās in Murshidābād. The salt agencies employed shikārīs to kill wild buffaloes and pigs, which were very much destructive to the jalpai trees and shrubs. The central salt store (golā) of Tamluk agency was at Ghāt Narianpur. Hijli was the largest among the Bengal agencies with its headquarters at Contai.<sup>16</sup>

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14. Balai Barui, The Salt Industry of Bengal, 1757-1800. A Study in the interaction of British monopoly control and indigenous enterprises, (Calcutta, 1985), p. 5.

15. Ibid, pp. 5-6.

16. Ibid, pp. 7-8. This agency comprised of nine aurangs; Birkal, Bahrimuta; Nuramuta, Elach, Majnamuta, Bogruī, Jalamta, Auranganapar and Gungar. The first six aurangs had altogether 83 hoodas which had the capability, in favourable season, of producing from 8 to 11 lakh maunds of salt.

The extensive saline tracts of the Sunderbans in the district of 24 Parganas were appropriate for salt manufacture. Salt was also produced at Kulberia, Haligar, Shahpur, Maidanmal, Magra, Murgacha, Penchakuli, Azimabad, Mayda, Hasimabad, Balia, Dakhin Sagar, Kodey, Kashipur etc. were significant salt manufacturing centres of the 24 parganas. Salt was transported to Nahua, Ghughudanga, Suktal etc. There were more than 2600 khalaris and 18,655 malangis in 1774.

During 17th century, salt production was carried on by ajoorā system. In this system the zamīndārs farmed out the land to malangīs on condition that malangī would produce and deliver a certain quantity of salt at a specified rate. Merchants were financed the production of salt through advance money to the zamīndār, who distributed it to the malangīs through muggadams, who were in direct relation with head malangīs. It was predominantly a local affair in which zamīndārs played significant role.

During the 1st half of the 18th Century, the nawābs had the right to grant generally the management of salt production and distribution as a monopoly to their favourities or to the highest bidders. It, therefore, is obvious that granting of monopoly in salt to some favourities or merchants was in actual effect a method of farming out the management of salt in Bengal.

During the 1st half of the 18th century salt was sold at an average rate of Rs.2 per maund. The average rate at which the production merchants sold the commodity to the trading merchants was not known. But the malangīs or the primary producers of salt could not get higher price than Rs.50 per hundred maunds from the production merchants.<sup>17</sup>

Before 1757 the production of salt and its trade were controlled by indigenious merchants. The system of advances prevailed. Advances were made to petty producers of salt by the merchants. On receipt of advances they were bound to supply the amount to the merchants promised. The manufacture of salt was financed by the production merchants. They worked in collaboration with the local zamīndārs who had overall power of supervision. The zamīndārs were assisted in the management of salt by mugaddams and siggdār, the chief of the criminal justice. No exclusive monopoly

was operated before 1757.

ORGANISATION OF SALT MANUFACTURING AFTER 1757

After the Battle of Plassey the private trade of the Company's servants in salt and other commodities had formed a source of acute friction between the Company and nawābs of Bengal for some years.<sup>18</sup> The tax imposed on salt varied from time to time. During nawābi period, it was levied on the value of the total production, the Muslims paid on a reduced rate i.e. 2.5% while the 'Gentoos' paid 5%. Later, the imposition of tax was made on each salt pan or khalā according to their size with a khalari rent of Rs.3 per pan. In 1762 the Company's President and Council established a tax of Rs.30 sicca Rs. per khalari and abolished all former duties.<sup>19</sup> At last by Article III of the treaty with Mīr Zafar, concluded on the 10th July 1763, it was agreed that on salt a trifling duty of 2.5% was to be imposed, while other commodities in which the Company's servants traded were to be exempted from duties. On the 8th February, 1764, however, the Court of Directors sent an order directing the whole private trade of Company's servants to be discontinued and a formal transmission of the right to be made to the nawāb.<sup>20</sup>

The farman provided to the Company by the then nawāb, offered the Company and their servants a free trade clear of all customs, in all articles of commerce, to be imported and exported

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18. H.R.Ghosal, op.cit., p.95.

19. Somendra Chandra Nandy, Life and Times of Cantoo Baboo, (Allied Publishers, New Delhi, 1978), p.97.

20. H.R.Ghosal, op.cit., p.95.

by shipping. But the trade in salt, betel nut and tobacco were free to particular persons only. These favourities had not been included within the privilege of the dastak. The right to trade in these articles were opened up for the Europeans only by paying the usual customs to the government whereas the natives were charged custom duties.<sup>21</sup>

The regulation proclaimed that the Company and its servants should pay the duties to the shāhbunders on salt at the rate of Rs. 9, 14 ānas and 30 paise per hundred maunds at Luckypur. The prime cost of salt, purchased by the gentlemen of Luckypur factory, was generally about Rs. 60 per hundred maunds, so that the duty they paid on salt amounted to about 15% on the prime cost.<sup>22</sup>

With the acquisition of the dīwāni, the inland trade in salt, betel nut, and tobacco was vested in an exclusive Company.

21. Copy of a letter from the Governor and Mr. Hastings to the Council, dated Dec. 15, 1762, at Mongheer, See, Henry Vansittart's, A Narrative of the Transaction in Bengal, 1760-1764, Anil Chandra Banerjee and Bimal Kant Ghose, (eds.), (London, 1966), pp. 215-217. Thus the following regulations were proposed to prevent the disputes:

(i) For all trade imported or exported by shipping, the Company's dustaks shall be granted and it shall be passed unmolested, and free of custom as usual.

(ii) For all trade from one place in the country to another, in commodities produced in the country, as salt, betel-nut, tobacco and C. the Company's dustaks shall not be granted; but it shall go with the dustaks of the bux-bunder, Shahbunder or other office of the country government.

(iii) At the time of taking out the said dustak and before the dispatch of the goods, the duties shall be paid according to the rates, which shall be particularly settled and annexed to this government.

(iv) That the said duties, so to be paid before exportation, shall be the whole that are to be paid; so that after the dispatch of the goods, nothing shall be paid at any chockeys in the road, nor at the place of sale."

22. Extract of letters from the gentlemen at Luckypur to the Board. Dated Nov. 6, 1762, See Henry Vansittart's, A Narrative of the Transaction in Bengal, 1760-1764, Anil Chandra Banerjee and Bimal Kant Ghose (eds.), p. 210.

for the benefit of the European servants who enjoyed the profits of the concern in lieu of salary.<sup>23</sup> That was why, Lord Clive set up a society "for the exclusive purchase and sale" of salt, betel nut, and tobacco by the Company's servants. It was called the 'Society of Trade' and established in 1765 in Bengal. By establishing control over production and sale of salt, betel nut and tobacco, the Society of Trade established virtual monopoly on these commodities. On 10th August 1765, the Select Committee in which only Messrs. Sumner and Verelst were present, adopted an important resolution to the effect that the entire trade be carried on by an exclusive Company called the Society of Trade. It would consist of senior servants of the East India Company. Any salt, betel nut and tobacco produced in or imported into Bengal should be purchased by this Society. On September 18, 1765, another resolution was passed with agreement on the following issues that inland trade of the salt, betel nut and tobacco should be subject to a duty to the Company. It was calculated that the Company's revenue from salt would be increased to £ 1,20,000 per year.<sup>24</sup>

The Society of Trade in 1765 levied 35% duty on salt payable to the Company valuing the 100 maunds at the rate of 90 Arcot rupees. All khalari rents were abolished. It also fixed the rate at which the article was to be sold, which was 15% below the average of the preceeding twenty years.<sup>25</sup> The price

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23. W.K. Firminger, Fifth Report from the Select Committee on the affairs of the East India Company, Vol. I, (Calcutta, 1917), p. 37.

24. Balai Barui, The Salt Industry of Bengal-1757-1800, pp. 14-15.

25. H.R. Ghosal, op.cit., p. 95.

of salt was fixed at Rs.2 per maund or Rs.200 for 100 maunds. The regulation of the 3rd September 1766, fixed the price at which salt should be sold, in lots to the natives, at Rs.200 per hundred maunds. It prohibited the sale of salt on these terms to any other person or merchants.<sup>27</sup> The retail price of the salt to be sold in the bāzārs was strictly fixed. Any increase, even by a 'cowry' in the price of salt fixed by the Company was productive of harsh punishment, a fine of Rs.1000 for every 100 maunds of salt sold and the forfeiture of all salt in Company's possession. Half of the money recovered in this way went to the informer while the other half to the government.<sup>28</sup>

The Governor's letter to Saiful Malik dated October 11, 1767 stated that since the Europeans began dealing in salt, betel and tobacco, the trade of the Company had suffered greatly. Reviewing this account the Governor decided to forbid Europeans including English, French, Dutch and Danes to have trading intercourse in the aforesaid articles; and only native merchants were permitted to trade in them. These orders were issued to all the gumāshtās and servants at the factories under the English Government and it forbade them of any traffic in those articles. And if any of the gumāshtās violated the orders, his property was confiscated to the sarkār.<sup>29</sup>

The idea of oppressive monopoly during the existence of

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26. Somendra Chandra Nandy, Life and Times of Cantoo Baboo, p.97.

27. W.K.Firminger, Fifth Report from the Select Committee on the Affairs of the East India Company, Vol.I, pp.37-38.

28. Somendra Chandra Nandy, op.cit., pp.97-98.

29. Ibid, pp.159-160.

the Society of Trade in Salt may be formed from the fact that the price of salt during our period went up to Rs.250 per 100 maunds. They even held that labourers were well paid, if they paid at the rate from Rs.2.5 to 3 per month. They calculated that supposing every man consumed half a chattack of salt a day at the rate of Rs.250/100 maunds, he consumed the salt amounting to only about 1 āṅca a month which was a reasonable expenditure.<sup>30</sup>

The Society of Trade was abolished in 1768, under instructions from the Court of Directors, and salt manufacture was under certain restrictions opened to indigenous merchants and zamīndārs. During the next few years the Company's salt revenue consisted of a transit duty of thirty rupees per one hundred maunds plus a khalari duty levied on salt works and credited in the land revenue accounts.<sup>31</sup> The merchants might employ the manufacturers.

In 1768 the Governor's commands were issued that the salt khalaris in the pargana of Mandālgḥāt and others should be put up separately for sale and khalaris were always included in the rent lands, since khalaris were the land which were worked as saltpetre land in some cases, as cornfield impregnated with salt in other cases. This being the case they were never disunited from the rent lands. Sometime ago, they were separated for one year with considerable loss on the part of the parganas. Now the gentlemen were desirous of separating the khalaris. They also demanded that the purchase and sale of salt might

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30. General letter to the Court of Directors, dated 28th October, 1771, Board of Revenue, Vol. I, pp.66-67.

31. H. R. Ghosal, op.cit., p.96.

solely be allotted to them. They regarded this as the means of removing most of the complaints of the raiyats and of flourishing the village.<sup>32</sup>

The right of private manufacture was abolished by Warren Hastings in 1772 and hence forward salt was to be made only by the Company.<sup>33</sup> The khalaris or manufactories were let in farm for five years. By the condition of the farm, a certain quantity of salt was to be delivered at a stipulated price, which was then to be dealt out at a fixed price to the native merchants of the inland trade, who had agreed before hand to aid the farmers by advance of money for the payment of the labourers.<sup>34</sup> It also included in the duties in the price of salt; now the duties were secured and the Company was freed from the embarrassment of perplexing and intricate accounts and future demand for old balances.<sup>35</sup> The plan was not a success owing to the Company's failure to capture the salt market fully.<sup>36</sup>

Therefore, in 1776 Hastings adopted a new scheme, under which the privilege of both manufacture and sale was leased out to individuals. The commercial council let the salt mahal in like manner on the most advantageous terms with the exception for ready money rent including duties. The salt was to be left to the disposal of the farmers. No advances were made by government and

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32. Letter from Governor to Raja Dheraj Narain, dated 20th Sept., 1768. See Calender of Persian Correspondence, Vol. II, 1767-69, (Calcutta, 1914), pp. 306-307.

33. H. R. Ghosal, op. cit., p. 96.

34. W. K. Firminger, op. cit. p. 38.

35. Letter to Court dated 3rd Dec, 1772, See Bisheshwar Prasad (ed.), Fort-William-India House Correspondence, Vol. VI, 1770-1772, (Delhi, 1960), p. 452.

36. H. R. Ghosal, op. cit., p. 96.

they did not make any claim for balance after the expiration of the leases. Preference must be given to such zamīndārs who had never tried for salt maḥals, lying within the limits of their respective farms; even the terms offered by them was lower than those of the others.<sup>37</sup> The lease-holders finding little prospects of gain threw up the leases.

A new system of monopoly was, therefore, introduced in September 1780. The Company now undertook to carry on salt manufacture in the province of Bengal through European agents established all over the salt districts.<sup>38</sup> All the salt manufactured through this method were sold for ready money at moderate fixed rates to be ascertained and published at the beginning of every season by Governor-General in Council. Under this system, a comptroller was appointed for the general superintendence of this department, under whom an agent at each of the 6 provincial divisions was stationed. The agent was in charge of the Management of the provision, collection of the duties in addition to price, and seize and confiscation of all contraband salt.<sup>39</sup> They received a commission amounting from Rs. 500 to 1300 each per month, a commission of 10% on the difference between the amount of all the antecedent expenses of whatever kind and the produce of the sales.

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37. General letters to the Court of Directors, 1777-1780, Board of Revenue, Vol. 4, p. 18.

38. H. R. Ghosal, op. cit., p. 96.

39. Letter to the Court of Directors, dated 19-29, Sept, 1780; See Board of Revenue, Vol. No. 5, 1780-1784, pp. 9-10.

This included duty of all the salt brought to the account of the Company in each division, whether by manufacture or confiscation. This was to be distributed in the proportion of  $\frac{1}{4}$ th to the Comptroller and  $\frac{3}{4}$ ths to the agent of each division respectively.<sup>40</sup>

The agent at the time of their appointment took a solemn oath to render true and faithful accounts of the expenditure of the sums which should be advanced to them for their business. They also agreed to have no concern in the salt or derive no profit from their agencies besides their salaries and commission during their agencies and afterwards.<sup>41</sup>

This system was not very advantageous due to war.<sup>42</sup> From the accounts of produce and sale of the salt produced by Mr. Griffiths for the account of Government in the Bengal, it is possible to postulate that Mr. Griffith's concern was successfully managed. It also raised the prosperous state of the industry and the abilities of the gentlemen.<sup>43</sup>

For abolishing keen competition among the merchants, for the personal, separate and exclusive advantage, the merchants monopolised the salt production, distribution, purchase and sale even at an extravagant offer.<sup>44</sup> The average price at which agreement

40. Ibid, p.10.

41. Letter to the Court of Directors, dated, 27th Oct. 1780, Board of Revenue, Vol. No. 5, 1780-1784, p. 11.

42. Letter to the Court of Directors, dated, 23rd March, 1781, Board of Revenue, Vol. No. 5, 1780-1784, p. 80.

43. Letter to the Court of Directors, dated May 10th, 1781, Board of Revenue, Vol. No. 5, 1780-1784, p. 102.

44. Letter to the Court of Directors, dated 28th Dec, 1788, Revenue Department's Board of Revenue (Duplicate incomplete), Vol. 6A, 27th Feb, 1785 to 10th Aug, 1789, p. 241.

was made was at Rs.312 per 100 maunds at Dacca on the 15th  
 45  
 March, 1788.

This system was so oppressive that several zamīndārs avoided to attend the Comptroller in order to provide their claim on account of khalari or salt rents. They were informed that their claims were admitted unless they attended in future and forbade the collection of rents from the rāiyats.<sup>46</sup>

The system introduced by Hastings continued unaltered down to 1786-87. In that year Lord Cornwallis introduced a little alteration in the management of the salt revenue under which the article was to be henceforward disposed of by public auction periodically. Cornwallis passed some regulations in order to protect the malangīs or salt makers from oppression.<sup>47</sup>

Under this system, the price of salt was enhanced considerably and was expected to further go up as a consequence of the deficiency of the produce of the last season unless further measures were taken for increasing the quantity in the market. Accordingly, advertisements were published for the delivery of six lakhs of maunds of coast salt at Calcutta between the 1st May and 1st Oct, 1789 on contract basis.<sup>48</sup>

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45. Ibid, p.256.

46. W.W.Hunter, Bengal MS Records, A Selected list of 14,136 letters in the Board of Revenue, Calcutta, 1782-1807 with an Historical dissertation and analytical index, Vol.1, (London, 1894), pp. 44-45.

47. H.R.Ghosal, op.cit., p.96.

48. Letter to the Court of Directors (Duplicate incomplete) dated 10th Dec, 1789, Revenue Department, 27th Feb, 1785 to 10th August 1789, Vol.6A, pp.285-286. The quantity of salt contracted by Mr. Talyer to deliver which was around 3 lakh maunds. This was notified in the address of the 6 nov. by William Pitt. A sale of 392437 maunds of salt took place on 1st Oct and of 1,65,000 maunds on the 22nd Dec. The average sale price for the former was at Rs.384, 11 ānas, 1 paisa per hundred maunds and of the later at the rate of Rs.354, 13 āna and 89 paisa per hundred maunds. While comparing this price to the average sale price of the 1788, we trace upward trend in the average price of salt.

In 1793, the administration of the salt department was taken out of the hands of the Board of Revenue and placed under the Board of Trade. An investigation into the affairs of salt manufacture by the Board of Trade revealed that there were then two systems for the Company's supply of the article: the first was a "system of free compact" with persons called thika malangis and the second was practically a "system of coercion" imposed on persons known as ajoorā malangis. On the recommendation of the Board, the Government of Lord Cornwallis placed the ajoorā malangis on the same footing as the thika malangis in 1794 and the contract price of salt at the same time was raised. Malangis and agents benefited by the measures. These measures also increased the quantity of salt.<sup>49</sup> The ajoorā temur in Tamruk and Hijli was abolished, with directions to make engagements with the salt manufacturers in the same manner as with those who provide salt.<sup>50</sup> The Governor General had issued instructions to the Board of Trade for the payment of the allowances receivable by the zamindars from the salt office.<sup>51</sup>

The revenue from the sale of salt in 1795-96 fell short of the income of the preceding year by sicca rupees 2,09,820, though the quantity sold exceeded that of 1794-95 by 1,40,000 maunds. This was supposed to be partly due to the reduced selling prices of Bengal and foreign salt and the abolition of the ajoorā

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49. H.R.Ghosa, op.cit., pp.96-97.

50. Letter from Governor General in Council, letter No.4019, Sept. 30, No.41, 1794, See W.W.Hunter, Bengal MS Records, A Selected list of 14,136 letters in the Board of Revenue, Calcutta, 1782-1807 with an introduction and index, Vol. II, (London, 1894), p.73.

51. Letter to Hijli Agent, Letter No.4020, Sept 5, 1794, Ibid, pp.73-74.

system which tended to put up the aurang prices in Hijli and Tamluk. The net income due to all these to the government, however, amounted to Rs. 73,80,741 which was nearly double the estimate of the Committee of Accounts.<sup>52</sup> From the several reports of the Board of Trade especially of the 12th July 1796 and 14th July 1797, which were highly pleasing, it is concluded that the income yielded due to sale of salt was satisfactory during 1796. The later report comprehend that the excess of revenue for 1796-97 was Rs. 4,98,980. It was highly creditable to the prevalent system of management that on a comparison of the net resource from salt for the first four years under the Board of Trade exceeded on an average that for the four last years, whilst it was under a Comptroller, by upwards of 19 lakhs of sicca rupees per annum.<sup>53</sup>

Private persons and merchants were not allowed to trade in salt. But there were instances and complaints against this regulation. According to the complaint, an English gentleman had carried a large cargo of salt to Chilmaree with muchalka from all the other merchants in the same article by which they were not allowed to sell any salt till his shall be all disposed off.<sup>54</sup>

By the establishment of the Company's salt monopoly the zamindars lost their right to manufacture salt as farmers on behalf of the government. They were permitted either khalari

52. P.C. Gupta, (ed.), Fort-William-India House Correspondence, Vol. 13, 1796-1800, (Delhi, 1959 introduction part), p. XVIII.

53. Letter from Court, dated 15th May, 1799, See P.C. Gupta (ed.), Fort-William-India House Correspondence, Vol. 13, (Delhi, 1959), pp. 182-183.

54. Extract of another letter from the same (Hastings) to the same (W.B. Sumner), dated Dec, 12, 1758, See Henry Vansittart, A Narrative of the Transition in Bengal, 1760-1764, (eds.), Anil Chandra Banerjee and Bimal Kant Ghose, (London, 1966), p. 11.

rent deductions from their annual jama' or given an allowance known as musāhirā. These were not exactly compensations paid to them "in consideration of their giving up the privilege of the free manufacture of salt."<sup>55</sup> With regard to the first, it should be noted that as the revenue paid by zamīndārs prior to the establishment of the monopoly consisted of two items viz, (i) land revenue and (ii) salt revenue, and as the Government by establishing it retained the later item khās, that is to be noticed that at the time of establishing the monopoly some of the zamīndārs were excluded from the management of their estates. These estates were placed under the officers of the salt department and they were entitled to a separate allowance called musāhirā in consideration of the profits previously made from salt manufacture. By 1788, the manufacture of salt had been much extended; the excluded zamīndārs of Tamruk and Hijli in the Midnapore district were nominally restituted in their estates. The actual management of these estate were later vested in the hands of the Collector and Salt Agent. Again, it was proposed to allow the zamīndārs an addition to the musāhirā in the shape of an allowance of 10% to the Fixed land revenue jama' to be paid out of profits derived by the Government from increased salt production. In 1793, the Government resolved to re-admit the excluded zamīndārs to the management of their estates.<sup>56</sup>

The primary object of the Company's salt monopoly was to secure an increased annual revenue from this source. The salt

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55. Letter from Auckland to Court, August 10th, 1836, (Beng. separate department proceedings), Quoted by H.R. Ghosal, op.cit., p.97.

56. H.R. Ghosal, op.cit., pp.97-98.

supplied by the malangi was first stored in Government godown<sup>3528</sup> scattered all over the salt districts, and then conveyed to the salt godowns at Salkia where it was sold by public auction four times a year. The minimum quantity that could be purchased at these sales was not less than one thousand maunds and later sold in smaller lots to others.<sup>57</sup>

Two classes of malangi were known during our period; ajoorā and thika. The ajoorā represented the traditional type of salt workers who were customarily tied to land. Ajoorā was a kind of hereditary occupation.<sup>58</sup> The malangis under the thika system, which appeared first in Hijli, were generally brought from the outside of the village and were paid much higher rate than the ajoorā malangis.<sup>59</sup>

From around 1770, the malangis protested several times against oppression and exploitation. Many complaints were made before the nawāb against Mr. Chevalier. He was accused of acting in a very violent and arbitrary manner at Chilmaree and Cooregaun by oppressing the native merchants in the monopoly of several commodities, particularly salt. Not a single merchant was permitted to buy or sell salt without his permission.<sup>60</sup> The native

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57. Northern part of Howrah City, Containing docks, Government Salt godowns etc. Ibid, pp. 98-108.

58. Ajoorā malangi had four categories: ajoorā malangi, who was helped by the labour of his family members. It had its assistant who was called dwitta malangi. Dwitta malangi owned a bullock cart etc. and used to bring the fuel. A three fourth ajoorā malangi, had been assisted by some of his family members who were either advanced in years. A half ajoorā malangi did not receive assistance from any member of his family. A quarter ajoorā malangi was either advanced in year or a youth.

59. The thicka malangis were divided into four groups: great jaundārs, jaundārs, madhyam nahdārs and nahdārs. The former was well to do people with a servant, possessed a cart and bullocks to bring fuel. A madhyam nahdār had under him a boy or an old man. The nahdār malangi worked by himself and were very poor.

60. Extract of another letter from the same (Hastings) the to (W. B. Sumner) dated Dec, 12, 1758 same, See Henry Vansittart, A Narrative of the Transaction in Bengal, 1760-1764, Anil Chandra Banerjee and Bimal Kant Ghose (eds.), (London, 1966), p. 11.

merchants, and malangīs protested against this oppressive method of monopoly through their petition to the Agent of Board of Trade. Sometimes deputations were sent to the Agent or the Board in Calcutta. But these deputations were usually interrupted by gomāshtās men they were on their way to Calcutta and forcibly brought them to their khalaris. This exploitation compelled the malangīs, zamindārs, pāikārs, merchants to indulge in illicit manufacture and trade of salt. Consumers were also involved in this illicit trade.

The malangīs were induced to conceal illicit salt and hand it over to the smugglers to compensate for the poor price offered to them. The zamindārs protected this illicit trade to cover up their loss of revenue. The pāikārs were involved because they wanted spectacular profit. The consumers desired to have salt at the cheapest possible rate, which the smuggling of salt made possible.<sup>61</sup>

The origin of salt smuggling can be traced to the irregular and insufficient supply of legal salt in the interior. Many areas of Bengal were not served by the authorised traders. Illicit salt from the Marāthā country into Bengal and Bihar was transported. That was precisely one of the reasons that in 1760 the East India Company acquired the jungle maḥals and Dalbhūm from Mīr Qāsim. In 1765, by a grant from Shāh Alam, Chhotanagpur was also added to the Company's possessions. In 1768, Company was keen to stop the illicit trade in salt from the Marāthā country into Bengal and Bihar. The Midnapore Resident despatched troops under J. Fergusson to the Jungle maḥals.<sup>62</sup> In Jessore agency, at least 20

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61. Balai Barui, op.cit., p.143.

62. Swapna Dasgupta, "Adivasi Politics in Midnapore C.1760-1924"  
See Subaltern Studies - IV writings on South Asian History and Society, Ranjit Guha, (ed.), (Oxford University Press, Oxford, 1982), p.103.

markets were existing. In these markets about 60,000 maunds of salt were brought, bought and sold in a year.<sup>63</sup>

Lack of proper supervision and management on the part of salt agents made smuggling possible. The malangīs were the primary suppliers of the illicit salt. He performed it by various means. A common practice was to set up illicit khalaris. Most of the houses of the malangīs contained illicit khalaris. The female members of the malangi family helped in manufacturing illicit, salt. When the salt work was closed, the malangīs were involved in producing illicit salt. Illicit salt was also manufactured in dense jungles.

The malangīs also produced more salt than they were permitted for. They also concealed their khurāk salt. The malangīs collected illicit salt from the aurang's adaladārs, chaprāsīs and ziladārs belonging to the Company's weighment department. This was called "Gang Smuggling!"<sup>64</sup> The secret understanding among the malangīs, paikārs and chauki darogāhs formed the backbone of the smuggling.

Therefore, it is pertinent to say that the marine proto-industries had little prospects of developing industrialization in its relative sectors of proto-industries. Marine proto-industries hardly required mechanisation. Neither fishing and associated subsidiary proto-industries, nor sānkhā proto-industries nor salt production etc. required mechanization. These two industries

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63. Balai Barui, op.cit., p.143.

64. Ibid, p.145. The darogāh of salt chaukīs allowed the illicit salt to pass by taking bribes, both in cash or kind. There was settlement between chauki darogāh and malangi to provide them certain amount of money, and small quantity of salt every month as bribe. Similar settlement was also agreed between the paikars and the darogāhs.

were late comers in the scenario of Bengal's proto-industries and they developed slowly and haltingly. In absence of the capital and energy industries it became very difficult to transform marine proto-industries in capitalist industries.

The form of organization of marine proto-industries, the control, the penetration of capital etc. into it, were most probably at the similar degree of concentration as it was in other proto-industries of rural Bengal. In that sense also it was not far ahead rather lagged behind compared to other proto-industries of Bengal. These factors hindered the development of marine proto-industries into capitalist industries.

POTTERY

The manufacture of household earthenware pottery has its history from the more remote antiquity, but, at least, in Bengal, the pottery industry never attained the position of a sumptuary art.<sup>65</sup>

A new development has been traced in the pottery industry with the advent of Muslim rule in India. This was the glazed pottery<sup>66</sup> which was hitherto unknown to Indian public. It was a notable contribution of Medieval times. Glazed earthen ware and the coloured tiles for mosques and tombs came in India with Mohamadan traffic.<sup>67</sup>

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65. T.N.Mukherji, Monograph on Pottery and Glassware of Bengal, (Calcutta, 1895), p.2.

66. N.S.Gupta, Industrial Structure of India during Medieval Period, (New Delhi, 1970), p.103.

67. Ibid, p.103.

But Bengal was untouched with this muslim influence. Glazing was either not practised in Bengal or practised on an inconsiderable scale because of the availability of ordinary potter's clay in the country.

It was the unrefractory character from the presence in clay of a large proportion of oxide of iron and carbonate of lime and more often for the admixture with it of large quantities of organic matters, that prevented the clay to be used in glazed pottery. The use of oxide of copper for producing beautiful blue tints had never been attempted in Bengal.<sup>68</sup>

The most important of the potteries of Bengal was the black pottery. A black pottery without any kind of ornamentation was made at the village Khanja in the district Khulna.<sup>69</sup>

Everywhere in Bengal, more or less a similar method was practised to produce the black colour. The confinement of the smoke during the firing of the pottery and the utilisation of certain additional materials to the kiln for producing considerable smoke was practised.<sup>70</sup> A silvery black colour was obtained by the addition

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68. T.N. Mukherji, Monograph on Pottery and Glassware of Bengal, p.2.

69. Betel holders, oil pots, smoking bowls etc. were manufactured here with high polish and elegant shapes. Water-pots, betel boxes, oil-pots, smoking bowls, ink-pots, incense-burners and other articles were made at Dinajpur with some degree of finish. The shapes were also good.

70. Rustam J. Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p.81. In East Bengal, the clay vessels were fired within a closed container by placing it in the kiln. In the kiln some damp straw, oil cake or cow dung had been introduced to produce smoke and soot, sufficient for the proper blacking of the pottery. Before firing, the pottery was carefully polished and treated with a special preparation called kabis, consisting of a kind of Fuller's earth called piri mitti fine powdered mango bark, sajji mathi, and a crude form of Sodium Carbonate. This with addition of confined smoke produced the rich black colour of the clay.

of tin and zinc.

The unglazed terracotta ware of Bīrbhūm must be mentioned. Surahi, drinking cups, spittoons, plates etc. were mostly made here. The shapes were good. Sometimes, a rude attempt was made towards ornamentation.<sup>71</sup> In Bīrbhūm a kind of black ware was made but was of inferior quality.

In Hughli faience pottery was made. In this pottery two flower tubs and two water goblets constituted the body. The body of the ware was the usual red clay coated over with a semi-vitrified green glaze. This seems to be an attempt to introduce the production of glazed pottery in Bengal but without much advancement and success.

Sehwan pottery was also produced in Bengal. The colour applied was either black or white and after firing, was decorated by hand with silvery patterns produced by etching the designs and rubbing into the lines an amalgam of mercury and tin.<sup>72</sup>

The large jars were also made in Bengal and were known as kalsā or kalās. These were either plain red or black in colour.<sup>73</sup>

#### IVORY

Ivory was carved all over India but chiefly at Banaras, Behrampur and Murshidābād. Carved ivory fans were the speciality of Sylhet, fine ivory bangles of Cuttack, and mats made of woven stripes

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71. The ornamentation on the unglazed pottery was of floral and other patterns. This was drawn on the soft unbaked vessel by means of a sharp tool and afterwards filling the narrow incision with some white substance.

72. The red colour was produced by red lead, yellow by arsenic, green by a mixture of yellow arsenic and indigo, black by lamp black made from charred rice seeds. After the colours had dried, the vessel were varnished with garjan wood oil or with the white of a duck's egg. The painting was crude and inartistic in Bengal.

73. Some of these were excellently polished and appeared to be glazed but they were not in reality. The gloss was produced by rubbing the surface of the pottery before baking with certain seeds or a gum like, to produce a fine polish that remained glossy after the article and been fired.

of ivory of Murshidābād. Minute ornamentation on these articles were drawn. The subjects were generally richly caparisoned elephants, state gondolas in gala trim, tigers, cows and peacocks etc. All these were carved as statuettes and hunting, festive and ceremonial scenes and mythological subjects carved in relief. The carved ivory combs found in every Indian bazar were most artistic in form, texture and detail.<sup>74</sup>

Ivory turning, which was less artistic than ivory carving, was practised on a considerable extent. Some workers in some towns had made bangles, chessmen, antimony boxes and idols. The best specimens of ivory-turning were produced in Tipperah of Bengal.<sup>75</sup>

In several parts of India wood was inlaid with ivory. Bone was sometimes used as inferior substitute for ivory inlaying. Miniature painting was invariably practised on slabs of ivory. Articles made from buffalo horn were largely produced, but generally were not of high artistic quality. The Chief Centres of these art and manufacturing were Hughlī and Serampore in Bengal where broches, necklaces, bangles and the like were made.<sup>76</sup>

Machha Ka data was extensively used and more highly prized than real ivory for use as mills, especially after luring. Fish tooth was enveloped in a mixture called massala and left covered

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74. George C.M. Birdwood, The Industrial Arts of India, Pt. II, (Piccadilly, 1880), p. 218.

75. The Imperial Gazetteer of India, The Indian Empire, Vol. 3, Economic, (Oxford, 1908), pp. 192-193.

76. Ibid, p. 93.

for a longtime, for best results. The fish tooth was stronger and had a smother and finer texture than true ivory and had less tendency to slip in the hand.

It were the late 18th century European painters who had introduced the process of painting on ivory (hathi data). European painters imparted the Indian painters the method of painting on the panels of hathi data (ivory).<sup>77</sup> The paintings on ivory panels were prepared with utmost care especially the selection of the tusk. The tusk used for the preparation of ivory panels should be new as the old tusk turn light yellow; it should not be cracked and finally, the middle part of the tusk should not be either too much transparent or too much translucent. It should be transparent and translucent to a certain degree appropriate for painting.<sup>78</sup>

Small panels of ivory was easily obtainable while the bigger panels of tusk were difficult to secure since bigger panels were used for other purposes too. Two or more panels were joined by making grooves to prepare bigger panels with a degree of perfection in joinery. Such panels served the purpose but were not to be suitably used for fine works. The panels with rough surface

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77. Moti Chandra, The Technique of Mughal Painting, (Lucknow, 1949), p. 14.

78. Ibid, p. 15. In a faulty tusk there appeared a horizontal line passing lengthwise. Such tusks were either too much transparent or too little transparent. The panels sawn from such faulty tusk were not suitable for ivory painting. This was because the panels became too much transparent or too much translucent. This unevenness in the surface of the panels of the tusk made the application of colours more difficult since the same colours changes its optic qualities on the defective ground. From the properly selected tusks, panels of the thickness varying from 1/20 to 1/16 of an inch were obtained. If they are to be stored for sometime, they should be wrapped in four-fold cloth and kept safely. If the panels were kept open, it were liable to warp. Wrapped panels were improved by soaking in water, then wrapping in wet cloth and lastly pressing with a heavy weight. Very badly wrapped panels were useless for the purpose of painting.

and the marks of saw-teeth had been smothered by the artist before  
 79  
 the painting was made. On such panels the drawing was prepared  
 by tracing, if the painting was to be the copy of some original.  
 The final drawing with likṭī was done. The painting was to be  
 an original work, the drawing was made in likṭī. After this,  
 required colours were applied in the coatings. The picture was  
 finished by stippling.<sup>80</sup> A special process called ābdārī (glossing)  
 81  
 was also employed to produce glossiness.

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79. Ibid, p. 16. To get a smoother surface the roughness was filled with a sharp razor. It (panel) was then rubbed on a hand and even slab of stone. When the surface of panel became absolutely even the panel was left in the open to dry. In case of any scratches or unevenness after such treatment, the surface was polished with the cuttle-bone (Samundra-phena). Cuttle-bone provided an even and smooth finish to the surface.

80. Ibid, The mistakes were corrected by erasing the required part with cuttle-bone and fresh colour applied for producing the required effect. The zinc-white grounding was not used, the natural colour of the ivory serves its purpose.

81. To produce the glossiness of the oiled hair or the folds of shining silk garments, a weak solution of gum-arabic was applied on the required part after the painting was finished. In applying this solution the artists were required to be careful, of spilling outside its area. The solution should not be strong enough, otherwise, the parts on which it was applied would be rendered too glossy and quite out of turn with the general colour scheme of the painting. The surface became sticky and the colour was definite to flake after sometime. See Ibid, p. 16.

CHAPTER - VII

TECHNOLOGICAL BASE OF RURAL CRAFTS

A major handicap in discussing the spread of modern industrial techniques in Asian Societies during the 17th and 18th centuries is lack of adequate research on the issues of technological innovation and its application in handicrafts and agriculture etc. Even in contemporary chronicles only scanty and scattered references have been made. Work has been sporadic after P.K.Gode had pioneered it along with the detailed descriptions of nineteenth century. Still many Indian technological practices have not yet been properly checked with earlier literary evidences.<sup>1</sup> The degree and level of the technological development during the proto-industrial period is the determinant of the degree and level of the development of industrialization. It, therefore, has been proposed to direct critical analysis to the level of technology during the proto-industrial phase and the internal social determinants of technological change in Bengal during the 17th and the 18th centuries.

Since the social environment of peasants, and rural and urban proto-industrial producers were somewhat different, the economic pressures upon them took different forms and the interests of the ruling classes led them to adopt measures in respect of the peasants which were largely irrelevant from the point of view of the urban artisans. It, therefore, would be appropriate to separate the treatment of agricultural technology and craft technology and to a large extent, describe them as autonomous (though undoubtedly interrelated) spheres.<sup>2</sup>

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1. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol.V, Nos. 1-2, (July, 1978-Jan, 1979), p. 152.

2. Ibid, p. 152.

AGRICULTURAL TECHNOLOGY

India during the period under review in general and Bengal in particular, appeared as a country cultivated by my myriads of peasants, forming an impoverished and differentiated mass.<sup>3</sup> Closer scrutiny has borne out the truth implicit in this statement that peasants cultivated the land as individual producers, but it has also led to the discovery of the existence of considerable economic differentiation among village agrarian society which consisted of khud-kashta, pahi-kashta, muzari'an and village menials, landless peasants, tanners and washermen etc.<sup>4</sup> The ruling class were in essence rent-receivers, who shared out the bulk of the agricultural surplus which reached to the peak under Aurangzeb, when the declared amount of the land tax was estimated at 332-387 million rupees, while about 60% of this amount upto Rs. 200 million in actuality was collected.<sup>5</sup> These class of people who were constituted mainly of manṣabdars, jaḡirdars, and zamindars<sup>6</sup> who were assigned the duty to extend the cultivation. The zamindars<sup>7</sup> had special role to play in the extension of the production of agriculture through extending taqāvis, laying out large irrigation works, orchards, fruits for their tables or sale, but this was perhaps the sum total of their interest in agriculture.

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3. Francois Bernier, Travels in the Mogal Empire, (ed.), V.A. Smith, (London, 1916), pp. 226-227.

4. Satish Chandra, "Some Aspects of Indian Village Society in Northern India during 18th Century: The position and Role of Khud-kasht and pahi-kasht," IHR, Vol. 1, No. 1, (1974), pp. 51-64.

5. V.I. Pavlov, Historical Premises for India's Transition to Capitalism, (Moscow, 1978), p. 33.

6. S. Nurul Hassan, "The Position of the Zamindars in the Mughal Empire," IESHR, Vol. 1, No. 4, (April-June, 1964), p. 3.

7. B.R. Grover, "The nature and the evolution of Taluqdari System during the Mughal Age," IESHR, Vol. II, No. 3 (July, 1966), p. 269. Also see Irfan Habib's "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, Nos. 1-2 (1978-79), p. 153.

In the main the agricultural technology of Mughal India was determined by the situation of its peasant farming. Much more than 1/6th of the crops or the produce was the share as land tax of the ruling groups of Bengal in the middle and late decades of the 18th century.<sup>8</sup> But the imperial Government tried its best to ensure its share at less than 50% of the produce.<sup>9</sup> Including all the cesses, it further went up and since the imperial authority declined and since the burden on jāgīr increased, the agrarian economy had to face a crisis. During late 18th century, ijāradārs bidding higher than zamīndārs, speculating Calcutta baniās anxious to secure the most beneficial farms, zamīndārs tenacious of their hereditary possessions outbidding others composed the body of farmers under this new system.<sup>10</sup> The Indian peasants tolerated these constant and contradictory pressures by an extraordinary combination of superstition with knowledge and of rude equipment with ingenious desires.<sup>11</sup>

The agriculturist cultivated large number of crops for both the harvesting seasons. Moreland comprehensively compiled the varieties of crops produced in India.<sup>12</sup> Few countries (excluding, perhaps China) could have compared with Mughal India in the great multiplicity and variety of products of the soil.<sup>13</sup> Abū-l Faḍl in

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8. John R. Maclane, "Land Revenue Transactions in 18th Century Western Bengal," Bengal Past and Present, Vol. CIV, Parts I-II, Nos., 198-199, (1985), p. 2.

9. S. Nurul Hassan, "Zamindars under the Mughals," See Robert Eric Frykenberg, Land Control and Social Structure in Indian History, (New Delhi, 1979), p. 29.

10. N. K. Sinha, The Economic History of Bengal, From Plassey to the Permanent Settlement, Vol. II, (Calcutta, 1962), p. 78.

11. Irfan Habib, "Technology and Barriers to Social change in Mughal India," IHR, Vol. 5, Nos. I-II, (1978-1979), p. 153.

12. W. H. Moreland, India At the Death of Akbar: An Economic Study, (Delhi, 1987), p. 281.

13. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, Nos. 1-11, (1978-1979), p. 153.

the Ā'in-i-Akbarī (1595-96) lists, in its revenue tables, sixteen crops for the rabi harvest in all revenue circles of Agra province and 25 crops of the kharif harvest cultivated in all.<sup>14</sup> In other provinces also approximately same number of crops were cultivated. In other words, as many as forty or more crops might have been cultivated in each locality. Many of these crops, of course, were cultivated in small areas, and the crops that an ordinary peasant knew how to grow, were fewer.

The peasants in Mughal times does not seem to have harboured much defiance in accepting new crops. On the contrary, the high magnitude of land revenue demand compelled the farmers to grow any crops that could fetch higher returns on the market. As a result, tobacco and opium cultivated. The extension of these two crops was spectacularly rapid. Tobacco's cultivation had begun on the western coast soon after 1600, by 1650, it was being cultivated in almost all parts of the Empire.<sup>15</sup> The cultivation of Indian opiums were mainly confined to three centres which afford the following opiums: "Patna opium" in Bihar, "Benaras opium" in the north western provinces and "Malwa opium" in Central India.<sup>17</sup> By about the middle of the 17th century, India had emerged as a major producer of the drug. Gode has estimated the existence of Maize cultivation in 17th century Maharashtra.<sup>18</sup>

14. Abū-l Fazl, Ā'in-i-Akbarī, (ed.), Blochmann (Calcutta, 1867-71), pp. 348-85.

15. Irfan Habib, "Technology and Barriers," IHR, Vol. 5, Nos. I-II, (1978-1979), p. 154.

16. Om Prakash, "Opium Monopoly in India and Indonesia in the 18th Century," IESHR, Vol. 26, No. 1, (1987), p. 64.

17. George Watt, A Dictionary of the Economic Products of India, Vol. VI, Part 1, (London, 1892), pp. 19-24.

18. P.K. Gode, Studies in Indian Cultural History, I (Hoshiyarpur, 1962), pp. 446-447, 450.

In the equipment that the peasant possessed, the use of iron was minimal and wood predominated. The diminutive ploughs are in vogue which barely scratches the first two inches of the ground. Heavier ploughs are used in Noakhali, and Tipperah district. In Bengal the soil is softer and for an aquatic plant like rice deep ploughing would be disadvantageous since by exposing too much of the subsoil leads to rapid transpiration. Again depth generally was attained with ordinary country plough by a system of ploughing and reploughing. In some districts of Bengal 4 to 5 ploughing was in operation.<sup>19</sup>

Indian ploughs were no stranger to European eyes. Terry described it as the "foot plough", a type used in England.<sup>20</sup> Fryer, whose observations were confined to coastal regions, found no peculiarity in the ploughs "except that their coulter unarmed mostly, iron being scarce, but they have hard wood will turn light grounds."<sup>21</sup> This statement could have been true only of the coastal belt and soft soil. Iron teeth would have been indispensable for the drier or harder soils inland. Other agricultural implements like khurpi, daggers, kudāl, axes, scissors, hasiya, tangi, tanga, etc. made of iron produced from iron of Birbhūm district in the workshops of Dobrajpur, Kharun, Lokpar, Rajnagar and Rampurhat.<sup>22</sup> Agricultural implements were also produced

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19. See Radha Kamal Mukherjee's, Rural Economy of India, (Calcutta, 1926), p.67.  
 20. Terry, Early Travels, p.298.  
 21. Fryer is quoted by Irfan Habib in his, The Agrarian System  
 22. Hitesranjan Sanyal, "The indigenous Iron Industry of Birbhūm," IESHR, Vol. 5, No. 1, (March, 1968), p. 105.

locally by Lohārs by charcoal iron attached to village menials and rendered industrial service in return for a fixed share in the agricultural produce of each village household.<sup>23</sup>

Drill-sowing as well as dibbling has been an old and familiar practice in India.<sup>24</sup> The peasant attached the bamboo seed drill to his plough and by using a simple stick, practised dibbling both great advances over the wasteful method of sowing broadcast.<sup>25</sup> W.M.Reid quoted the Gleanings of Science, No.5, for May 1829, for describing the drill plough used in Tirhut for indigo cultivation. The drill plough had the following advantages "the shares the furrow, the wheels of the machine turn those of the trough, the slanting holes bored in the wheels of the trough, during the passage through the seed, take up each one or more seeds and in the downward part of their revolution unload themselves with precision into the hoppers, which lead them in the hollow of the plough shares, which last deposit the seed in the furrow and in close the seed in an instant!"<sup>26</sup>

The construction of the original indigo drill was as follows: It consisted of 2 to 2.5 inches diameter wheels, 3 inches thick, made of Shisham wood, tyred with common hoop iron, on a trough, 4 feet, inside measurement, of the same material as the

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23. Sabyasachi Bhattacharya, "Iron smelters and the indigenous iron and steel industry of India: From Stagnation to atrophy", see Surjit Sinha (ed.), Aspects of Indian Culture and Society, (Calcutta, 1972), p. 140.

24. Irfan Habib, Agrarian System of the Mughals, p. 25.

25. Irfan Habib, "Technology and Barrier," IHR (1978-1979), p. 154.

26. W.M.Reid, The Culture and Manufacture of Indigo, (Calcutta, 1887), pp. 42-43.

wheels, the average depth of this trough being 6 inches. The side-walls of the trough were two feet long by 2 inches thick also made of shisham. In the front-board or platform was inserted the nipples for sowing the seed and also in front of these, the shares were attached which was of 4 feet long inside measurement by 9 to 10 inches broad, by three inches thick again of shisham wood and to it the trough was attached. This platform was bored at distances of six inches apart in a double line to receive the tubes and shares. A simple board, 1 inch thick, was fixed in one end between the nipples and shares to prevent the seed from being thrown outside. Thus, in a drill of 4 feet length, inside, there were eight tubes and 8 shares. These shares sides were generally 4.5 inches to 5 inches broad, and 2 inches wide at outer rim.<sup>27</sup> Inside the trough and upon the axle with which they revolve were placed, at equal distance with tubes and shares small round wheels, 7 inches in diameter, slightly perforated round the disc with small round holes, which with every revolution, raise the seed in the trough and eject it into the tubes in the front board. The average number of holes in a 7 foot diameter seed-wheel would be 16.<sup>28</sup> Shaft, a thin piece of wood 8 feet long by 2 inches thick sloping, when the drill rested upon the ground, from 4 feet ground at point to 9 inches where it gains the platform, here it was operated on either side by strong stanchions of wood or iron. The shares should be kept at an uniform depth so as not to endanger the germination of the seed. Four shared, 8 shared, 20 shared drills were referred in the

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27. Ibid, pp.43-44.

28. Ibid, pp.44-45.

chronicles.<sup>29</sup>

Pin-drum gearing is found pre-eminent position in the arhat or rahat or sāqiya or the persian wheel. This device had originated in the Mediterranean world, but it reached India well before the 16th century<sup>30</sup> and was mainly utilised as common mode of water lifting in the Indus basin, its use did not spread to further east until the middle of the 19th century. This was because that the persian wheel could not compete with the charas, a method of lifting water through a leather bag drawn over a pully. In charas the oxen had to walk on the ground for a length equal to the actual depth of the well and back, for every turn with the water-bag. If the water-level was low, the walks would be longer, and the interval between each discharge of water greater. The charas were better suited to these regions where water level was very high like gangetic basin. Here the wood and rope arhat was clumsy to compete with the charas.<sup>31</sup> The dhenkli based on the lever principle was in vogue where the water table was close to the surface.<sup>32</sup> In case where a river rises and inundates the fields seasonally every year, both the irrigation and fertilisation were purely natural. But it is probable that the construction of embankments to train the rivers for the sake of canals or for the prevention of floods has considerably reduced the extent of land formerly enriched by this means.<sup>33</sup>

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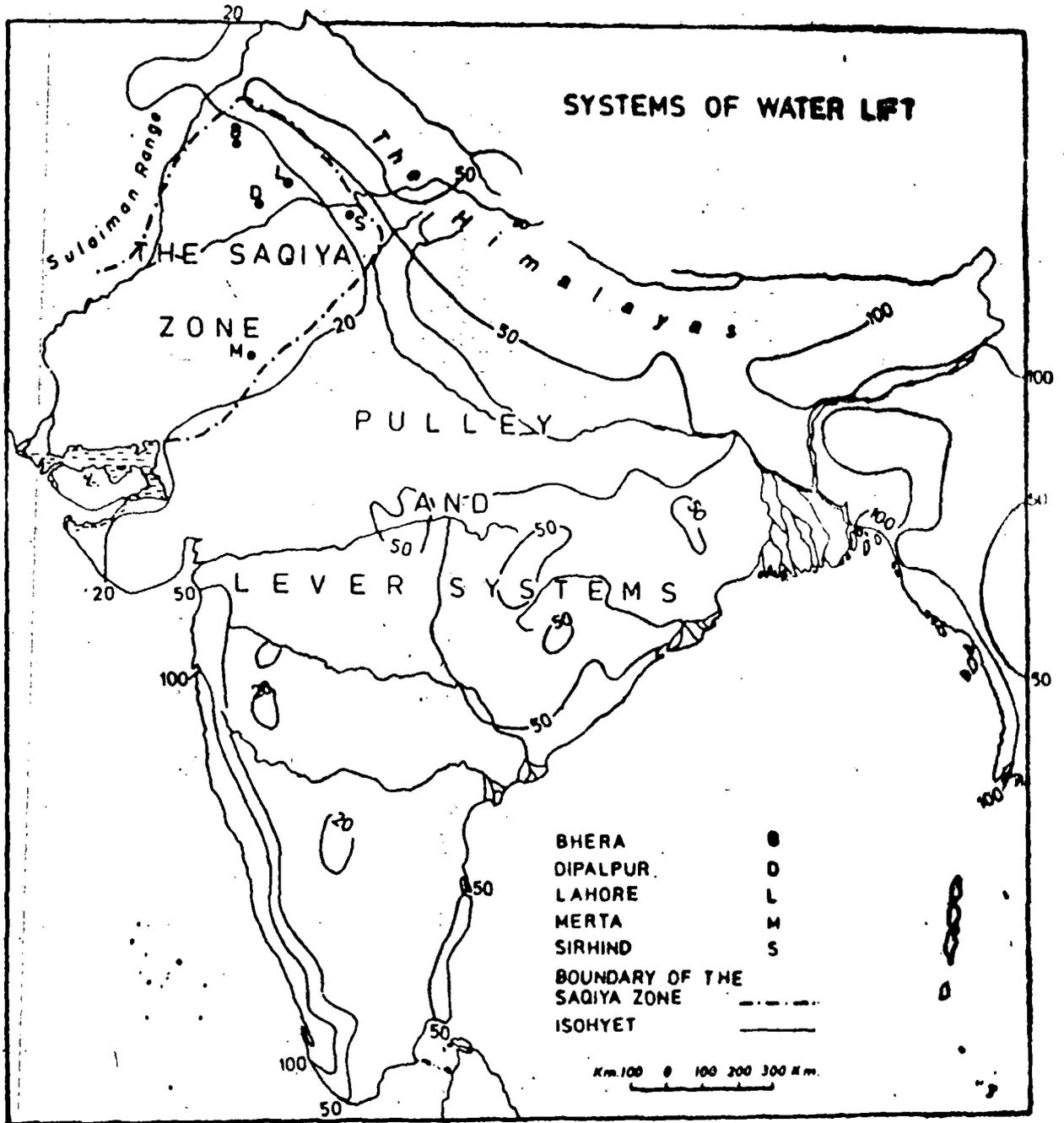
<sup>29</sup> - Ibid, pp. 44-45

30. Irfan Habib, "Technology and Barriers," p. 154.

31. Ibid, p. 155.

32. Irfan Habib, Agrarian Systems of the Mughal, p. 27.

33. Irfan Habib, Agrarian Systems of the Mughal, p. 29.



Large scale irrigation in 16th and 17th centuries India was of two kinds: (1) tanks created by embankments, from which canals of relatively small size would run to carry overflow for agricultural purposes; and (2) Long canals taking off from undamed rivers and traversing fairly long courses. Only the later<sup>34</sup> were largely found in Northern India and exhibit central Asian and Iranian influences; they were almost entirely laid out by the Mughal emperors and nobility.<sup>35</sup>

One of the most important objects of the Mughal Emperors and their nobles in building canals was to bring water to their orchards and gardens. Their own contribution to horticultural technology largely derived from their interest in growing central Asian and persian fruits in India by importing seeds and gardeners to India.<sup>36</sup> In the field of horticulture, the 17th century was a period of considerable innovation. Extensive application of grafting with important consequences for the field and quality of certain fruits might be traced out.<sup>37</sup> Grafting is not a single practice but involved a number of different methods namely tongue grafting, side, crown, deft, saddle and root grafting, veneering, inarching and inlaying.<sup>38</sup> But it is difficult to establish which particular method was ultimately utilised in each case.<sup>39</sup> Two distinct channels were under operation in bringing about these methods: the Mughal court and nobility, influenced by Persian, Central Asian traditions, and Portuguese with their roots in European Horticulture.<sup>40</sup>

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34. Irfan Habib, "Technology and Barriers", p.159.

35. Ibid, p.159.

36. Irfan Habib, "Technology and Barriers," p.161.

37. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol.17, No.1, (Jan, March, 1980), p.4.

38. Ibid, p.4.

39. Irfan Habib, "Technology and Barrier," p.166.

40. Irfan Habib, "The Technology and Economy Mughal India," IESHR, Vol.17, No.1, (1980), p.5.

The parallel worm is found in two different Indian devices, the cotton gin and the sugar mill and Nedham inclines to the belief that the rolling mill, based on parallel worm is an Indian contribution to technology.<sup>41</sup> Of the two, the sugar mill offers an extremely interesting problem in regard to the limits apparently placed upon its diffusion, for, two different methods of crushing sugar cane that were in operation in India.

First, there was the mortar and pestle-mill similar to the oil press. The mortar was best when made of stone, but in most areas, it became too expensive.<sup>42</sup> There was the Kolhu a large drum-shaped mortar, in which an almost upright timber beam or pestle was made to turn by an arrangement attaching it to a pair of circling bullocks.<sup>43</sup> The method was ill suited to milling cane, since cane had to be chopped into small pieces by katarwah and two ghaniwahs, fed the kolhu, removed the khoiya and drew off the juice. Finally, there was the specialist gur boiler who cooked after the fire under the boiling pan and superintended the preparation of gur.<sup>44</sup> Yet this mill was the only one used throughout the Gangetic plains except parts of deltaic Bengal.<sup>45</sup> Its presence in Mughal times is attested by the remains of large mortar

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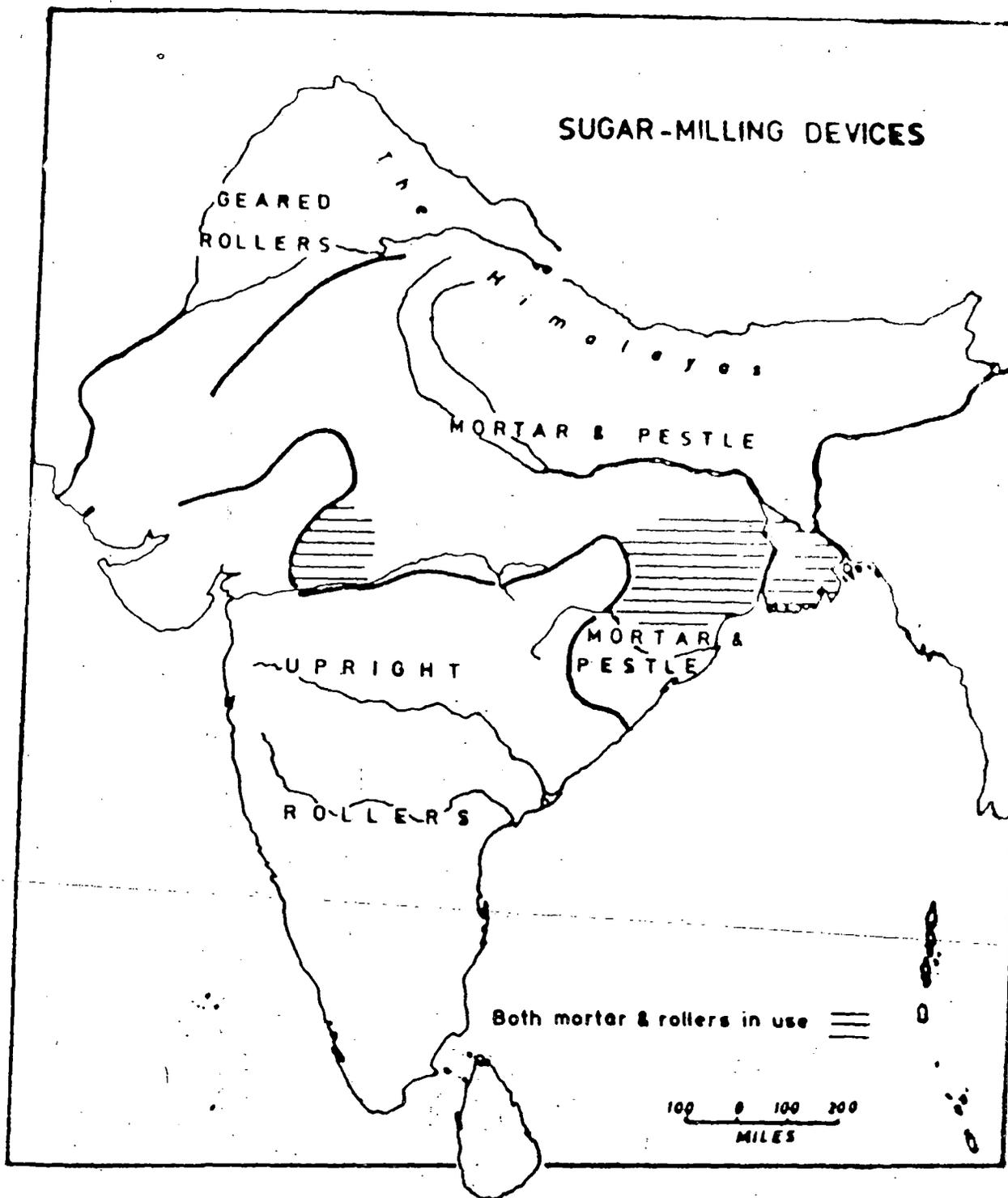
41. Joseph Nedham, Science and Civilization in China, iv, Pt. 2, p. 204.

42. Irfan Habib, "Technology and Barriers," p. 155.

43. Shahid Amin, "Small peasant commodity production and rural indebtedness: The culture of Sugarcane in Eastern U.P., C. 1880-1920," See Ranjit Guha (ed.) Subaltern Studies I, writings on South Asian History and Society, (Oxford University Press, Oxford, 1982), p. 61.

44. Ibid, p. 63.

45. Irfan Habib, "Technology and Barriers," p. 155.



stones; an inscribed stone mill of A.D. 1553 and another <sup>379</sup> 1579, have been reported from eastern U.P.<sup>46</sup>

The second device, parallel to worm, was completely different one; involving the motion in opposite directions of two vertically mounted wooden rollers, one of which was rotated by oxen driven around it; the main roller moved the other through ridges on its upper part fitting into grooves of the roller. In parts of Bengal, Bihar and Malwa both types of mills existed side by side. Other device in vogue during Mughal period was the roller. Careri in 1695 establishes its use in Bassein.<sup>47</sup>

Rollers were mounted only vertically (there by limiting the number of canes that could be milled at one time) so long as there was no gearing. This deficiency was improved in Punjab, where geared horizontal rollers were utilised by (1830-33) and were in general use as late as the 1880s.<sup>48</sup> The wooden rollers was actually more efficient than the mortar and pestle. But two or three pairs of oxen were required to operate the wooden horizontal rollers while in mortar and pestle mill one oxen operated the process.<sup>49</sup> Moreover the stone mortar was almost everlasting.

Undoubtedly, the minimal or the use of iron screws, hinges, clasps etc., the efficiency of the wooden implements was greatly affected and all of them would function properly.<sup>50</sup> The lack of the use of iron was, however, only because of costs. The price of good iron in 1595 is estimated, in terms of wheat to have

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46. A. Fuhrer, Monumental Antiquities and Inscriptions in the North Western Provinces, (Allahabad, 1891), pp. 187-319., (Azamgarh and Pratapgarh).

47. The Indian Travels of Thevenot and Careri, (ed.), S.N. Sen (New Delhi, 1949), p. 169.

48. A. Burnes, A Travel to Bokhara, i (Karachi, 1973), 44; See Also W.E. Purser's report 1884 and Hoshiyarpur District Gazetteer, pp. 97-101, both quoted in Watt Dictionary of Economic Products (DEP), Vol. VI, Pt. II, pp. 293-294, The rollers were called belna.

49. Fuller's report in watt DEP, VI, Pt. II, pp. 194-195.

50. Watt, DEP, VI, Pt. II, pp. 293-299.

been three times it was in 1914.<sup>51</sup>

It is clear from the foregoing survey of agricultural technology that two separate sectors has been essentially traceable. The first, was the technology employed by the peasant, and, the second, was the technology employed or fostered under the aegis of the Mughal nobility. The peasants demonstrated little prejudice against new crops or techniques. It was merely their inability to afford any expense on their tools or on additional attractive power was the major obstacle on the line to further technological sophistication. This obstacle was further sharpened by heavy pressure of a regressive land tax, and this in its turn reduced the possibility of their affording any technological improvement. At the same time, the absence of latifundia precluded direct aristocratic interest in agriculture. Such interest was manifested, in large scale irrigation works and orchards, canal construction and grafting.<sup>52</sup>

The wood work of ploughs and other implements was manufactured and repaired by the carpenter; the cultivator merely supplying the wood. All the iron parts of the implement were supplied and repaired by the blacksmith, the iron, charcoal and working the belows had been provided by the cultivator and potter.<sup>53</sup> The payment of craftsman was either a payment in kind or a grant of land, besides perquisites on special occasions. For the

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51. W.H. Moreland, India At the Death of Akbar, (London, 1920), pp.150-151.  
52. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. V, Nos. 1-2, (1978-1979), p. 161.  
53. Ananda Kumar Coomaraswamy, The Indian Craftsman, (London, 1909), p.1.

customary services, the craftsmen were repaid at harvest time, by receiving a fixed proportion of sheaves of grain from the crop collected on the threshing floor or they might be given a share of the communal land.<sup>54</sup> The carpenters used the Āri, Ārā, rukhani, basula, hole maker, reti, etc.<sup>55</sup>

From this survey it is quite clear that peasant class including pahī-kāshṭa, muzāri'ān, menials, washermen, tanners etc. had little or nothing to do with the development or sophistication of agricultural technologies i.e. technical advancement from below was an impossibility. Only the khud-kāshṭa and zamīn-dār classes were in a position to make some sort of contribution to the promotion of agrarian technology by encouraging rural craftsmen economically, socially, politically and culturally. Economically, if the rural craftsmen were pulled above the 'subsistence level' and were provided raw materials and other ingredients, there would be chances of further technological sophistication. Their social status should be uplifted so that their psychological feeling of inferiority complex had been eradicated and they had to work for new technical knowledge whole heartedly. Politically, the rural craftsmen should have been given liberty to think about things scientific and to use these in their day-to day life. Scientific knowledge should not be thrust upon them. Scientific culture and scientific temper should be made popular among the rural craftsmen and peasants and they should be made aware of the advantages of the utilisation of scientific knowledge.

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54. Ibid, p.5.

55. D.D.Kausambi, See his, An Introduction to the Study of Indian History, (Popular Prakashan, Bombay, 2nd edition, 1975), pp.345-352. Figurative description has been given.

CRAFT TECHNOLOGY

In Europe during 17th century many experiments had been undertaken by many individuals for searching for new and more efficient methods for nearly all processes of technological improvements that cleared the path for industrial revolution.<sup>56</sup> Larger and quicker outputs were required in all trades and only eventual mechanization could achieve this. These technological improvements, perhaps, could be grouped into two broad categories: first, the introduction of basic mechanical devices such as gearing, belt driving, screw, lever, crank, spring, etc. into one process after another; and second, the concentrated applications of longer and larger amount of power and heat in mechanical and chemical operations.<sup>57</sup>

Transferring our attention to the proto-industrialization of the late 17th and 18th centuries Bengal we notice that a number of mechanical principles were frequently operated in the machines of the proto-industries of Bengal with limited application. The first category of technological improvements were more or less applied in the simple machines of the proto-industries of 17th and 18th centuries Bengal. The second category i.e. longer and larger amount of power and heat in mechanical and chemical operations found meagre or no applications in the proto-industries of Bengal that made Bengal's proto-industrial system stagnant.

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56. Arther Raistrick, Industrial Archaeology, An Historical Survey, (London, 1972), p.221.

57. Irfan Habib, "Technology and Barriers," p.162.

Gearing, the premier device to control speeds of motion and convert vertical into horizontal motion and vice versa, was used extensively in the crafts of the Islamic world, which was brought about by Mughals to India and further adopted by Indian craftsmen.<sup>58</sup> But in actual fact gears were hardly applicable to other machines than Persian wheel. In India, pin-drum gearing was applied in Persian Wheel. No other form of gearing was apparently known; except the parallel worm used in the cotton-gin and sugar mill, which derived from a presumably indigenous and independent tradition.<sup>59</sup>

#### BELT - DRIVE

The driving belt, a convenient device for transmission of power—especially for a reducing speeds of motion of a wheel in direct alignment to the main wheel — was an important addition to medieval technology. Lynn-White opines that driving belt was introduced through the spinning wheel towards the close of the 12th century.<sup>60</sup> In India the first explicit reference to the spinning wheel was made in 1350.<sup>61</sup> The only other craft-apparatus in which it is known to have been employed in pre-colonial times is the jewellery's drill.

Since antiquity jewellers had been using the bow-string to impart rapid motion to the narrow shaft of their drill,<sup>62</sup> and was adopted by jewellers of the Mughal times and described by Thevenot

58. See Ibn-al-Razzaz-al-Jazari, The Book of Knowledge of Ingenious Mechanical Devices, tr., Donald R. Hill (Dordrecht, 1974), pp. 274-275.

59. Irfan Habib, loc.cit., p. 162.

60. Lynn White, Medieval Technology and Social Change, (New York, 1966), p. 119.

61. Irfan Habib has taken this statement from 'Isami, Futuh V's Salatin (ed.), A.S. Usha (Madras, 1948), p. 134.

62. Usher, A History of Mechanical Inventions, (Boston, 1959), pp. 153-154.

(in 1664).<sup>63</sup> This device was also used in cutting diamonds. "Under steel wheels the Diamonds were fastened, and with its own Bort were worn in what cut the Artist pleased."<sup>64</sup> Till the early years of the 19th century, the "Common drill" were turned by the bow string; it had continued as a part of the standard equipment of the Indian carpenter and blacksmith.

#### SCREW

The threads screw, a metal fixing device, introduced in European technology from the middle of the 15th century only and contributed considerably in bringing about sophistication of instruments of abolishing soldering, rivets and wedge fittings. It also enabled the advancement of powerful lathes to cut grooves on the screw.<sup>65</sup> The first description of such a screw occurs in Thevenot in 1666. The Delhi craftsman had fastened to each of the two pieces that were to enter into one another, some iron, copper or silver wire, through soldering the wire to the pieces. The Indian metal smiths' screw was not made in direct imitation of the Europeans. The possibilities of the screw remained unexplored in India. The soldering of wire did not give way to the cutting of grooves, which alone would have given a strong enough screw and made its wider use possible.

#### TREADLES

Treadles are in actual fact levers operated by the feet. In China they have been ingeniously employed since ancient times. It appears universally in the weaver's loom. Treadles are

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63. Indian Travels of Thevenot and Careri, p. 138.

64. John Fryer, A New Account of East India and Persia, (ed.), W. Crooke, i (London, 1909), p. 285.

65. J. Nidham, Science and Civilization in China, IV, Pt. 2, pp. 119-120. Also see D. J. Price in Singer, A History of Technology, iii, pp. 628-629. Also see Usher, A History of Mechanical Inventions, pp. 361-362.

shown in the loom pictured in Mughal painters' depictions of the weaver-saint Kabir at work.<sup>66</sup> Europe, too, received the treadles originally through the treadle loom that appeared there in the 12th century.<sup>67</sup> The use of treadles was then extended to other devices: to the lathe (13th century); to the pipe organ (early 15th century); to the spinning wheel (early 16th century).<sup>68</sup> Such applications of treadles never became known in India.<sup>69</sup>

#### CRANK

The crank has been assigned exceptional importance - "next to the wheel" - in the development of machine design. Lynn White points out that it appeared lately in Europe, as also to the development of compound crank from the 15th century onwards.<sup>70</sup> Cotton gin in India presented an example of crank handles in a crude form in 17th century depictions of the spinning wheel and in a refined in a late 18th century Kangra Miniature.<sup>71</sup> But no further sophistications developed; and the use of crank in craft equipment remained minimal.

#### SPRINGS

The knowledge of spring is as old as the bow. The metallic spring in use in pre-modern Indian technology was a simple bar bent into a bow shape. It is called kamānī in Hindi, originated from Persian word kamān, (bow) comes naturally from this

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66. Irfan Habib quoted it from Album of Indian and Persian Miniatures (in the Lenin-grad Branch of the institute of the people of Asia), (Moscow, 1962), Plate No. 66 (ascribed to the Mid 17th Century). See his "Technology and Barriers," p. 164. Also see Irfan's, "Technology and Economy of Mughal India," IESHR, Vol. 17, No. 1, (Jan., March, 1980), p. 7.

67. Lynn White, op.cit., p. 117.

68. Ibid, pp. 117-119.

69. Irfan Habib, loc.cit., p. 164.

70. Lynn White, op.cit., p. 103.

71. See Irfan Habib, loc.cit., pp. 164-165.

shape. Its greatest use in Mughal India seems to have been in lock and in muskets.

The metallic coiled or spiral springs that developed in Europe about 1400, first for use in locks and then in muskets, never became familiar to Indian smiths. Since modern clocks and watches evolved when the weight-drive gave place to spring drive, spiral springs became an essential element in the working of the clock.<sup>72</sup> In India indigenously made clocks did not, however, make their appearance. Bowery (1669-79) supposed that the Indians did not make the mechanical clocks because they manufactured their own convenient and accurate water clocks.<sup>73</sup>

#### COTTON TEXTILE TECHNOLOGY

The cotton in the state of kāpās was cleaned and prepared by the women who spun the yarn. Fragments of the leaves, stalks and capsules of the plant were carefully picked out with the fingers and the adhered wool to the seed was then carded with the jaw bone of the boalee fish, the teeth of which, being small, recurved and closely set, acted as a fine comb in removing the loose and coarser fibres of the cotton and all other extraneous matter like minute particles of earthy and vegetable matter, from it.<sup>74</sup> The Hindu spinner cleaned with this instrument each separate seed of cotton.

The instruments which were used to separate the seeds from

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72. Lynn White, Medieval Technology and Social Change, pp. 126-127.

73. Thomas Bowery, A Geographical Account of Countries Round the Bay of Bengal., (Cambridge, 1905), pp. 195-196.

74. J. Forbes Watson, The Textile Manufacture and the Costumes of the People of India, (London, 1867), p. 64.

the wool were the charakhī, kamān<sup>75</sup> and dullun kathī.<sup>76</sup> There is evidence that the two important instruments for ginning and cleaning (charakhī and kamān) had been into operation much before the Mughal period. For the charakhī, the first textual reference was made in India in 18th century lexicon. The bow-string was not the sole device for carding cotton in India. Other devices existed to clean the cotton.<sup>77</sup>

The charakhī was the common hand mill or pair of fluted cylinders, employed to clean cotton for the second rate qualities of thread while the dullun cathee was used to clean carefully the small quantities of the cotton for the finest thread. It was simply an iron pin that was rolled upon a flat board upon which the cotton was laid. An attempt was made to improve the machine for cleaning cotton on the principle of the charakha during the course of 19th century for which orders were placed to import them into Bengal and Bombay.<sup>78</sup>

The next step to be taken was to tease the cotton or to free it from the remains of husks by means of a small bow made of bamboo with a string of catgut or muggā silk. The bamboo slips were moveable within the centre piece and were drawn out or pushed back for increasing or diminishing the tension of the cord. This operation changed the cotton to the state of light

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75. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol. 17, No. 1, (Jan., March, 1980), p. 6.

76. James Taylor, A Sketch of the topography and statistics of Dacca, (Calcutta, 1840), p. 165.

77. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol. 17, No. 1, (Jan., March, 1980), p. 6.

78. See Mr. Huttman, Official Papers Connected with the Improved Cultivation of Cotton, (Calcutta, 1939), p. 4.

downy fleece.<sup>79</sup> The bowed cotton was never utilised for the manufacture of thread. It was exclusively applied to the manufacture of rough and coarser articles for winter clothing for the Musalmāns. The cotton used for the manufacture of the finest thread underwent a carding before it was teased and bowed.<sup>80</sup> Then it went to a thick wooden roller and was pressed between two flat boards. Next, it was rolled round a piece of lacquered reed of the size of a quill and lastly, enveloped in the soft skein of the chuchia fish, which functioned as a cover to prevent and preserve it from dust and other pollutants during the process of spinning.<sup>81</sup>

The spinning apparatus contained in a small flat work basket, comprised of the cylindrical roll of cotton, a delicate iron spindle, a piece of shell embeded in clay and a little hollow stone containing chalk powder for applying the fingers of spinners occasionally.<sup>82</sup> The spindle was not much thicker than a stout needle. It was from 10 to 14 inches long, finely polished, steel made, with large size of needle, with a small ball about the size of a pea of clay, unbaked, to provide enough weight in turning. The spinner held it in an inclined position, with its points resting in the hollow of the piece of shell. It was turned between thumb and forefinger of one hand and the single filaments, at the same time, had been drawn by holding it in the

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79. J. Forbes Watson, The Textile Manufacture and the Costumes of the People of India; (London, 1867), p. 64.

80. James Taylor, A Sketch of the Topography and Statistics of Dacca; (Calcutta, 1840), p. 166.

81. James Taylor, A Descriptive and Historical Account of the Cotton Manufacture of Dacca in Bengal, (London, 1851), p. 18.

82. James Taylor, Ibid, p. 18. Also see, J. Forbes Watson, op. cit., pp. 64-65.

other hand, and finally, twisted into yarn upon the spindle. Then it was wound upon a reed. Since the dryness of the atmosphere forbade the filaments of cotton from being sufficiently attenuated and unfavourable to the spinning of fine yarn.<sup>83</sup>

### SILK TECHNOLOGY

The spread of sericulture in Bengal was, however, more modern earlier than the 15th century. Before the introduction of the filature system, the silk was wound off with primitive instruments. The silk worms were first placed in boiling water in earthen reeling basin, boiled with cowdung fuel. Then, the silk thread was wound off the cocoons upon the reels made of bamboo. The reel known as nuttah or laya was fastened to wooden spindle twisted by the reeler round with his hand. This technique was faulty because it created inequality in the thickness of the skein with frequent breaks which impeded operations in the weaving factory.<sup>84</sup> Tools and models were procured from Novi and London. Double crossing machine<sup>85</sup> and cog wheels were introduced in India.<sup>86</sup> The machine introduced by Wiss in 1770 was moved by a winch. There was a furnace for heating the reeling basin. The Piedmont reel was larger than Indian nulta. The mechanism of double crossing and twisting the threads gave the silk a roundness and a "good body."<sup>87</sup>

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83. Ibid., p.19.

84. S. Bhattacharya, "Cultural and Social constraints on technological innovations and Econom Development: Some case studies," IESHR, Vol. III, 1966, p.242.

85. Copy of a letter from Mr. Wiss to the Court of Directors dated the 26th Feb, 1784. See Board of Trade, (Commercial), General letters from the Court of Directors, 18th Dec, 1765 to 15th Sept, 1785, p.301.

86. Extract of General Letter from the Hon'ble Court of Directors, dated the 14th July, 1779, Duke Kington received 1st July, 1780, Board of Trade, (Commercial), p.202.

87. S. Bhattacharya, op.cit., p.243.

The new machines were complicated, unfamiliar and costly. The production of some of the parts of the machine especially the winch and Cogwheel arrangement, required a higher degree of perfection and precision than the village blacksmiths and carpenters were capable of. They managed to manufacture the machine in course of time by fairly imitating it but without the mechanism for twisting the fibre as they were wound from the cocoon.<sup>88</sup>

Matkā spinning gave occupation to the poorest of women. The empty cocoons were kneaded with a little clay and left to be soaked in this paste for a little while and then they were taken up one by one with the left hand while a strand of fibres was drawn out of it with the thumb. The fibres were kept twisting with the revolution of the spindle. When the portion drawn out has been thus twisted into a single and firm thread, it was collected at the base of the spindle and another strand of the fibres drawn out of the cocoon and twisted as before. When one cocoon was finished, other was taken up, the fibres from this were joined to the fibres of the previous cocoon and the operation was continued. After one day of spinning, the thread was gathered on a lātāi. The profit of matkā spinning was extremely low. Lātāi was a skelton bobbin made of bamboo laths.<sup>89</sup>

The country method of reeling was called khāmru.<sup>90</sup> The ghai was the machine by which khāmru silk was made. Each ghai had a spinner for turning the handle of the tohbil. Ārā and tohbil were

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88. Ibid, p.245.

89. Art in Industry through the Ages, Monograph series on Bengal, (Delhi, 1976), pp.22-23.

90. Ibid, p.24.

connected by means of a string passing through the groove of the wheel on the ārā and another on the offside of the axis of the reel. Ghai started by steaming the cocoons. The steaming made the cocoons easier to reel. The end of the lots were passed through the two holes of the kal. There were two upright wires on the kal to keep the two lots of the fibres separately during the reeling. These provided two croiseurs to the fibres, one between the wholes of the kal and the upright wires; and the others, between these wires and the reel. The friction caused by these croiseurs agglutinated the fibres together and made them pass on to the reel as two firm and single threads. Reel was turned by pakdār and the cocoons before the katari got worked off. The function of katari was to separate out the entangled cocoons, ends of new cocoons thrown along with the fibres which were being reeled, as the old cocoon work off. He feed cocoon after cocoon during the process of reeling.<sup>91</sup> Any interruption or break was assisted by pakdār in re-establishing order and union. In khamru-reeling the re-establishing the end with a break and putting a knot like in European filature was not practised.

Bleaching of silk was also done through crude carbonate soda. A seer of silk was bleached by (a) one paw or ( $\frac{1}{2}$  Lb.) of saji; was powdered and mixed up with 2.5 seers of hot water and steeped for a number of times, (b) half seer of ashes obtained by burning plantain leaves was mixed up with 2.5 seers of hot water and steeped for a number of times, (c) half seer of ashes

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91. Ibid, p.27.

obtained by burning plantain leaves was mixed up with 2.5 seers of hot water and strained. A piece of cloth was spread over a basket and a mixture of powdered saji or ashes or mixture of the two with water was poured into the basket and strained. This process was repeated until the liquid looked like oil. This liquid or lye was mixed with about  $\frac{1}{2}$  maund of water and boiled. Into this boiling water a seer of silk was introduced and after taking out from this bleaching was done and washed into clean water. Some loss of weight could be observed. Korrahs were bleached by dhobis who were assisted by women.<sup>92</sup>

#### DYEING

The dyeing industry was in a flourishing state in Bengal during 17th and 18th centuries.<sup>93</sup> Coarser cotton clothes were either dyed or printed with a variety of well shaped and well coloured flowers and figures. Cloth printing seemed to be an Indian practice, which others were only beginning to follow.<sup>94</sup> In dyeing and imposing coloured designs after weaving we are referred to the employment of almost all the well known Indian methods, including simple immersion in dye.<sup>95</sup> Besides the ancient resist and mordant method of printing, direct colour-printing by blocks was also practised on a large scale. The tie and dye method, the bandhanon method, and painting with pencils were also in vogue.<sup>96</sup>

92. Ibid, p.83.

93. Shiv Chandra Jha, Studies in the Development of Capitalism in India, (Calcutta, 1963), p.55.

94. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, Nos. 1-2, (1978-1979), p.167.

95. Irfan Habib, "Indian Textile Industry in the 17th Century," in Essays in Honour of Prof. S.C. Sarkar, (Delhi, 1976), p.184.

96. Ibid, p.184.

Forbes, supposes that the resist or mordant methods of dyeing represented early forms of calico printing proper and originated in ink seals (cf. black-on-white calico printing).<sup>97</sup> The resist and mordant, were applied for the multi-colour or pattern dyeing in India; the resist was applied to confine colours to pattern white mordants to take colours.<sup>98</sup> Printing blocks might have been used to apply the resist and mordants since early times as evidenced from Egypt and Iran for 3rd and 4th Century A.D. The methods of resists and mordants for painting and printing from wooden blocks vogue in Europe in the 17th century were also applied in India. The later saved time and cost but was not fine or of high value.<sup>99</sup> Indian textiles especially the painted and resist dyed cotton were far superior to the dyed fabrics then produced in Europe and were greatly praised by the English for their clear, long lasting and lovely colours.<sup>100</sup> The references of calico painting and calico printing were found repeatedly in Thevenot's accounts.<sup>101</sup>

The dyers of Bengal were noted for their simple and uniform colours, with the fabrics given a narrow border of a different shade. The use of indigenous vegetable dyes were practically utilized in Bengal. In Faridpur a yellow dye was obtained from the kusum tree, the petals of this were dried and boiled and the solution used for colouring yarn.<sup>102</sup> In the Chittagong Hill tracts blue

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97. Irfan Habib, "Indian Textile Industry in the 17th century," op.cit., p.185.

98. Irfan Habib, "The Technology and The Economy of Mughal India," IESHR, Vol. 17, No. 1, (Jan., March, 1980), p.8.

99. Ibid, p.9.

100. Peggy Woodford, Rise of the Raj, (New Jersey, 1978), p.52.

101. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol. 18, No. 1 (Jan., March, 1980), p.9.

102. Rustam J. Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p.119.

dye was obtained from the indigo plant and a red dye from the roots of the tree known as rangach. The roots were first cut into small pieces and smashed to make pulp, water and ashes of tamarind wood had been added and carefully strained away, then was mixed with the pulp and the yarn was kept soaked in it for a night. It was placed 3 or 4 times into the solution and was sheared with vegetable oil before the last dipping. In Chittagong, a chocolate colour was achieved from the bark of a tree by cutting into clips, leaving into cold water for 4 or 5 days and then boiled for atleast a day.<sup>103</sup>

Lac work was a great and widely extended industry in India. Lac was manufactured on an wide scale in Elambazar in Birbhun, and Lohardagga district of Chotanagpur.<sup>104</sup> Lac dye was achieved from the small cells of the incrustation and formed the body of female insect. The entire incrustation including twig was called sticklac. For obtaining the largest quantity of dye, the sticklac must be gathered before the young come out which happened twice in the year in January and July.<sup>105</sup> That which remained, after the colour was extracted and was utilized embelish toys made in the lathe.<sup>106</sup>

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103. Ibid, pp.119-120.

104. George C.M. Birdwood, The Industrial Arts of India, Part II, (Piccadilly, 1880), p.223. Also see W.W. Hunter, The Indian Empire, (London, 1973), p.113. Lac is a cellular, resinous incrustation of a deep orange colour, secreted by an insect called coccus lacca round the branches of various trees. The chief among these were kusum, palas, pippal and baer. The principal component of lac was resin, forming about 60 or 70% from which was produced the shell lac commerce.

105. Ibid, p.113.

106. Tavernier's Travel in India, Vol. II, (ed.), V.B. Ball, New Delhi, 1977, p.18.

The other dyes were as follows: turmeric, produced a bright but perishable yellow; the wood of the jack tree, provided good yellow, less bright but more permanent, safflower gave two beautiful colours namely gulābī, and kusum, both of red rose, manjeet gave a fixed red colour, produced golden colour called sonāla applied after jack wood. There were three shades of colour called uda, (dark red) and produced by haritaki, the second by chamalati and the third by alum. A dye called labang, karanphuli were fixed brown. All these colours were applied to silk. The cotton thread was always dyed with one of the following three colours: sālu, a well fixed light pomegranate colour; uda, a dark red of various shades; and finally kusum, a beautiful light red but not well fixed.<sup>107</sup>

Various experiments of Patna manjet in dyeing of cotton for the purpose of calico-printing had been undertaken.<sup>108</sup>

The printing was performed with thickened mordants and dyed in madder or with colours applied directly, (insoluble pigments

107. W.W.Hunter, A Statistical Account of Bengal, Vol.VII, (London, 1876), p.97.

108. See Extract of Commercial General letter from the Hon'ble Court of Directors to the Governor General in Council dated the 24th March, 1791 in Board of Trade (Commercial), General letters from the Court of Directors, 1790 to 1796, Vol. 3, p.69. Following patterns had been applied: (1) after having been prepared by an acid and printed with the proper mordants, boiled in madder from turkey roots, worth at present 45/ton and bleached on the grass; (2) Piece of some cloth and the same pattern and printed exactly a like, boiled at the same time in an equal weight of Patna Manjet and also bleached on the grass; (3) same piece boiled in the same weight of Manjet but not bleached; and finally (4) piece boiled in madder but not bleached. It is obvious from these experiments that the Patna Manjet was not as strong as the Turkey madder, although had superior brightness. But it had the peculiar property of fixing the mordant or colour without straining the ground or white part of the cloth, by which a great part of the expense and time invested in bleaching had been saved; this alone gave it a value far beyond any specie of madder.

diluted in a viscous supporting medium, thickened decoctions of tinctorial woods and plants), because the printed clothes were usually of an inferior quality compared to the painted fabrics.<sup>109</sup> For painting one must choose those of soft and less closely beaten clothes precisely because in the too hard clothes, the penetration of colour printed by painters was not deep and remained on the surface of the cloth, to be lost at second tanning. For choosing clothes for printing, one must prefer soft and good cotton yarn i.e. the warp threads should not be tightly twisted and should correspond in parity with the weft to make the fabric even and smoother for providing the blocks to be fully applied and the surface bloom well preserved and not to be cracked.<sup>110</sup> Another fact to be noted during the application of the blocks was the cleanliness of the blocks. If the pigment was sticky, it began to dry in the engraved lines of the block, it filled some passages in the design, produced fault and imperfectness in the printing. Broken points in the blocks or covering some flaw with wax were avoided, properly and carefully chosen and inspected. Furthermore, narrower points in the blocks at one end than the other was productive of dirty tracks between the flowers and they could not follow the straight line, consequently, new blocks were always preferred to undertake the printing.<sup>111</sup>

All types of blocks were not suitable for the same fabrics. A fine sharp block could not be used in printing on a coarse

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109. Paul R. Schwartz, Printing on Cotton at Ahmedabad: India in 1678, (Ahmedabad, 1962), p. 1.

110. Ibid, p. 4.

111. Ibid, p. 4.

cloth. If the block was rough with raised and irregular grain, the block would be cracked at the second blow in printing. The blocks must be strong in the proportion to the body of the cloth and the fine sharp ones used for the finest fabrics. The fine chintes had the most delicately worked designs than the ordinary ones because the blocks were more artistically made and glide smoothly and consistently without resistance whereas on coarse cloth the workers failed to use them a second time.<sup>112</sup> These little insect pieces were used for changes of colours and each one had only a portion of a flower, when the chinte was of several colours. If they were of two colours like jafracanis, a single block was sufficient with one small piece, but, so far as panchrangis were concerned, sometimes upto 10 pieces were required to be applied at a time with increased time spent by labourers charging double or tripple wage.<sup>113</sup> The white ground demonstrated great variety of colour.<sup>114</sup>

The period from the month of October to June was regarded as appropriate for printing because this period offers calm, clear and radiant sun necessary for drying their work immediately. Very clear and clean water was also needed to wash out the dross of the printing and the dirt attached itself. Cold and damp conditions were injurious to printing as well as to the bleaching.

The clothes were washed to remove the dressing, which the weaver had applied before painter applied any colour. It was

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112. Ibid, p.5.

113. Ibid, p.5.

114. Milburn, Oriental Commerce, Vol. I, (London, 1813), p.46.

then steeped in gingely oil for five days if it was hot season and doubled the time if it was cold. The gingely seed from which the oil was extracted were of two kinds: One flat and white and the other black which was like powder for a musket.<sup>115</sup> After it was thoroughly absorbed in the oil, they daub it with camel dung; dried and washed it, beaten it to flatten the thread. Then, the first application of dye was made. They prepared a black colour with myrobalan and wheaten flour soaked in water until it had become thoroughly sour, mixed it with iron rust and boiled together to make fast black and for further more fastening they added into it couldron, several seers of gum. Afterwards, the painter spread out the cloth lengthwise on the tables, soaked the blocks in this black dye and started printing in row along the left side and continued with others in the same way until the width was filled. The first block of the pattern only distinguished the outlines by its lines and hollows. Another block of the same size, covered this one completely with same pattern but differently worked, utilized in the places where the first had raised outlines. Its voids went directly on the imprint of the first, which it conserved entirely without any detriment to the colour. The rest of the second block were without engravings, because it were applied for filling the ground of the cloth with the desired colour. When the ground with red or violet was dried, little blocks with a detail of the designs applied by changing it with the selected colours between the black outlines of the first block. When this was dried, a third block upon this last, worked in the form of rays, providing shading to the

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115. P.R.Schwartz, Printing on Cotton at Ahmedabad: India in 1678, p.7.

flower by little lines, which was ordinarily the colour of indigo was carefully applied and operated.<sup>116</sup>

The last operation in the process of printing was to soak the cloth in hot water to remove the wax, which had conserved the white and green, again shaped into river water and dried it in very hot sun. This was performed many times for about 8 days depending on the season since the application of much more sun heat provided beautiful colour. Lastly, green colour was applied with small block made for the purpose and delivered to the customer.<sup>117</sup>

#### POWER METALLURGY AND MINING TECHNOLOGY

In most of the rural crafts of the Mughal period excluding agricultural technology, human muscles were the sole source of power although cattle power were occasionally dispensed with.<sup>118</sup>

The bellows in common use in India was made of the skin of a kidor goat taken of the animal by opening the hinder part only. The holes corresponding to the legs were sewn up; at the neck end was inserted a nozzle of bamboo while the tail end was out transversely, so as to form a long, straight slit for the admission of air, when the edges were brought together. For achieving considerable length of each of the edges, a piece of split bamboo was firmly tied on the exterior for readily closing or opening and to get the act the part of valve.<sup>119</sup> The skin functioned as supple by rubbing it with oil or butter-milk. Each furnace was provided with

116. Ibid., pp.7-8.

117. Ibid., p.8.

118. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol.5, No.1-2, (1978-79), p.166.

119. John Percy, Metallurgy: the art of extracting metals from their ores and adopting them to various purposes of manufacture, Iron and Steel, (London, 1864), p.255.

atleast two such bellows. One man sitting cross legged on the ground between the bellows for moving them alternately to operate a continuous and regular blast.<sup>120</sup>

Large bellow of similar make was constructed of buffalo hide, with some alterations that the skin was sewn up along the line of the belly. The bamboo strips were attached together at one end of the valve and could be separated only at the other where they were prolonged beyond the skin, so as to form convenient handles. This bellow required one man to operate the instrument.<sup>121</sup>

In some parts of Bengal, bellows of a very different and ingenious construction were in vogue. Small single-acting blowing cylinders of wood, of which the piston packed with feathers were in operation.<sup>122</sup>

The Indian furnaces were frequently smaller. The furnace may be divided into three typical kinds: The first was wide prevalent along the western coast of India, in the western ghats and usually through the Deccan and the Carnatic. It was of the rudest form. The second and third greatly in advance of the first and had the ability of manufacturing considerable quantities of wrought iron as well as natural steel were in wide operation in central India and North West provinces.<sup>123</sup> The ores employed were magnetic

120. Ibid, p.255. The bellows was operated in the following manner: A leather thong passes from one of the lips of the vale round his hand and to fill the bellows he drops the lower lip and raises the upper one, when air enters, swelling out the skin into the shape of a conical bag. He then quickly catches up the lower lip, closes the valve and bears with his weight on the inflated skin, forcing out the contained air through the nozzle into the furnace.

121. Ibid, p.256.  
122. Ibid, p.256.  
123. Ibid, p.255.

oxide, rich red and haematites. The process of smelting varies according to the districts and localities due partly to local custom and partly because the art had most advanced.

The failure to impart a sufficient amount of air to the furnaces failed to melt sufficient amount of metal at one time in each furnace. This adversely affected the quality of metal when it had to be used in large mass like in cannon.<sup>124</sup> One of the earliest illustrations of a cannon was appeared in a manuscript by walter de Millemete dedicated to Edward III in 1327. Edward III used them in the siege of calais in 1345.<sup>125</sup> The commercial utilisation of cannon occured in the capture of St.Malo in 1378 (about 400 of it were used).<sup>126</sup> Cannons were manufactured in Bengal and Assam.<sup>127</sup> The reference to gun in Bengal was traced as early as 1406 AD., when Mahuan visited the country.<sup>128</sup> Excellent guns were manufactured in Bengal during 17th and 18th centuries.<sup>129</sup> Abū-l Fazl remarked: "Some pieces of cannon are so large as to carry a ball of 12 maund and other require each several elephants and thousand bullock for their transportation. Darogāh and clerks were appointed to look after this department."<sup>130</sup> Some of these were so contrived as

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124. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, No. 1-2 (1978), p. 166.

125. W.H.G. Arymtage, A Social History of Engineering, (London, 1976), p. 49.

126. Ibid, p. 49.

127. Shiv Chandra Jha, Studies in the Development of Capitalism in India, (Calcutta, 1963), p. 46.

128. P.K.Gode, Studies in the History of Culture, p. 7.

129. See, K.K.Datta, Alivardi and His Times, (Calcutta, 1963), p. 184.

130. P.K.Gode, loc.cit., p. 14.

to carry them into pieces and when the army halts they were nicely put together again. This difficulty enabled to the production of gun carriages. At the beginning of the mid 18th century the manufacture of gun carriages was concentrated at Cassipur in Calcutta and Fathegarh in the upper provinces. Reference to gun carriages was made in consultations, dated the 3th Dec., 1752 that gun carriages were made both in Calcutta and Qassimbazar, in the former place these were made cheaper and better than in the latter.

There were others which could be easily transported by one elephant and were called gujral. Still others could be easily carried by a man and were called nurnal. Bunducks were now also manufactured with least fear of their bursting. Some of the bunducks were not required fire to be operated rather they require a little motion to trigger. Flint muskets were also manufactured. It is not surprising then that in spite of good quality of domestic iron ore and the celebrated method of making steel, Indian iron manufactures generally could not compare with the European in quality.

In metallurgy it displayed some successes as well. Already by the end of the 16th century zinc had been isolated in India; instruments were manufactured, of "refined metals not employed in Europe." Alloys of copper and tin known as bronze, brass was the

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131. J.Kumar, Company India, A Comprehensive History of India, (1757-1858), (Patna, 1980), p.249.  
 132. Consultations, dated the 4th Dec, 1752 quoted in K.K.Datta's, Alivardi and His Times, (Calcutta, 1963), p.184.  
 133. P.K.Gode, op.cit., p.15.  
 134. K.K.Datta, Studies in the History of Bengal Subah, Vol.I, 1740-70, (Calcutta, 1936), p.434.  
 135. C.S.Smith in Singer, (ed.), History of Technology, iii, p.35.  
 136. Nicolao Manuci, Storia do Mogor, 1656-1712, tr., W.Irvine, (London, 1907-8), ii, p.71.

alloys of copper, zinc and lead. Bharan, an alloy of brass or zinc, bronze or tin etc. and sold as kansa.<sup>137</sup> The hammer, the anvil of various shapes and sizes, the chisel, the iron tongs, the file, the lathe, the scraper used for the lathe called noyali, chhurri, katāri, rod of iron called sabal of various sizes etc. used in making various house utensils.<sup>138</sup> A proposal for extracting lead was made during the later half of the 18th century.<sup>139</sup>

Prof. Irfan Habib quoted Thevenot to discuss the working of gold-enamelling and opined that gold-enamelling was not practised in Mughal India.<sup>140</sup>

A closer and comprehensive scrutiny of the synthesis of Hindu and Muslim decorative arts, its era of progress and high watermark during the Mughal period, demonstrates that the art of enamelling reached its zenith.<sup>141</sup> During Mughal age enamelled jewellery took many of the attributes of the Mughal miniature paintings. Even the backs of the ornaments were superbly designed with floral and geometrical patterns with birds, beasts, trees, etc. The front of the ornament was also set with precious stones held in place by pure gold bands called the kundān. Only the finest and purest gold was used for enameller's art.<sup>142</sup> The art of soldering gold wire and inlaying it on other material was exceptionally well-developed.<sup>143</sup>

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137. Art in Industry through the Ages, Monograph series on Bengal (Delhi, 1976), pp. 281-283.

138. Ibid, p. 284.

139. Letter to the Court of Directors, Jan. 1778, See Board of Revenue, General letters to the Court of Directors, 1778 to 1780, Vol. 4, p. 61.

140. See Irfan Habib's, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, No. 1-2, (1978-79), p. 167. Also see Thevenot, Indian Travels, pp. 55-56.

141. Rustam J. Mehta, The Handicrafts and Industrial Arts of India, (Bombay, 1960), p. 17.

142. Ibid, p. 18.

143. Thevenot in Indian Travels of Thevenot and Careri, pp. 55-56.

Razi (866 AD) was the first to list equipment for melting metals and attempted a systematic classification of chemical substances. They found native aluminium sulphate, treated it with stale urine and other materials to make alum—a 'fixer' for dyes. The production of alum was, actually the earliest chemical industry.<sup>144</sup> Alum dye was also practised in Bengal during our period.

In chemical industries, a major achievement was lacquer ware which inspired the varnish techniques in Europe.<sup>145</sup> Distillation of oils to obtain essences, as well as the manufacture of distilled liquor, was wide spread.<sup>146</sup> A new practice, in whose discovery India was ahead of Europe, was chemical refrigeration, in which water was cooled by utilising salt petre.<sup>147</sup> Manufacturing of ice in Bengal was done on a large scale. The Bengalis had a method of manufacturing artificial ice with boiled water. This ice was manufactured from November to February.<sup>148</sup>

Mr. Keir informed in January 1778 that he had succeeded in manufacturing industrial potash and requested to sell it duty free. The Company was desired to encourage this industry agreed to exempt Mr. Keir from the payment of duties on potash till the

144. W.H.G. Amytage, A Social History of Engineering, p.40.

145. For Mughal Indian Lacquer ware, see Mandelslo's Travels in Western India, AD. 1638-39, p.17. Also see J.Marshall's, Notes and Observations in Bengal, 1668-72, (ed.), S.A.Khan, p.415. For influence on Europe, see, F.W.Gibbs(ed.), History of Technology, iii, p.696.

146. P.K.Gode, Studies in Indian Cultural History, Vol.I, pp.15-37.

147. J.R.Forbes, Studies in Ancient Technology, VI, p.105.

148. K.K.Datta, Studies in the History of the Bengal Subah, Vol.I, 1740-70, p.435.

19th of October 1779. The first utilisation of washing with soap was made by barbarians i.e. the Fanti of West Africa and the Gauls of the first century AD discovered soap independently. To pling (Natural History Book 28, Chapter 51) soap was invented by the Gauls for 'giving a reddish tint to the hair' and a propae-  
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 deitic for scrofullous sores. The cloth washing soaps were mentioned first by the time of Aretaeus (AD 250). Soap appears to have been introduced into India by Muhammadans, who were the principal manufacturer of soap during 19th century in Bengal. The Hindus used a liquid formed from the ashes of different plants, particularly the plantain tree, in washing clothes. The Indian name of soap (sabun) is an Arabic word, and appears to be the origin of sabun, a Crimean word. The soap manufactured at Dacca was the best in Bengal and exported to different parts of India, Bassora, Jeddah etc. It was comprised of the following materials viz: shell-lime 10 maunds; sajee mattee 36 maunds; common salt 15 maunds; sessam oil 12 maunds; goat's suet 15 seers.<sup>151</sup>

One of the important segments of modern chemical industry was the development of the glass industry. Glass-making in England was encouraged by Norman Workers like Laurentius Vitrearius around 1226.<sup>152</sup> The industry developed especially in the weald, and enjoyed virtually a national monopoly both of window and vessel

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149. Letter to the Court of Directors, January, 1778. See Board of Revenue, General letters to the Court of Directors, 1777 to 1780, Vol. 4, p. 61.

150. W.H.G. Armytage, A Social History of Engineering, p. 42.

151. J. Forbes Watson, The Textile Manufacture and the Costumes of the People of India, (London, 1867), p. 71.

152. W.H.G. Armytage, op.cit., p. 44.

glass until the 16th century.<sup>153</sup> Stained glass techniques stimulated works on pigments, lenses and practical chemistry. Laws of optics were discussed by Robert Grosseteste (1168-1253) while his student Roger Bacon (1217-92) pointed the way to the microscope and telescope.<sup>154</sup> Some products of these developments percolated to India. One was sand glass. The glasses were made to show the passage of a ghari or 24 minutes and thus were essentially of Indian made.<sup>155</sup> It has been exhibited that the use of spectacles (made of glass lenses) in India was traceable first only in the second decade of 16th century.<sup>156</sup> Spectacles made of crystal could have been indigenous manufacture.<sup>157</sup>

A significant sector which was provided particular promotion for Technological improvement in Europe was mining. Deep excavations necessitated improvements in haulage, survey methods, pumping and so on.<sup>158</sup> The mining in all field in the 17th century in Europe had been badly hampered by water and any expansion in the 18th century depended upon securing the means of adequate drainage. These were provided in two ways: by the invention of the steam engine to operate more powerful pumps, and by the development of adits.<sup>159</sup> In the 18th century Bengal, some mines had

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153. Ibid, p.44.

154. Ibid, p.44.

155. Irfan Habib, "Changes in Technology in Medieval India," Studies in History, Vol.ii, No.1 (Jan, June, 1980), p.35.

156. A.J.Q aiser, "Level of Technology in India on the eve of the 18th Century: The case of Glass," Studies in History, Vol.ii, No.1, (Jan, June, 1980), p.85.

157. Irfan Habib, "Changes in Technology in Medieval India," op.cit., p.35.

158. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol.5, No.1-2, (1980), p.173.

159. Arthur Raistrick, Industrial Archaeology: An Historical Survey, (London, 1972), p.223.

considerable workforce. Blanford in his report stated that in 1858-60 within the coal producing area of about 500 square miles, near about 50 collieries in operation belonging to 15 proprietors.<sup>160</sup>

All borings for probing the coal fields were done by hand and any boring of over 250 ft. was considered a fine performance. Sinking operation was also primitive and shafts were sunk to a depth of 100 feet. The pits were circular in shape varying from 8 to 10 feet in diameter. Double pits in which two buckets were used were operated. Quarries were either opened in nullahs where outcrop appeared or few yards away from their beds.<sup>161</sup>

The large collieries were working their seams according to pillar and stall system<sup>162</sup> for preventing the fall of the roof consisted essentially in cutting out the coal in a rectangular pattern of rods, which were left between them unworked blocks of coal, the pillars of larger dimensions than the roads to support the roof.<sup>163</sup> In this method at best only half the coal was taken and in some cases as little as a quarter. This method was operated in Raniganj and Burdwan collieries. But of this coal not more than two thirds was marketable in fact in most collieries not more than 1/2. Again, it was

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160. W.W.Hunter, A Statistical Account of Bengal, Vol.5, p.112.

161. B.R.Seth, Labour in the Indian Coal Industry, (Bombay, 1940), p.3.

162. Ibid, p.3. Also see W.W.Hunter, A Statistical Amount of Bengal, Vol.5, p.113.

163. Aurther Raistrick, Industrial Archaeology: An Historical Survey, (London, 1972), p.52.

preferred to have the roof of the mine of coal, since it was safer and finer than either sandstone or shale. Thus at Tapasi, where the seam was 22 ft. in thickness only 12 feet were mined. This mode of functioning was best adopted for seams of moderate thickness.<sup>164</sup>

Crowbars, big hammers and wedges were utilised. The wedges were shapeless pieces of any kind of old iron forged up, the hammers were also made of poor materials, while the crowbars were round irons of five feet and 6 inches in length.<sup>165</sup> The coal cutting was also faulty. The coal instead of being 'holed under' and cut away at the bottom, wedged afterwards, down from above, was cut above and broken away from below by crowbars and wedges.<sup>166</sup>

The second method employed in coal mining consisted in chipping out a small hollow near the face of the coal through crowbars. This coal was brought to blocks through wedges and hammers. An opening at the side of the gallery was constructed.<sup>167</sup> Some collieries also used country gun powder as explosives that left volumes of smoke and did very little work.<sup>168</sup> Buckets were employed for carrying the coal by boys. The miners used the common earthen lamp for light in the shape of lipped saucer. Torches prepared from a narrow strips of cloth or twisted ropes

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164. W.W.Hunter, A Statistical Account of Bengal, Vol.V, (New Delhi, 1973), p.113.

165. B.R.Seth, Labour in the Indian Coal Industry, p.3.

166. Ibid, p.3. Also see W.W.Hunter, A Statistical Account of Bengal, Vol.V, p.114.

167. B.R.Seth, op.cit., p.4.

168. Ibid, p.4.

and saturated in castor oil were used for more light.<sup>169</sup>

A prominent feature of the Mughal road system was that it designed mainly to facilitate cart-transportation. For this purpose, on main roads they constructed stone and masonry bridge for convenient transportation.<sup>170</sup> Van den Broucke's map (1660) provide us with some information of Bengal road system. He marks a principal road passing over Patna, Munger etc. to Suti. From this place a branch went to Murshidābād to Burdwan and finally to Katak. Another branch from Suti ran along the right bank of the Podda to Fathabad and finally to Dacca. This was regarded as Shahi Rostah.<sup>171</sup> A second road from Burdwan to Bakleswar in Birbhūm and finally, to Qassīm̄bāzār was constructed. This road went from Harinarhatti to a place called Harwa and from there to Sirpur. Third road went from Burdwan to Indrakpur via Salimabad, Hughlī, Jessore, Bosnah, Fathabad etc. Fourth road went from Dacca to Harial via Balari, Piaarpore, Bedlia etc.<sup>172</sup> Renell discussed road system of Bengal in his, "Description of the Roads of Bengal and Bihar, 1778." He gave a list of roads connecting Patna, Murshidābād, Dacca, Calcutta. Among the old military roads of East Bengal, mention must be made of the road from Dacca to Toke.<sup>173</sup> Another road stretched from Dacca to Khulna in the Sunderbans via Vikrampur, Padma, Ichamati and

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169. Ibid, p.5. Also see W.W.Hunter, A Statistical Account of Bengal, Vol.V, pp.115-116.

170. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol.17, No.1, (Jan, March, 1980), p.12.

171. H.Blochmann, Contribution to the Geography and History of Bengal (Muhammadan Period), (Calcutta, 1968), p.13.

172. Ibid, p.14.

173. S.Bhattacharya, The East India Company and the Economy of Bengal, from 1704 to 1740, (London, 1954), p.192.

Faridpur. The land route from Dacca to Calcutta were also opened during the months of November to June via Faridpur, Jassore, Barasat and Dum Dum.<sup>174</sup>

On the large rivers, the best that could be done was to build bridges of boats.<sup>175</sup> But these were operative only during summer.

Carts, carriages, Eka and tanga in Mughal India were pulled almost exclusively by bullocks, Chariot, even for princely conveyance were pulled by bullocks.<sup>176</sup>

In ship building during 17th century India was hardly influenced by European Technologies.<sup>177</sup> Indian Carpenter's techniques of riveting planks, water tank made of planks were considered to be more superior, sophisticated, and convenient than European practices of simple caulking and coopers' casks.<sup>178</sup> In smearing the planks, indigenous pitch or tin and lime was applied with double advantage of stopping up any seams and of preserving the timber. Pitch in the Eastern parts was made by mixing 2/3rd of dammer and 1/3rd of oil properly boiled together. Oil extracted from fish and probably mixed with other ingredients was also used in daubing the planks. Lime was applied at least once a year as protector for wood against sea worms. Iron anchors had been utilised by Indians in the 17th century. For the haulage of ships from water to land for the purpose of repairing, the crab and tackle

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174. Ibid, pp.192-93.

175. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol.17, No.1, (1980), p.13.

176. Ibid, p.11.

177. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol.V., No.1-2, (1978-79), p.168.

178. A.J.Qaiser, "Ship building in Mughal Empire during the 17th Century," IESHR, (1968), pp.150-154.

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were utilised.

From this selective description of Indian craft technology, as the volume of craft and non-agricultural production went, it is possible to regard India in the 16th and 17th centuries from any standard, as one of the advanced countries of the world. Money economy was functioning by any definition, accompanied by extensive employment in the craft sector, a large urban population probably about 15% of the total, and a considerable volume of manufactured goods produced for Foreign Markets. In technology, also, there were certain areas of exploration that were exploited by Indian craftsmen where contemporary Europe had only started.<sup>180</sup> When we set this incomplete catalogue of the success of the Indian craftsmen together with their failure to adopt significant Mechanical techniques, we observe a minute contradiction, also envisaged by contemporary European observers and travellers. They recognised both the crudeness of the Indian craftsmen's equipment as well as the excellence of their product, a clear triumph of human skill over material equipment acquired by persistent practice in the same craft of Bengal. Staforinus writes:

"Artifices confine themselves to one sort of work so that a goldsmith will not work in silver, nor a silversmith in gold. In the aurangs or looms, a weaver will only weave one single sort of stuff during the whole life, unless he be compelled to take another in hand!"<sup>181</sup> The division into specialized skills was

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179. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. V, No. 1-2, (1978-79), p. 167.  
 180. Irfan Habib, "The Technology and Economy of Mughal India," IESHR, Vol. 17, No. 1, (1980), p. 15.  
 181. John Splinty Stavorinus, Voyages to the East Indies, 1768-71. (London, 1798), p. 411.

greatly facilitated by the caste system. There is a fixed caste for every sort of work and "for every thing, which had done that work or that thing from father to son till now."<sup>182</sup> At the same time due to the barrier so raised between one craft and another, diffusion of techniques across the craft must have been correspondingly difficult. This negative aspect of skill specialization through caste i.e. a segregation of skills was stressed by Weber in analysing the low level of Indian craft technology. Morris has challenged this view<sup>183</sup> by arguing that no specific instance of the rejection of technology of this nature by Indian craftsmen based on the caste ritual or traditions have been recognised. No complaint of this nature had been heard of in the Mughal period. Thus Irfan Habib says: "It was not, therefore, any scarcity of skilled labour brought on by the caste system, but its very opposite, namely, its plenitude, that as we have seen, constantly inhibited attention to labour and skill saving devices"<sup>184</sup>. The non-application of important technological innovations in various proto-industries of Bengal hampered the transformation of proto-industrialization into capitalist industrialization proper.

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182. Baburnama, Tr. Beveridge, ii, p.520.

183. M.D.Morris, "Value as an obstacle to Economic growth in South Asia," JEH, Vol. XXVII, (December, 1969), pp. 588-607.

184. Irfan Habib, "Technology and Barriers to Social Change in Mughal India," IHR, Vol. 5, No. 1-2, (1980), p. 171.

CHAPTER - VIII

LIVING STANDARD OF THE RURAL CRAFTSMEN

The living standard of the proto-industrial producers especially weavers in 'Pull' and 'Pull Corridor areas' of rural Bengal during later half of the 17th and the first half of the 18th centuries was not bad on the whole because the Company's investment in these areas was exposed to the full competition of European and Asiatic rivals and private traders<sup>1</sup>. The living standard of weavers in 'Pull' and 'Pull Corridor areas' of rural Bengal during later half of the 18th century especially after 1778 had deteriorated considerably.<sup>2</sup> Other proto-industrial producers in 'pull' and 'pull corridor areas' of rural Bengal were not well off throughout the period under review.

The living standard of proto-industrial producers in 'neutral', 'Push' and 'Push Corridor areas' of rural Bengal throughout the period under review presents a different picture. The proto-industrial producers of these areas including weavers, spinners etc. faced hardships in arranging for their livelihood. To maintain their minimal subsistence, the proto-industrial producers of these areas in absence of appropriate transportation system through land, river and ocean depended largely on native merchant capitalists to sell their proto-industrial products who offered

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1. For details of this issue see, N.K.Sinha, History of Bengal 1757-1905, (University of Calcutta, 1967), p.113. Also see, N.S. Gupta, Industrial Structure of India during Medieval Period, (New Delhi, 1970), pp.118-119. For further details see Shiv Chandra Jha, Studies in the Development of Capitalism in India, (Calcutta, 1963), pp.36-44. Peggy Woodford, Rise of the Raj, (New Jersey, 1978), pp.52-55. Also see Letter from Mr. Francis to Lord North, (London, 1792-93), p.62, J.Kumar, Company India: A Comprehensive History of India, (1757-1858), (Patna, 1980), pp.235-240.

2. Important Cotton Textile manufacturing places like Dacca, Shantipore and other places realised this condition. See N.K.Sinha, History of Bengal, 1757-1905, p.113.

them minimum possible profits. In absence of any competition from merchant capitalists to purchase their proto-industrial products they had no option than to sale their finished goods to these merchants on merchant's terms and conditions.

The proto-industrial labour during 17th and 18th centuries in Bengal may broadly be categorised under four heads:

- (i) Master artisans
- (ii) Skilled Craftsmen
- (iii) Apprentices
- (iv) Unskilled labour or beginners.

The master artisans was a highly qualified and a matured person who had acquired a good deal of excellence and perfection in his craft and skill by undergoing a rigorous programme of training and apprenticeship.<sup>3</sup> Such master artisans had their own kārkhanas and maintained the system of production there by employing other artisans including skilled craftsmen, apprentices and unskilled labourers on the wage basis. The domestic industry system organized for the supply of distant markets. The Indian weavers, whether working on his own account or the money lenders, certainly utilised the labour of the members of his family.<sup>4</sup> In the imperial kārkhanas the master artisans functioned in two capacities: (i) they worked on the delicate and the finer article of higher artistic excellence; and (ii) they guided and supervised the work of skilled workers and apprentices. Their wages

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3. N.S.Gupta, Industrial Structure of India during Medieval Period, (N. Delhi, 1970), p.118.

4. See Shiv Chandra Jha, Studies in the Development of Capitalism, p.36. Also see M.P.Gandhi, The Indian Cotton Textile Industry: Its Past, Present and Future, (Calcutta, 1930), pp.20-23. M.P.Gandhi believes that wife managed the bullocks. The boys sometimes arranged the thread by means of wooden handles and thus helped the father in the process of weaving.

were three times higher than the ordinary labourers.<sup>5</sup>

The bulk of the finished goods were manufactured by the skilled craftsmen who formed the major part of industrial labour. As soon as they were promoted from the position of an apprentice to the status of skilled craftsmen, they were paid double the wages.

Poverty and indigence were the most innate characteristics of proto-industrial producers during the Mughal period.<sup>6</sup> It is unfortunate that on the very significant subject of the quantity of food consumed by the rural handicraftsmen especially the unskilled and the apprentices our contemporary authorities are not very helpful. We are slightly better placed with regard to the kinds of food which entered into popular diet. In Bengal, rice formed the staple diet of the masses. Food grains were supplemented pot-herbs. Fish was more popular in Bengal but, was not taken frequently or in large quantities especially by those who lived inland or far from rivers.<sup>7</sup> Palsaert asserts that workmen 'know little of the taste of meat! He further says, "for their monotonous daily food they have nothing but a little khichri made of green pulse mixed with rice eaten with butter in the evening, in the day time they munch a little parched pulse or

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5. N.S.Gupta, op.cit., p.119.

6. The Contemporary writers who believed that Mughal villages were generally poor and inequalities prevailed among different strata of village people are Babur, Abu'l Fazl, Salbank, Ralph Fitch, Palsaert, Terry, J.Xavier, Bernier, Tavernier, Moreland and more recently Satish Chandra and Irfan Habib are most important. See for details Irfan Habib, The Agrarian System of Mughal India, pp.90-92. Also see Satish Chandra, "Standard of Living: Mughal India," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol.1, C.1200-C.1750, p.459. These writers talk about the 'indigent's clothing, fooding and sheltering' etc.

7. Satish Chandra, "Standard of Living: Mughal India," loc.cit., p.462. Irfan Habib, Agrarian System of Mughal India, pp.91-92.

other grain (sattu).The output of ghi per capita, was higher in Mughal Bengal.

Sugar and other sweetmeats, dry and liquid, can be procured in abundance.Gur was commonly consumed in the villages. Since the price of salt in terms of wheat at the time of the Ā'in was double that in modern times, the amount of salt consumption per capita was at a much lower level. than now. It was exceptionally scarce and dear in Bengal and in parts of it and people were driven to use a bitter substance containing salt, extracted from the ashes of banana stalks. Spices such as cuminseed, coriander seed and ginger were probably within the peasant's reach but capsicums or chillies, cloves, cardamoms and pepper were too expensive.

During certain seasons the rural craftsmen were presumably able to enjoy fruits of the more common kind as well as those growing wild.

Tārī (toddy) and other intoxicating drinks distilled from plants such as mahu<sup>w</sup> and sugar-cane were also used. Tobacco smoking had already become a mass habit by the end of our period.

The clothing of the ordinary craftsmen in rural Bengal was characterised by its scantiness. "Though climatic factors and social traditions cannot be discounted, the quantity of clothing was an index of poverty since the upper classes could be distinguished by the type and quality of the clothes they wore."<sup>8</sup>

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8. Satish Chandra, "Standard of Living :Mughal India," loc.cit., p.460.

During latter Mughal period cotton cloths as well as other cloths were more expensive relative to wheat than at present.

Abū'l Fazl records that common people of Bengal 'for the most part went naked, wearing only a cloth (lungi) about the loins! In other words, just the shortest dhoti sufficed for men and a sārī for women. Moreland is of the opinion that women did not wear any blouses with their sārī and treats it as an illustration of the paucity of clothing. In the rural areas of eastern India till recent times, wearing of a blouse was not common.

The poor did not use shoes and generally went bare-foot. Moreland notices the use of shoes in Bengal on very small scale and thinks that this was due to the high cost of leather. Leather shoes were used by the richer section of the rural society. Women both rich and poor wore jewellery profusely.

The rural handicraftsmen in Bengal lived in the huts made by roping bamboos together upon a plinth of mud excavated at

9. Contemporary writer like Babur observes "Peasants and the lowly go about completely bare-footed. They tie on a thing called languta, a decency-clout which hangs two spans below the naval. From the tie of this pendent, another clout, beneath it, is passed between the thighs and made fast behind. Women also tie on a cloth (lung), one-half of which goes round the waist, the other is thrown over the head." See Baburnama, Tr. S. Beveridge, II, p. 519. Other writers like Salbank for Agra, Finch for Banaras, Pelsaert for Agra also held the similar views. Almost all of them talks about the little use of woollen cloths during winter. Finch while speaking of Banaras, adds that in winter, in lieu of wool "the men wear quilted gowns of cotton like to our mattraces and quilted caps." Salbank from Agra postulates ".....indeed woollen cloth is so rare a matter to be seen worn by the people of this country, by reason of the dearness of it and the cheapness of their own cotton" (Letter Recd VI, p. 200). Pelsaert speaks of the scantiness of the domestic possessions of cloth of the workmen of Agra.

10. Contemporary Hindi Potets, like Tulsidās and Sūrdās, however, mention panahi and upanaha being different types of shoes worn by the city and rural folk. See Satish Chandra, "Standard of Living: Mughal India." Ibid, p. 460.

the site. The indigent some times shared their rooms with their cow or goat. The better off among the rural craftsmen had a number of rooms, depending upon the size of their family, space for storing foodgrains and a walled courtyard. The rooms would not generally have any windows, the entrance sufficing for light and air. These houses had cots, chauki etc. on the name of furnitures.

Utensils made of bell-metal or copper were not used generally since these were expensive. Iron was used in the 'small iron hearths' upon which the common people 'baked' their bread. In some indigents families earthen pots were used even for cooking.

The standard of living of other proto-industrial producers like ordinary tailor, barber, metal worker especially lohar, carpenter, stone-cutter, oil pressure, sweetmeat seller, palanquin-bearer, painter, carpet maker, paper manufacturer, thatcher, leather workers, lace maker, fireworks maker, sword sharpner, seller of torches and leaves used as platters, boat manjees, women, coolies, bricklayers, peons, darwans, washerman, masalchis were not above the minimal subsistence during the late 17th and the first decade of the 18th centuries in 'Pull', 'pull corridor', 'neutral', 'push corridor' and 'push' areas of rural Bengal.<sup>11</sup> Most of these proto-industrial producers were bound to the dominant agricultural castes by traditional ties of the client patron relationship and collectively maintained like their fellow service caste groups. Hereditary fixed shares of the village produce, supplemented by grants of rent-free land or replace in some cases by cash payments.

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11. Tapan Raychaudhuri, "Non-agricultural Production: Mughal India," Tapan Raychaudhuri and Irfan Habib, (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (Delhi, 1982), p. 264. S. Bhattacharya talking of the wages of such labourers for the year 1739 also held the same view. See his, The East India Company and the Economy of Bengal from 1704 to 1740, (Calcutta, 1969), pp. 196-197.

constituted their main income. This is described as 'jajmānī system in modern anthropological writings on India. Jajmānī system' was the characteristic basis for rural manufacturing in eastern India.<sup>12</sup>

Another group of proto-industrial producers were a vast array of servants and slaves who lived at the margin of subsistence.<sup>13</sup> These servants and slaves were highly skilled because of two reasons: first, it was the tendency towards minute specialization built into India's socio-economic mores, through which these servants and slaves acquired specialization in certain trade; and the second, it was the Mughal nobility's evidently perfectionist taste for highly-skilled services, that created a fantastic range of skilled-service occupations.<sup>14</sup> Despite the availability of slaves in large number and an extensive trade in slavery, the bulk of such services was performed by 'free' labour in response to market demand. Their services were a contribution

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12. Tapan Raychaudhuri, "Non-agricultural Production: Mughal India," Ibid, p. 279.

13. Ibid, p. 304. Also see Tapan Raychaudhuri, "The State and the Economy: Mughal Empire," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, p. 180, Ibid, p. 181.

14. Such highly skilled servants and retainers were employed in the imperial stables, the haqās (who taught horses the elementary steps), the akhtachis (who looked after the harness), the mirdāh (an experienced groom placed over ten servants) etc. were important. In such servants and retainers were also included the weavers, jewellers etc. The servants of the stables were lived a bit above the subsistence level. "The driver of an ox-drawn carriage could draw as much as 12 dāms per day, besides an annual allowance if they also repaired the carts which worked out at about 6 dāms a day, not a subsistence wage when the price of foodgrains ranged from 6 to 12 dāms per man (56 lb). "These earnings stimulated the demand for proto-industrial products.

to the national product. Servants cost very little.<sup>15</sup> Slaves cost hardly anything more than their diet which for the most part was nothing but rice.

Among those who performed services at the humblest level were included the 'peons' needed to accompany carts to help, push or rescue these when necessary, palanquin bearers and armed guards, all available on hire. The ḥalākhōr ('the most objectionable and scandalous of all the inhabitants') to whom all food was permissible and ḥalāl, employed' in sweeping the streets, in carrying away the dirt and dung, in washing the dead bodies' and other similar jobs defiling to Hindus and Muslims alike<sup>16</sup> were another category of this group of proto-industrial producers whose standard of living was below the subsistence level.

The standard of living of skilled and master proto-industrial producers related to different trades was certainly better off compared to unskilled and apprentices. But on the whole, most of the skilled and master proto-industrial producers except the textile proto-industrial producers were not better placed. The root causes of 'indigence' among these proto-industrial producers were, firstly, through the economic and social exploitation of this class by the ruling classes and secondly, through indebtedness whereas in Europe the root cause of 'indigence' was the poverty

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15. Tapan Raychaudhuri estimated in 1620s the wages of servants on the west coast which was about 10 shillings a month in 'wages, victuals and clothing', see his "Non-agricultural Production: Mughal India, loc. cit., p. 304. Although the wages for the servants in eastern India is not available for our period.

16. Ibid., p. 305.

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via indebtedness.

The nobles in collaboration with different kinds of zamin-dars due to the instructions from the Mughal emperor as well as due to their personal interests contributed considerably to the promotion of commercial and industrial productions thereby maximising the total income of Mughal state, through establishing greater peace and security by a centralized empire, and thus created favourable conditions to the growth of money economy.<sup>18</sup> Although the autonomous chieftains had been free to maintain their internal affairs, yet they were instructed not to charge too many taxes from the merchants passing through their principalities.<sup>19</sup>

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17. For details of 'indigence' in Europe see Olwen H. Hufton, The Poor of 18th Century France, 1750-1789, (Oxford, 1974), p. 54. Also see H. Medick, "Proto-industrial Family Economy;" in Peter Kriedte, H. Medick and J. Schumbohm, Industrialization before industrialization, p. 64. G. H. Zinke views indigence as, "Despite hard work the means are often lacking for the necessities of life. There are never any savings and shortages exist everywhere. One can only earn one's barest necessities through the work of one's hand." For details of poverty in Europe during our period through contemporary eyes see Brian English, Poverty and the Industrial Revolution, (London, 1971), pp. 12-32. Also see Gertrude Himmelfarb, The Idea of Poverty: England in the Early Industrial Age, (London, 1984), pp. 25-325.

18. See Satish Chandra, "Some aspects of the growth of money economy in India during 17th Century," IESHR, Vol. iii, No. iii, (September, 1966), p. 326. For the role of zamindars see S. Nurul Hassan, "Three Studies of the Zamindari System," Medieval India: A Miscellany, Vol. 1, (Bombay, 1969), p. 233. Also see his, "The Position of the Zamindars in the Mughal Empire," IESHR, Vol. 1, No. IV (April-June, 1964), p. 3. For further details see his, "Zamindars under the Mughals," Robert Eric Foykenberg (ed.), Land Control and Social Structure in Indian History, (New Delhi, 1979), p. 23. For different kinds of zamin dars see B. R. Grover, "Nature of land rights in Mughal India," IESHR, Vol. 1, No. 1, (1963), p. 9. S. P. Gupta, "Ijara System in Eastern Rajasthan (C. 1650-1750)," Medieval India: A Miscellany, Vol. 2, (Bombay, 1972). B. R. Grover, "The Nature and the Evolution of Talluqdari System during the Mughal Age," IESHR, Vol. II, No. III, (July, 1966), p. 269.

19. Irfan Habib, Agrarian System of the Mughal India, p. 185.

It is obvious from a critical and minute analysis of the contemporary writings and travel accounts that the workers employed in the imperial kārkhānas for manufacturing luxury goods, arms etc. and acted as training grounds for skills which eventually could be placed at the disposal of nobles and feudatories were not well above the subsistence level.<sup>20</sup> The A'in demonstrates that the wages of skilled artisans working in the imperial kārkhānas were well above the subsistence level.

The imperial kārkhānas of Dacca, Sonārgaon, Junglebaree and Bajetpur were superintended by dāroghas appointed by the Mughal government who exercised uncontrolled authority over all persons employed in those kārkhānas.<sup>21</sup> The selective expert weavers in Bengal were invited to work here, with their names registered. They were compelled to work at the appointed hours continuously until the different tasks assigned to them were finished.<sup>22</sup> Inspectors were appointed to carefully investigate the thread that was brought to the looms and none was permitted to be used until it was compared with the standard thread and approved of. This eventually deterred the weavers while manufacturing the cloths. Guards were appointed to vigil over any weavers who displayed an unwillingness

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20. Tapan Raychaudhuri quotes Bernier to describe this tendency. Bernier describes their conditions in the royal kārkhānas as 'near-servitude! He (Bernier) wrote "The arts in the Indies would long ago have lost their beauty and delicacy, if the monarch and principal Omrahs did not keep in their pay a number of artists who work in their houses, teach the children and are stimulated to exertion by the hope of reward and the fear of the korrah!"

21. James Taylor, A Descriptive and Historical Account of the Cotton Manufacture of Dacca in Bengal, (John Mortimer, London, 1851), p.82.

22. Ibid, p.82.

to work and on their report corporeal punishment was inflicted on those weavers who were reportedly attempted to abscond.<sup>23</sup> Apart from this oppression, the weavers were defrauded of considerable portion of the wages allowed to them by the government. It is stated that during Sooraj-ud-Dowlah's times 25% was regularly deducted from their pay and retained as perquisite by the officers and the servants of Mulboos khās kutees.<sup>24</sup>

The manufacture of jāmdāni muslins was a monopoly in the hands of the government. These fabrics were manufactured exclusively by the weavers of the Dacca aurang. The weavers at Dacca were advanced for the manufacture of muslins by the dārogāh of the sudder mulboos khās kutee at Dacca. The rest were manufactured at the weavers houses. James Taylor further states that the weavers were forbidden under pecuniary and corporeal penalties to sell jāmdāni muslin to any person a piece exceed the value of 72 livers. Therefore, the European and native merchants were made purchases of this sorts through government brōkers.<sup>25</sup> These agents paid a considerable amount annually for the privilege they enjoyed and in return, they charged a percentage on all sales arranged by them. A tax called chappa jāmdāni was also imposed on the weavers of this sort of muslin and continued to be collected till the year 1792.

The mulboos khās investment formed a part of the naẓr which

23. Ibid, p.83.

24. Ibid, p.

25. Ibid, pp.83-84.

the Governor of Bengal presented annually to the emperor at Delhi. Murshid Kuli Khan (Governor of Bengal in the days of Aurangzeb) used to send 500 pieces of muslin and few other articles, cost in total £ 15,984 annually from Dacca to Aurangzeb as nazr the cost of which was beared by the muslin weavers.<sup>26</sup>

The nobility's involvment in commerce was of more dubious value. At one level, it helped in channelling part of the resources siphoned off agriculture and manufacture into the export-import trade and thus stimulated the production of export goods. Every section of the ruling class right from the royal family to petty shiqqdars (incharge of the smallest administrative units) participated in this activity.<sup>27</sup>

It is evident from contemporary documents and records that merchant's commercial intercourse into the Mughal territories was dependent on the discretion of the respective noble or jaqirdar and the Governor and rank and file of the Mughal administration implemented state policies only partially according to their own whims to personal pecuniary gains.<sup>28</sup> The absence of legal ban on private trade by the state officials in the 17th century led to an increase in the Mughal noble's administrative interference in trade and manufacture and this lacuna in state policy produced all kinds of irregularities.<sup>29</sup>

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26. Ibid, p.84.  
27. Tapan Raychaudhuri, "State and the Economy: The Mughal Empire," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (Delhi, 1982), p. 182.  
28. Ahmad Raja Khan, "Mughal Administration and Trade in Subah of Bihar," Proceedings of Indian History Congress, (Bombay Session, 1980), p. 2.  
29. Ibid, pp. 2-3.

This activity of the Mughal nobles had negative implications for trade and manufacture. The emperor and nobles usually used their authority to corner the market.<sup>30</sup> They imposed monopolies on certain branches of trade and manufacture.<sup>31</sup> The imposition of such monopolies were not only in the nature of additional taxation, but disrupted the normal flow of exchange activities. The official involvement in the internal trade was virtual extortion of organized commerce.<sup>32</sup> The royal monopoly over salt, formed out to traders was in effect a form of additional taxation. Sha'ista Khān turned monopoly into a source of private profit and extended the monopoly from time to time to other commodities like saltpetre, beeswax and even fodder. Prohibitory orders from state hardly bore any results.<sup>33</sup>

The forms of extortions of the rural proto-industrial

30. Tapan Raychaudhuri, "The State and the Economy: The Mughal Empire;" op.cit., p. 183.

31. For the Contemporary connotation of the term monopoly see Cotton Manuscript, British Museum (hereafter cited as BM), London, (available in National Archives of India) (hereafter cited as NAI). Here monopoly is regarded as, "A monopoly, an institution or an allowance by, the king by his grant commission or otherwise to any person or persons body's politik or corporate of or for those to buying, selling, maturing, working or offering anything whereby any person or persons body politik or corporate are sought to be restrained of any freedom or liberty that they had before or hindered in their lawful trade."

32. Tapan Raychaudhuri, loc.cit., p. 183. The most notorious example of this kind was the activities of the Sūbedār Shaista Khān and Prince Azimushshan in Bengal.

33. Ibid, p. 183.

producers including merchants ranged from straightforward plunder to ostensibly legitimate taxation. Presents for the officers and their minions-were demanded with persistent regularity-appear to be a part of normal expenses of trading and manufacturing life during Mughal period. Appeals for redress to higher authorities were worth little unless accompanied by presents. Instances of proto-industrial producers being thrown into prison for their inability or refusal to provide what was demanded were common enough. Sha'ista Khān raised the extortion of skilled proto-industrial producers indirectly to the level of highest watermark by devising the ingenious technique of forcing loans on merchants at 25% per annum and refunding the capital with interest at the full annual rate after six to eight months. Interest, therefore, went upto the 50%. The nobles forced the merchants to buy goods at 10 to 15% per 100% higher than the market rates was another favourite trick practised by them. Harsh exploitation of the proto-industrial producers as well as of the merchant class was done by nobles or emperor through establishing monopolies over particular commodities.<sup>34</sup> These were simply an indirect form of taxation, with the monopoly leased out to some speculator who passed on the cost of the lease to the proto-industrial producers and regular dealers as well besides charging monopoly prices. On every transaction involving the nobles or petty bureaucrats, some

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34. Ibid, p. 186. Such monopolies were introduced in indigo at Agra in 1630s and saltpetre in Gujrat in 1655.

bribe had to be given.<sup>35</sup>

Besides the various illegal exactions, the proto-industrial producers were heavily exploited by heavy and vexations inland tolls and custom duties charged by Mughal bureaucrats. Shihāb-ud-dīn Tālish, the historian of Aurangzeb's period noticed the ḥāsil or custom duty was collected from every trader from the rose-vendor down to the clay-vendor, from the weaver of fine lines to that of coarse cloth, besides zakāt or 1/40th of income charged on travellers, merchants and stable keepers.<sup>36</sup> The duties were undoubtedly heavy and were abolished and reduced from time to time but one does not know how efficiently. The Mirāt-i Ahmādī mentions that Aurangzeb had abolished all road tolls, tax on foodstuffs and beverages; but these abolitions were either very temporary or confined to certain regions or state of the empire. This is attested by Grant's reference to seven types of imports current in Bengal during the 18th century.<sup>37</sup> Perhaps the vexation and delay caused by the toll-posts were at least as great a hindrance to trade as the actual exaction. Tolls were also collected by local rāyas, rebels and bandits.<sup>38</sup>

On the whole, custom duties was not moderate, varying over-time from 2.5% to 5%, the European companies generally paying less. The actual amounts collected depended a good deal on the personality of the officials concerned, for in practice levying of additional taxes was within the Governor's powers.<sup>39</sup> The Hindu

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35. Ibid, p. 187. At Rajmahal, the Augustinian monk Manrique considered that he had done a great stroke of business in finding himself free from the 'multitude of clerks' who eventually cleared his dues and gave him a passport, without which it was impossible to leave that riverain port.

36. Ibid, p. 187.

37. Ibid, p.

38. Peter Mundy paid zakāt to bandits on several occasions.

39. Tapan Raychaudhuri quotes it from Dagh Register (38), (1640-41), p. 379.

traders paid duties at the rate of 5% while the muslims paid 2.5%. The duty of Muslim was abolished altogether by Aurangzeb. Manucci observed that the Hindu traders payment of personal tax every year in advance virtually ruined them to the great delight of Aurangzeb.<sup>40</sup>

Despite such numerous tolls and duties and high magnitude of appropriations, trade was highly profitable. The high profitability of trade in international markets during latter 17th century is explained by the nature of long-distance trade, which profited from the inaccessibility of the sources of supply and was concerned mainly with luxury and comfort goods. The profitability of long distance trade was high enough to absorb the cost of transport and official and non-official exactions of the ruling class. The international trade had become so profitable during the 17th century, that the institution of insurance (bīma) begins to be heard of. The first and perhaps the only reference to insurance (bīma) in the Persian sources was made by Sujān Rai which was a very late notice.<sup>41</sup> Marine insurance was a well developed and elaborate institution in the 17th century India widely practised on the Western Coast.<sup>42</sup> Marine insurance rate was higher than the inland insurance rate on account of high rate of piracy, damage through shipwreck, etc. on the high seas. Instances of goods insurance abroad as well as the whole

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40. Tapan Raychaudhuri, "The State and the Economy: The Mughal Empire," loc. cit., p. 188.

41. A. J. Qaiser, "Merchant shipping in India during the 17th Century," Medieval India: A Miscellany, Vol. II, (New Delhi, 1972), p. 208. Sujān Rai, writing in 1694 had expressed great surprise at this practice. He mentions bīma in the context of the activities of the sarrafs and the institution of hundī (bills of exchange).

42. Ibid, p.

ship insurance are available in the contemporary sources. The reference to bottomry and respondentia<sup>43</sup> is also available in the writings of contemporary European merchants and Company's servants. The profitability of foreign as well as long-distance trade and the maintenance of these insurance institutions were particularly the consequence of the ruthless exploitation of the proto-industrial producing classes. The intermediaries or the merchant capitalists were essentially buying extremely cheap from the proto-industrial producers and selling it very dear in the international markets. That was why the bulk of the proto-industrial producers earned little more than mere subsistence which must have helped sustain this high rate of profit.<sup>44</sup>

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43. The Oxford English Dictionary defines bottomry as 'a species of contract of the nature of mortgage where by the owner of the ship or the master as his agent, borrows money to enable him to carry on or complete a voyage, and pledges the ship as security for repayment of the money. If the ship is lost, the lender loses his money, but if it arrives safe, he received the principle together with interest or premium stipulated, "however it may exceed the usual or legal rate of interest!" Respondentia was essentially the same practice with the difference that the loan taken was not upon the ship but upon the goods abroad. Thus following points emerge with regard to bottomry and respondentia.

- (a) it was a loan upon the particular voyage of the ship or the goods abroad;
- (b) the rate of interest was exorbitantly high;
- (c) the loan did not involve any consideration of time;
- (d) if the ship was lost, the lender lost his money.

A late source (1704) has given varying rates of bottomry and respondentia, most probably at Madras. The following rates are quoted in 1704:-

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|---|---|
| (i) China - 20 to 25%                       | (vi) Pegu - 20 to 25%                     |
| (ii) China and Persia<br>- 40%(45% in 1703) | (vii) "Battavia" and<br>Surat - 35 to 40% |
| (iii) Bengal- 15 to 18%                     | (viii) "Manila"- 30 to 35%                |
| (iv) "A cheen"- 15 to 18%                   | (ix) Surat - 25 to (blank)                |
| (v) "Battavia"-20%.                         | (x) "Mocho"-30%                           |

Source: A.J. Qaiser, "Merchant Shipping in India during the 17th Century," Medieval India: A Miscellany, Vol. II, (New Delhi, 1972), pp. 211-213.

44. Tapan Raychaudhuri, "The State and the Economy: The Mughal Empire," op.cit., p. 188.

Various activities of the various merchant classes had negative as well as positive impact on the standard of living of the proto-industrial producers.

There were some Indian merchants who dominated the markets by acting as great financiers and public creditors, as state treasurers and sometimes, they even financed the 'investment' of the English East India Company.<sup>45</sup>

These merchants also controlled the wholesale market, both buying and selling of practically every commodity which changed hands at the port. They also directed foreign trade, coasting trade and controlled other centres of Commerce.<sup>46</sup>

Three other types of profitable activities linked bankers to the Mughal State. The major banking firms had most direct connection with the organised units of production and supply to the Court, karkhāna etc. Secondly, the major banking houses were

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45. B.B.Misra, The Indian middle classes and their growth in Modern Times, pp.22-23. Also see Karen Leonard, "The great firm theory of the Decline of the Mughal Empire," CSSH, Vol.21, (1979), pp.154-155. These 'great firms' was a business firm in a wide variety of enterprises, with several branches, often based on one household. These financiers made loans, received deposits and dealt in hundis for payment transmitted throughout the country. The bankers also played the role of state treasurers. Specific Banking houses were frequently appointed by a ruler to extend cash money and credit for the payment of salaries and other expenses on a regular basis. Thus, the delays and irregularities due to seasonally delivered land revenues could be frequently avoided. Jagat Seth of Bengal, Virji Vora of Surat, Malaya Chetti of South India and later Chinanna Chetti were important banking houses of this class of bankers. Hundis are written orders for payment of written amount of money.

46. B.B.Misra, loc.cit., p.24.

functioning as contractor for the construction of public edifices in the 16th and 17th centuries because it was an extremely profitable branch of capital investment business. And finally, the great banking firms were involved in dealing bullion exchange and jewellery.<sup>47</sup> These firms, therefore, dictated the prices of commodities manufactured in various proto-industries of Bengal in open wholesale markets on their terms and conditions. The ultimate loser were the proto-industrial producer who were offered the minimum possible profit or virtually the product's cost.

Finally, these banking houses were also involved in revenue collection. It were bankers who controlled access to the actual collection of land revenue, through provision of credit or cash. The amount of interest set and the securities demanded by bankers were more critical economic conditions than the revenue demand fixed by a territorial ruler. Bankers provided the funds and agents to collect the land revenue to gain their position as tax farmers.<sup>48</sup> In Bengal, it was Jagat Seth who presided over annual negotiations with leading zamīndārs, settled accounts, allocated fresh supplies of funds.<sup>49</sup> As tax farmers, these banking firms ruthlessly exploited the peasants as well as the proto-industrial producers of the areas concerned.

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47. Karen Leonard, loc.cit., p.157.

48. Ibid., p.156.

49. Ibid., p.158.

The second important branch of Merchant's engagements was the money changing. Mughal coinage was of the highest metallic purity and the minting was free i.e. it was open to any one to get his bullion converted into specie at nominal rate of change. The value of the coins, therefore, closely correspond to their weight in metal. Moreover, coins were also held to depreciate the value with age. The ṣarrāfs, the money changer, possessed a specialised skill for determining the alloy, weight and age of every coin.<sup>50</sup>

This element of merchant community obtained the newly coined money from the mint, introduced these coins into circulation through their transaction as money changers. In Northern India, the ṣarrāfs only dealt in the imperial currency. The Mughal currency was tri-metallic and the need often arose of changing the coins of one metal into those of another i.e. gold muhrs into rupees and rupees into dāms. Since the value of these coins in terms of each other fluctuated constantly in accordance with the changes in bullion prices and since the rupees were widely in circulation in commercial transactions, the ṣarrāfs were probably often called upon to change old rupees or those which had fallen below the standard weight into the new coins or rupees. ṣarrāfs

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50. Irfan Habib, "Banking in Mughal India," Tapan Raychaudhari (ed.), Contribution to Indian Economic History, (Calcutta, 1960), p. 3.

of the 17th Century also issued and discounted <sup>51</sup> hundis. Through money changing the banking houses and the ṣarrāfs were indirectly involved in the exploitation of proto-industrial producers. Money changing involved the charging of some commission which depended on place, market, party involved, metallic value and time. These commissions, ultimately, had to be charged by the proto-industrial producers, so that their commodities could be sold cheaper and immediately in the international markets. If the merchants purchased the commodities of Bengal's proto-industries dear, the total cost of the commodities including customs, other exactions, transportation charges, money changing commission etc. became much more dearer and, therefore, it lost its international markets.

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51. Ibid, pp.8-13. The rates of discount were often expressed in the form of ratios between the amount received by the ṣarrāfs at the one end and that repaid at the other. The discount covered the allowance of risk of non-payment, the charges of reverse remittance i.e. for remittance from the place on which it was drawn to the one where it was discounted, the interest on the amount of the hundis for the period allowed for repayment and finally, the charges of insurance on goods against which the hundis was drawn. From this it would appear that the hundis drawn in these transactions were generally known as "Jokhaini hundis, which contains certain conditions, in accordance with which if the goods are lost or destroyed in transit, the drawer or holder of the hundī, who buys it with full knowledge of the risk has to suffer the loss. For further details see, V.I. Pavlov, Historical Premises for India's Transition to Capitalism, (Moscow, 1978), p.88. During the age of later Mughals there were rich ṣarrāfs called Kathiawala in Murshidabad. Most of them were members of oswal caste from Western India who settled in Bengal. The close relations usually maintained within their caste helped the Marwari money lenders and bankers in Bengal to consolidate their position. Also see C.K.M. Walter, Gazetteers of Marwar, Mallarni and C., (Calcutta, 1877), p.24. Marwaris were originally the resident of Marwar, which in Akbar's time included the districts of Ajmer, Jodhpur, Sirohi, Nagaur, and Bikaner. They spread far and wide over the whole country into a number of sections called Oswal, Mahesri, Agarwal, Porwal, Srimal, Srisrimal, Vijayawargi, Saraogi and Khatri.

It is quite clear from a minute survey of the records of the trading companies that the level of prices in the Indian wholesale spot markets adjusted according to the normal interaction between supply and demand current at the time of transactions, according to the information available to the buyers and sellers and the merchant's experience of the past behaviour of the market. In our period the selling side of a particular Asian Commodity was not so concentrated that the suppliers could always dictate the prices at will. However, the main instruments for the stabilization of prices and the reduction and minimization of the risks associated with spot bargain in commodity markets were through advance contracting.<sup>52</sup>

The origin of advance system as it was practised in Mughal India can perhaps be traced to the ideas of Islamic jurisprudence. The law of sillim sales, for example derived its authority from Koran itself and signified a contract involving a prompt delivery. In the language of the law, it signified a contract for sale, causing an immediate payment of the price, and admitting a delay in the delivery of the wares. According to Hanifa a sillim sale was valid only if, among other conditions it specified the period of the delivery and the rate of the capital advanced. It is also specified in the Hedaya that 'articles be spoke from the manufacture, in a contract of sillim, are considered as entities.. and that a contract for workmanship is a sale and not merely a promise.<sup>53</sup>

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52. K.N. Chaudhuri, "Markets and the traders in India during the 17th and 18th Centuries," K.N. Chaudhuri and C.J. Dewey (eds.), Economy and Society: Essays in Indian Economic and Social History, (Oxford University Press, Delhi, 1979), p. 159.

53. K.N. Chaudhuri has taken this from Charles Hamilton, The Hedaya or Guide: A Commentary on the Mussulman Laws, (Second edition, London, 1870), pp. 299, 302, 308. See also Ibid, pp. 159-160.

Before the arrival of the European companies the Asian and the Portuguese merchants did not fix a definite price of the commodities at the time of advances and fixed the prices of the goods only at the time of its delivery; whereas the European companies introduced the fixing of the prices according to the samples at the time of dādnī.<sup>54</sup> In the former case, there was little prospect of exploitation of the weavers by merchants through fixing the prices of the commodity below its quality. Middle men like dālāls, pāikārs etc. were not involved and hence, no share by them in the labour of the weavers and the artisans. In the case of the later method the artisans were heavily and harshly exploited by both dālāls and pāikārs and the Company's merchants. Most of the parts of the investment and the procurement of the commodities for the long-distance trade in the later half of the 17th century were procured through advance contract.<sup>55</sup> This demonstrates the high magnitude of exploitation of the artisans through this method. Advance contract system was a major instrument in deteriorating the standard of living of proto-industrial producers in rural regions of Bengal.

The Company's servants procured native manufactures through

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54. Shushil Chaudhuri, "Textile Trade and Industry in Bengal Subah, 1650-1720" *IHR*, Vol. 1, No. 2, (Sept. 1974), p. 275. It can be argued that despite the increased demand for textiles and competition among buyers, both European and Asian, it seems that the weavers and artisans had hardly any bargaining power which remained mostly in the hands of these merchant middlemen.

55. Tapan Raychaudhuri, "Inland Trade," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 344.

native merchants by regular contracts. These were the dādnī merchants. The dādnī merchants were preferred because they lived in Calcutta for long under the protection of the English. They acted as brokers to East India Company in their dādnī business in the 17th as well as first half of the 18th centuries.<sup>57</sup>

The usual intermediary between the English and the petty proto-industrial producers were sent out into the districts round the factory to buy on the Company's behalf in the cheapest market, major emporia or the smaller urban markets.<sup>58</sup> He had to give a security and was rewarded by a brokerage of 3% on all transactions.<sup>59</sup> There was a second method to invite the merchants in the city to send samples and to purchase through them. But the system of sorting out them in vogue was bad as is evident from the frequent complaints.<sup>60</sup> Passes were provided to dādnī merchants in the name of English Company, so that the raw materials and commodities were freely transported to its destination without interruption.<sup>61</sup>

56. J. Talboys Wheeler, A History of the English Settlement in India, Early Records of British India, p. 224.

57. N. K. Sinha, The Economic History of Bengal from Plassey to the Permanent Settlement, Vol. I, p. 6.

58. Tapan Raychaudhuri, "Inland Trade," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. I, C. 1200-C. 1750, p. 344.

59. C. R. Wilson, The Early Annals of the English in Bengal, (Calcutta, 1895), p. 63.

60. Shafaat Ahmad Khan, The East India Trade in the 17th Century (In its Political and Economic Aspects), p. 155.

61. C. R. Wilson, op. cit., p. 63. Also see, Ian Bruce Watson, Foundation for Empire: English Private Trade in India, 1659-1760, (N. Delhi, 1980), p. 134. Control of the dastaks was in the hands of the Fort William Council, which could then exclude from this protection whomsoever it wished, or change exorbitant commissions when issuing the certificates to the private traders.

This heavy extortions by dalals, paikars, merchants and nobles impelled the artisans to compensate this through providing bad quality commodities, involving in illicit trade etc. The cheating by the weavers and other proto-industrial producers is evident from contemporary European records.

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The proto-industrial producers of the Mughal period were a little better placed compared to the proto-industrial producers

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62. Indrani Ray, "Of Trade and Traders in 17th Century India: An unpublished French Memoir by George Rooques," IHR, Vol. 9, Nos. 1-2, (July, 1982 to June, 1983), pp. 91-94. Mr Rooques was of the opinion that one can spin the grossest variety of cotton into fine and finest one by using the canji on thin and loosely woven cloths but the thick cotton would shrink during bleaching and would turn the cloth loose textured and reddish, while the fine cotton swelled, filled up the cloth and turned marvellous white. Those with experience could distinguish the pieces at sight because those made of fine cotton were seen white when they came out of the loom while the others are always reddish and can never be bleached well. He recognised three names for the cotton piece good: dorgagis, sanvagagis and bafetas. The dorgagis were  $\frac{1}{2}$  cobs in width, the sanvagagis  $\frac{1}{4}$  cobs and bafetas one full cobe, which consisted of 24 tassons; 42 of these make one ounce. These were made one or two tassous less in width and  $\frac{1}{2}$  a cobe or more less in length. Weaving 2 cobs less per piece, meant a loss of 10% for the buyer. A dorgagi of 9 visas would be middling fine because 9 visas consist of 1440 threads, one visa having 160 threads.

It was on the visas that the weavers applied their subtlest tricks for stealing cotton and giving the same width to the cloth. Four varieties were recognised by him:

- "(i) is bonafide which had equal gaps throughout. They rarely use this one;
- (ii) tends to cheat little; its gaps one wider in the middle, this will not take away more than 40 threads from the cloth meaning  $\frac{1}{4}$ th of a visa and as much as 5 pessos per piece from its estimated cost;
- (iii) the gaps of the third reed would have twice as much of the opening as the second which takes away  $\frac{1}{2}$  a vissa i.e. to say, 80 threads, as a result 10 pessos, and;
- (iv) takes away one full vissa and you can say 20 pessos."

of Nawab's and Company's periods. Commercial competition among the various Asian merchants which included Moorish, Armenian, Gujrati, Hindustani merchants etc.<sup>63</sup> and European merchants which included English,<sup>64</sup> Dutch and French merchants contributed considerably to their comparatively little more wages. The magnitude of English East India Company's exports, imports and profits can be guessed by the following data: the exports of the Company at the end of the 1674 and the beginning of the 1675 amounted to 430 thousand pounds. The return from this adventures amounted to atleast

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63. For the role of Moorish merchants in Bengal during 17th and 18th centuries see John Dunning Baron, East India Company: A Defence of the United Company of Merchants England Trading to the East Indies and their servants against complaints of the Dutch East India Company, (London, 1762), p. 39. For Armenian merchants in Bengal see Ashin Das Gupta, "Some Attitudes among 18th century Merchants." Bisheshwar Prasad (ed.), Ideas in History, (PPH, New Delhi, 1968), pp. 165-666. Armenians dominated the cosmopolitan town of Hughli in the first half of the 18th century.

64. For the merchants of the English Company see, Suresh Ghosh, The Social Condition of the British Community in Bengal, 1757-1800, (Leiden, 1970), pp. 9-11. The Directors of the Company themselves merchants, personally choose the suitable candidates. Stress was placed upon previous experience abroad preferably in Spain, Africa, Covant etc. Emphasis was also laid on good character, honesty and soberiety. Many of the early recruits were experienced merchants. It was laid down in 1674 that promotion should be by seniority. Also see William Foster, The East India House: Its History and Associations, (London, 1924), pp. 2, 30, 31. The East India Company owed its incorporation and its privileges to a royal character which prescribed its method of Government viz., a Governor and 24 Committees or Directors. Trading Capital was raised by subscriptions among the members of various "Voyages" or "Stocks" and shares in these could only be held by members of the Company. Much of the work was performed by committees themselves and the officers employed and at its inception were a secretary and a beadle. A book-keeper, a Solicitor, a Cashier, and a ship's husband were soon added.

860 thousands pounds and 'often times much more!' <sup>65</sup> But the main instruments for a little increase in the wages of the proto-industrial producers were the private merchants and <sup>66</sup>

65. A Treatise concerning the East India Trade: Being a most profitable trade to the kingdom and best secured and improved by a company and a joint stock company, (London, 1680), p.7.

66. Private trade is used as portmanteau term denoting all the commercial intercourse with India and within East Indies conducted for the benefit of the private merchants rather than the company, see, Ian Bruce Watson, op.cit., p.61. Under this trading system were included the Company's servants, commanders and seamen etc, see, Sir Evan Cotton, East Indiamen: The East India Company's Maritime Service, (London, 1949), pp.30-33. The real and substantial attractions of the service (commanders, seamen and even servants) lay elsewhere in the form of 'encouragements' and 'indulgences! The 'encouragements' were detailed in a printed form, hung up in each ship. Those who appeared after the union of the two companies in 1709 a reward was promised 'to proportion to their merits' to all seamen. The opportunities offered by the 'indulgences' of private trade were, great that an officer must be unlucky indeed if he did not amass a comfortable competence. Also see Bal Krishan, Commercial Relations Between India and England, (London, 1924), pp.77, 78, 79 etc. Company allowed their servants and the officers of their ships to their own account in a few unimportant articles of export and import. Following list of goods allowed to be exported and imported by private merchants in 1631: perpetuana's and drapery, pewter, woolen stockings and garters, ribb and roses edge with gold lace, beaver hats with gold and silver bands, felt hats etc. The goods allowed to be imported from India: Long pepper, white pepper, white powder sugar, nutmegs, bezor stones, drugs of all sorts, agate beads, blood stones, musk, aloes, socotrina, carpets, quilts of sattin, etc. But the Company's servants were not satisfied with this indulgences and frequent complaints were recorded by the correspondence of the Company on the violation of their monopoly. In 1650 the export of broad cloth, lead, quick silver, vermillion, coral, elephant's teeth etc. were prohibited on private accounts. Also see, E.B. Sainsbury and W. Foster (eds.), Court Minutes: 1640-164, pp. 202, 212, 213, 217 etc. Court Minutes, 1644-49, pp.139, 239, 243, 262, 273 etc. Court Minutes, 1650-1654, pp, 61, 69, 73, 86, iii etc. In 1658 the Company granted its indulgence to the master and men of the "Smyria Merchant" for ten tons of private goods on the outward voyage and 20 tons for the return voyage, providing no prohibited goods were carried, see also, Court Minutes, 1660-1663, pp.173-174, Court Minutes, 1664-1667, pp. 18-19. By the beginning of the 18th century the rights to private trade for seafarers had been institutionalised. Occasionally, regulations were implemented to restrict the seafarers and Englishmens collaboration for fetching high profits. Actions were also taken to prevent "deviation" of shipping which caused increased demurrage charges for the company and against the carriage of unlicensed commodities.

interlopers.<sup>67</sup>

It was the Mughal monetary system in the later 17th Century that adversely affected the standard of living of the proto-industrial producers. The mints worked on the basis of 'free' coinage (i.e. it was open to any one to take bullion to the mint and get it converted into coin upon a separate payment made to cover minting costs and seigniorage). The minting costs and seigniorage amounted to about 5.6% of the value of the coins minted. When the treasury issued coins in payments, it recovered these charges through a deduction of 5%, known as do-dāmī (amounting to 5.3% of the net payment). Theoretically, the value of a coin should have equalled its weight in bullion plus the minting charges and seigniorage. In actuality, the newly minted coin usually carried a higher value, because of the time it took to get bullion converted into specie in the mints.<sup>68</sup> The older Mughal coins (chalanī) had to suffer a discount. The khazanā coins minted in the previous reign were accepted at a still larger discount. If the bullions were changed into coins, the money changer (ṣarrāf) charged his commission. These discounts and commissions were, in

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67. Interlopers were the another important group of English private merchants, little more than pirates. The interlopers and their supporters in England vehemently criticised the Company's monopoly. See, Harihar Das, The Norris Embassy to Aurangzeb, (1699-1702), (Calcutta, 1959), p.62. Interlopers were becoming so troublesome, that in 1684 the Directors at home reiterated their orders to the Government of Bengal, to secure some place of safety (for which the sum of Rs.30,000 was authorised). See Colonel S. Rivett-Carnac, The Presidential Armies of India, (London, 1890), p.63.

68. Irfan Habib, "The Monetary System and Prices," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C.1200-1750, p.361.

actual fact, charged from the proto-industrial producers while exchanging these coins for the products of the proto-industries. Therefore, the merchants were doubly profited, through purchasing very cheap and selling comparatively very dear. The ultimate loser were the proto-industrial producers.

Moreland's views that commodity prices in India remained largely stable down to the 1660s with exception in the relative prices of copper and silver <sup>69</sup> have been challenged by more recent research. K.N. Chaudhuri maintains that the quantities of silver imported from Spanish American mines determines the circulation of silver coins in India during 16th, 17th and first half of the 18th Centuries. <sup>70</sup> But the more recent studies have analysed this

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69. Tapan Raychaudhuri has taken it in his "Inland Trade," *op. cit.*, p. 335. He (Tapan) used the arguments of Moreland where (Moreland) opined that copper becoming expensive over time. The import of silver into Bengal increased during the period under review, silver prices fell pushing up the general price-level in terms of the silver-based currency.

70. See K.N. Chaudhuri, "The East India Company and the export of Treasure in the Early 17th Century," *EHR*, Second Series, Vol. 16, No. 1, (1963-64), p. 38. Also see his, "Treasure and Trade Balances: The East India Company's Export Trade, 1660-1720" *EHR*, Second Series, Vol. XXI, No. 3, (Dec, 1968), pp. 482-487. He also holds the similar view in his "Foreign Trade: European Trade with India," Tapan Raychaudhuri and Irfan Habib (eds.), *The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750*, pp. 395-397. According to him treasure formed the largest proportion of the total value of the Company's exports to the Indies. Between 1600 and 1640 the total value of the exports in any single year seldom exceeded £ 100,000 the two exceptions being 1623 and 1625. But this volume increased to £ 2600,000 in the 1680's. Also see Aziza Hasan's "Mints of the Mughal Empire: A Study in Comparative Output," *PIHC*, Patiala Session (1967, Pt. 1, Patna, 1968), pp. 328-330. Also see his "The Silver currency output of the Mughal Empire and prices in India during the 16th and 17th centuries," *IESHR*, Vol. VI, No. 1, (1969), pp. 85-116. For further details see his reply to a critique of his article in *IESHR*, Vol. VII (1970).

developments antithetically and emphasised that it was the "broad based, varied and massive demand for the instruments of monetization, together with simultaneous long-term developments in production and supply of monetary media" that was the pre-condition for flows of American silver and for Euro-Asian trade.<sup>71</sup>

The records and evidence studied suggests some broad secular trends in the general movement of prices. One spurt rise appears to have come between 1610 and the mid 1630s, with the price level rising by 1½ (1.5) and 2 times of what it was in 1595. The early 1660s registered another spurt after a slight decline. Gold and copper prices climbed to very high levels. The scale of the rise in the price level was reflected only partially in copper, whose silver price increased by about 40% during the entire 50 years. This spurts in movement of prices definitely affected the wages of the proto-industrial producer. Here again, it were the proto-industrial manufacturing employers in Europe who gained extra profits from the continuous fall in real wages which is evident from Hamilton's data which shows that in 16th and 17th centuries prices rise was much faster than wages. The information on wages in India during 17th century has not so far been gathered in any profusion, it, therefore, would difficult to make any quantitative research on these lines.<sup>72</sup>

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71. Frank Perlin, "Monetary Revolution and Societal change in the late Medieval and Early Modern Times - A Review Article," The Journal of Asian Studies, Vol. XLV, No. 5, (Nov, 1986), pp. 1041-1046. Also see Tapan Raychaudhuri, "Inland Trade," loc. cit., p. 337.

72. Irfan Habib, "The Monetary System and Prices," Tapan Raychaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, p. 378.

Even if we concede only that wages lagged behind prices in the short run, we must assume that an extra gain occurred to employers. This source of yielding income became a significant source of capital only if wage earners were, in relatively large numbers, employed by merchants or manufactures irrespective of whether they organized production in kārkhanas which was rare or advanced dadān which was common. The merchants and companies might, therefore, be said to have benefited from depression of the real wages in the 17th century India, through reducing the production costs by organized procurement with their limited control over the production process that least affected or uneffected their investments. This, in turn, encouraged a high volume of trading due to the inducement of increased individual transactions.<sup>73</sup>

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The plebeian culture of the proto-industrial producers during later 17th and early 18th centuries was manifested in common practice of the manners and customs of the proto-industrial producers and it influenced their consumption patterns, through consumption of superfluous 'luxuries' and delicacies, jewellery, fashion, clothing etc. Plebeian culture also rooted in

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73. John S. Deyell and R. E. Frykenberg, "Sovereignty and the "Sikka" under Company Raj: Minting pre-rogative and general legitimacy in India," IESHR, Vol. XIX, No. 1, (Jan, March, 1982), p. 7.

74. Plebeian culture of the proto-industrial producers in Europe is an important area in socio-economic history of 17th and 18th century recently developed by Economic and Social historians. Most important among those is E. P. Thompson who had done some commendable works on this issue. See specially his, "Eighteenth-Century English Society: Class struggle without class" Social History, Vol. 3 (1978), pp. 134-159 and "Patrician Society, Plebeian Culture," Journal of Social History.

the solidarity of proto-industrial producers, disaffection and forms of protest that include food rioting, political protest, demonstrations, etc.<sup>75</sup> E.P. Thompson holds that in Patrician society, Plebeian culture is associated with the actual erosion of paternalist forms of control through the expansion of 'free' masterless labour. But it does not present any crisis to the old order. Vertical consciousness was well envisaged among the plebs, but this vertical consciousness did not bind them with adamantine chains of consensus to that society's rulers.<sup>76</sup> Plebeian culture, therefore, cannot be viewed as revolutionary one nor even as proto-revolutionary one, nor as differential culture either, nor as conservative one. It is a conservative and irrational culture in its forms. It bred riots but not rebellions: direct actions but not democratic organization.<sup>77</sup>

In the Mughal India the plebeian culture of the proto-industrial producers were manifested in different types of protest actions. The forms and contents of the plebeian culture of the Mughal proto-industrial producers in Bengal against the extreme exploitation by the Mughal nobles, monopoly, engrossing etc. were demonstrated through flight, demonstrations, hartals, leaving the

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75. For solidarity among the proto-industrial producers see A.J. Fletcher and J. Stevenson, "Introduction," A.J. Fletcher and J. Stevenson (eds.), Order and disorder in Early Modern England, (Cambridge University Press, Cambridge, 1985), pp. 9-10. For Food rioting and the participation of women into it, see John Bohstedt, "Gender, Household and Community Politics: Women in English Riots 1790-1810," Past and Present, No. 120, (August, 1988), pp. 88-108. For disaffection, see Nicholas Roger, "Popular protest in Early Hanoverian England" Paul Slack (ed.), Rebellion, Popular Protests and the Social Order in Early Modern England, (Cambridge University Press, Cambridge, 1984), pp. 278-280.

76. E.P. Thompson, "Eighteenth-Century English Society: Class Struggle without Class?" Social History, Vol. 3, (1978), p. 144.

77. Ibid, pp. 134-159. Also see his "Patrician Society, Plebeian Culture," Journal of Social History, Vol. VII, No. 4, (Summer, 1974), p. 397.

towns etc. They also organised mass petitions to the Central government against the oppressive attitude of the State functionaries.<sup>78</sup> Food rioting, and any other forms of protests had not been observed in Mughal India. Mughal proto-industrial producer's women perhaps had played no role in food rioting unlike their European counter-parts.<sup>79</sup>

Irregularity of labour formed a most important feature of the plebeian culture of Mughal proto-industrial producers. 'Leisure preference' was the major cause of irregularity of labour. Festivities not only served the purpose of shared pleasure but also affirmed the solidarity and social cohesion among the Mughal proto-industrial producers.

BENGAL NAWABS

It were the brokers including dādnī merchants, dalals and pāikārs<sup>80</sup> whose exploitation of the rural proto-industrial producers

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78. Irfan Habib, "Forms of Class Struggle in Mughal India," Cyclo-styled.

79. John Bohstedt, "Gener, Household and Community Politics: Women in English Riots, 1790-1810," Past and Present, No. 120, (August, 1988), pp. 88-108.

80. Pāikārs (spelled pykars in company records) were a group of intermediaries who contracted to supply goods on the basis of advances made to them. They were engaged in the supply of cotton piece-goods, went on foot into the interior and collected the finished goods from individual proto-industrial producers. Ram Gupta was such a pāikār at Dacca. Dālāls were different types of middlemen. They charged commissions as gumāshtās, but in their business transactions they were seldom responsible for the payment of the goods sold or bought by them. Besides they were not stockists.

knew no bounds during the nawāb's period. Penalties were imposed upon these merchants in case of the failure of respecting the contracts.<sup>81</sup> At a time of such economic instability, merchants found it difficult to operate the system of advance orders on accounts of difficulties in procuring capital. Consequently, in 1741, the system of buying through brokers had been stopped by the Company although the dādñī system continued till 1753, when the Company abolished the dādñī system of investment through native merchants.<sup>82</sup> The reason for the change lies in the frequent failures of the merchants to supply the contracted goods in a given time, and in their demands for dādñī at the rate of 85% of

81. K.K. Datta (ed.), Fort William-India House Correspondence, Vol. I, 1748-1756, (Delhi, 1958), P. XL. Even then, there were many cases of not fulfilling the contracts and dādñī merchants asked for bigger advances. Large money advance and ready money payment did not solve the problems of the dādñī merchants as well as the weavers involved. For the cases of the failure of brokerage system and its continuation see, HMR, Vol. 10, Copies of general letters from Bengal to Court of Directors and letters from the other persons, 25th Jan. 1737-13, Dec. 1742, Bengal General dated 29th Jan. 1738. There were other kinds of complaints mentioned in the HMR, Vol. III, Pt. II, copies of general letters from Bengal to Court of Directors and letters from other persons, 17th Nov, 1731 to 9th Feb, 1733, Fort-William General dated 26th June, 1732 which contains that dādñī merchants carried the goods to their own houses.

82. Hameeda Hossain, The Company Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal, 1750-1831, (Oxford University Press, 1988), p. 3. For the abolishment of dādñī system see, J. Tolboys Wheeler, A History of the English Settlement in India: Early Records of British India, p. 255.

the prices of goods.<sup>83</sup> Now the investment was made through gumāshtās and weavers were directly connected with the business of the Company and her servants.

It, therefore, became necessary for the gumāshtās to go in the districts, villages and factories and bought goods for the Company. The servants of the Company employed gumāshtās in like manner to carry on the inland trade. The gumāshtās entrusted with the English Flag and Company's dastak, they bought and sold duty free.<sup>84</sup> The gumāshtās of the Company, her servants and the Europeans dealt in salt, betel and tobacco since 1753.<sup>85</sup> The Company's servants had their private trade on their own account, conveyed goods from one part of Bengal to another and claimed exemption from duties for this private inland trade.<sup>86</sup>

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83. K.K.Datta, Alivardi and His Times, (Calcutta, 1963), p.156. Also see Bengal General dated 29th Jan, 1736, quoted in MR, Vol.IV. Pt.I, Copies of General letters from Bengal to Court of Directors and letters from other persons, 31st July, 1734-15th Jan, 1738. According to this document before 1736 70% dadni had been advanced, which decreased to 60%, in some cases 50% and on others even to 30% during 1730s. Also see Letter of Court of Directors, dated 31st January, 1755. Quoted by K.K.Datta in his, Alivardi and His Times. (Calcutta, 1963), p.156. Consequently, the Court of Directors suggested to form a supervisory committee to look after investments in different factories and aurangs. Accordingly, a committee consisting of four members, Mr. Roger Drake, the President of the Council in Calcutta, Mr. Charles Manningham, Mr. Richard Becker and Mr. William Frankland was formed. Encouraged by the favourable attitude of the Court of Directors, the council at Calcutta decided unanimously on the 10th March, 1755, that the method of making purchases directly at the aurangs should be continued.

84. J.Tolboys Wheeler, loc.cit., pp.300-301.

85. Letter of the Governor to Saiful-Mulk dated Oct. 11, 1767. See Calendar of Persian Correspondence, Vol. II, 1767-69, (Calcutta, 1914), p.159.

86. Ramesh Dutt, Economic History of India, Early British Rule, (London, 1906), pp. 18-19.

This new method, though successful for sometime, did not produce satisfactory results. It vested the gumāshtās and the agents of the company with powers "which were frequently abused" as Verelst justly pointed out, "to their own emolument and an authority given to enforce a just performance of engagements, became notwithstanding the utmost vigilance of the higher servants a source of new oppression."<sup>87</sup>

The Company in collaboration with her servants exploited the proto-industrial producers harshly through the method of examining the goodness and quality of the cloths. Merchants and proto-industrial producers often complained the strictness followed by the warehouse keepers in sorting out the commodities.<sup>88</sup> Commodities were prized previously according to the quality of the middle piece whereas during 1750s the sorters (i.e. warehouse keepers and their assistants) distinguished those three pieces as their different letters which occasioned the loss. Therefore, orders were placed to sort every letter in three different parcels and later put them together for one prizing thereby preventing the lower letters being run into the higher. Accordingly, there was a loss from 20 to 25% in sorting the gurrahs and soot rumāls for which reason they wrote to the dālāls to whom they advanced dādñī to deduct the like amount out of the cloth.<sup>89</sup>

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87. Verelst, A View of the Rise, Progress and Present State of the English Government in Bengal, p.85. C.J. Hamilton quoted this in his, Trade Relations between England and India, (1600-1896). (Delhi, 1975), p.125. D.B. Mitra has also quoted this in his, The Cotton Weavers of Bengal: 1757-1833, p.47.

88. 2nd Jan, 1751-52, General Letter from Bengal by the Ship Kent No.2. Received from London, 12th June, 1752, HMR, S.No.17, Copies of General letters from Bengal to Court of Directors and letters from other persons, 1752-53.

89. Ibid, For the method of sorting out the cloths see Public proceedings Fort-William the 17th Dec, 1752, copy of letter from C. Manningham export method of sorting the cloth, Ibid,

From contemporary records it appear that since the people of the region lost the protection of their native prince, the proto-industrial producers were frequently exploited by lawless dominion of adventurers of the lowest order.<sup>90</sup> The merchant adventurers greatly increased in number traded to India, under licences or commissions from Cromwell and their increased operation in the different regions of rural Bengal reduced the wage rate of the proto-industrial producers. Indian goods had little demands in English markets. These disconnected interlopers or private merchants had brought home great quantities of Indian commodities, of inferior quality, particularly cottons, drugs and spices thereby increasing the smuggling trade in these articles.<sup>91</sup>

The Qasimbāzār Factory records show the monthly rates of wages for building workers and other proto-industrial producers in the year 1739 as detailed below:

Bricklayers	-	Rs. 3-0-0
Carpenters	-	Rs. 2-15-0
Women	-	Rs. 1-0-0
Coolies	-	Rs. 2-0-0
Boat Manjees	-	Rs. 3-0-0
Peons	-	Rs. 2-8-0
Darwan	-	Rs. 2-8-0
Washeman	-	Rs. 10-0-0
Barber	-	Rs. 3-0-0
Masalchis	-	Rs. 2-0-0

Source: S. Bhattacharya: The East India Company and the Economy of Bengal from 1704 to 1740, (Calcutta, 1969), pp. 196-197.

90. Letters from Mr. Francis to Lord North, (London, 1792-93), p. 64.

91. Charles Maclean, A View of the Consequences of laying open the trade to India and C., (London, 1813), pp. 61-62. Also see letter from Mr. Francis to Lord North, (London, 1792-93), p. 64. For smuggling trade in such articles see, Letter to the Right Honourable Henry Dundas, one of his Majesty's Principal Secretaries of State and C. From the Committee of buyers of East India Piece goods for Home Consumption, (London, 1792-93), pp. 5-12.

The pitiable economic condition of Bengal's proto-industrial producers was further aggravated by drain of wealth transferred from India especially from Bengal to England by East India Company and her servants. The high magnitude of the drain of wealth from India can be displayed by the following data: "The average annual value of the British merchandise export to India was no more than £ 15,000 between 1600-1620, whereas the average value of the export trade was £ 113,000 between 1721 and 1725 and £ 154,000 between 1731 and 1735. Import from India which was £ 551,000 in value in 1700 shot up to £ 742,000 in 1716 and £ 996,000 during the 1730s"<sup>92</sup> Contemporary writers recognised that after 1730s the balance of trade turned against India because the English as well as the other European nations purchased Indian commodities out of the revenues and circulating cash of the country.<sup>93</sup> This drain of wealth was in reality, a heavy burden for the maintenance of a balanced standard of living of the proto-industrial producers of Bengal.

Yet the proto-industrial producers of the nawab's period were more prone towards freedom of movement, freedom of professional mobility etc. and their overall standard of living was a bit higher compared to the standard of living of the proto-industrial producers of the Company's period. Few or virtually no original reports and surveys are available on the subject

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92. Sourindranath Roy, "British Connection with India as a factor in pre-industrial capital accumulation in England, India, Past and Present, Vol. 1, No. 1, (1984), p. 72.

93. General Remarks on the System of Government in India, (London, 1769), pp. 82-83.

of caste, division of labour based on gender, age and caste etc. in India.<sup>94</sup> But the recent research monographs associated with the subjects of caste and division of labour based on gender and age of other proto-industrial producers of Bengal are lacking.

According to the social grading and occupational categorization of Bengali castes ascribed to Raja Ballal Sen in the 12th Century, weavers fell in a low category of nine castes known as nābasūdras. They were graded into two major castes, the higher status tāntīs and the jugis. The Dacca tāntīs were divided into two sub-groups: the borobhagiya, who assumed the title of basak given to cloth merchants, and chotobhogiyas who were originally kāyasthas expelled from their caste for changing their occupation. There were three main tāntī sub-group in West Bengal: the aswini who wove both cotton and silk, the mariyal, who wove only silk and uttarkhal who wove only cotton. Other sub-caste differentiation was traceable to occupational differences: thus the halua jugis gave up weaving for agriculture and the rangrez jugis took to dyeing thread.<sup>95</sup>

The geographical mobility of the weaving castes was partly seasonal, conforming to the demand for their work. Dhūnerās migrated from Bihar to East Bengal at the time of the cotton harvest. Some castes moved over a period of time to settle down

94. H.H. Risley, The Tribes and Castes of Bengal, (Calcutta, 1892), Vols. I and II have been consulted. James Wise, Notes on Races, Caste and Trades of East Bengal, (London, 1883). These works have been consulted by Hameeda Hossain. See her, The Company Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal, 1750-1813, (Delhi, 1988), p. 47.

95. Hameeda Hossain, The Company Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal: 1750-1813, pp. 48-49.

permanently in districts where demand exceeded supply. The Dacca tāntīs, according to Wise, were supposed to have migrated from Māldā in the 17th Century, while the trihutia and mungirya tāntīs were of Biharī descent.<sup>96</sup>

The Plebeian culture of the proto-industrial producers during these periods followed those modes of protest employed by Mughal proto-industrial producers. Apart from these the proto-industrial producers during the first half of the 18th century adopted varying forms of resistance directed not only against circumventing the authoritarianism of the Company's official agents but also the system of appropriation.

Though different forms of resistance were adopted, yet there was minimal possibility of the proto-industrial producers of one trade being able to organize a collective response.<sup>97</sup> A large number of the proto-industrial producers ostensibly accepted the system imposed on them, while surreptitiously, they continued to work for other customers. Some of them sought to escape the system by migrating from their villages and aurangs or deserting their occupations. More positive forms of protest were also utilised: a slowing down of production or refusal to accept advances in the face of forced and uneconomic appropriation was the initial response.

The proto-industrial producers of these periods had a high preference for leisure against work. These proto-industrial producers protested against the new work culture introduced by the European East India Companies. The European proto-industrial producers had a high preference for leisure against work and demanded customary annual and weekly pattern of work and leisure.<sup>98</sup>

96. Ibid., p.49.

97. Ibid., p.124.

98. Hugh Cunningham, Leisure in the Industrial Revolution, C.1780-1880, (London, 1980), pp.57-58.

The European proto-industrial producers protested against any danger to their plebeian culture through demonstrations, shouting, cheering, cat-calling intimidation and violence. Falling in this effort labourers followed machine breaking.<sup>99</sup> In the context of Bengal during this period machine breaking and machine wrecking was an impossibility because of the non-development of machines in various trades of Bengal.

#### COMPANY PERIOD

From the 1730s onwards, Bengal was frequently subjected to war, violence, and social unrest caused by raids and wars carried on in the western region by the Marāthās; incursions by the Maghs in the East; wars amongst the European companies and conflicts between the nawābs and the Company. At the economic level, serious disruption was made by a succession of crop failures and scarcity which led to famine conditions after 1770.

The decline of Mughal political power decentralized Mughal

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99. E.J. Hobsbawm, Labouring Men: Studies in the History of Labour, (London, 1964), p. 10. It is noted that in Nottinghamshire, Leicestershire, Derbyshire etc., Ludites were using attacks on machinery whether new or old. There were two concrete reasons for machine breaking. The first type implied no special hostility to machines as such but under certain conditions, a normal means of pressuring employers or putters out to providing them concessions with regard to wages and other matters, a traditional and established part of industrial conflict in the period of high proto-industrialization. It was not only directed against machines, but also against raw materials, finished goods, or even the private property of employers depending upon what sort of damage these were most sensitive to. Machine wrecking not concerned with technical progress only, but also with the maintenance of customary standard of living which included non-monetary factors such as freedom, dignity and wages.

administration which was sharpened by the Marāthā invasions in the 18th century especially between 1738 and 1750. The Marāthā raids of these periods destabilized rural society and disrupted Bengal's economy by attacking important centres of administration and trade, as well as villages in the interior in Murshidābād, Nadia, Bīrbhūm, Bānkurā, Midnapur, Rajshāhī, Bardwān etc.<sup>100</sup> Cargo boats were plundered, trade and production disrupted that led to a scarcity of grain, shortage of labour and rapidly increasing costs.<sup>101</sup> The nawābs efforts to retaliate against the Marāthas had disastrous financial consequences straining the resources of the state, zamīndārs and bankers.

The merchant community became the main target of Marāthā raids both directly and indirectly. Threats of attack on the ships of the merchants in the Bay of Bengal made them reluctant to carry on trade.<sup>102</sup> The Company's trade was not safe from the Marāthā scourage as is evident from the letters of factory chiefs.<sup>103</sup>

100. Hameeda Hussain, The Company Weavers of Bengal: The East India Company and the Organization of Textile Production in Bengal, 1750-1813, p. 1.

101. K.K. Datta (ed.), Fort-William-India House Correspondence, 1748-56, Vol. 1, (New Delhi, 1950), pp. II-III. Also see his Alivardi and His Times, p. 67.

102. K.K. Datta, Survey of India's Social Life, (Calcutta, 1961), p. 172. This is evident from following example: "In 1742, from the house of Jagat Seth in Murshidabad, which had financed rulers, companies and merchants, 2 crore Arcot rupees (legal currency) were plundered. In 1748, the Patna sarrāfs send their money to north India due to the fear of Alivardi's financial demands. Therefore, it were the Maratha raids and Alivardi's financial demands that lightened the money market. Also see Hameeda Hussain, loc. cit., p. 2.

103. In 1792, the Dutch factories at Kowgrama (in Murshidābād) and Nowgram (in Bardwan) were plundered and burnt. In 1743, the Court of Directors were ascribed that investment was short and the cloth were of poor quality. Between 1747 and 1751, commercial Residents reporting from Dacca, Balasore, Qasimbazar and Murshidabad expressed their fears. See J.N. Sarkar, "Maratha Invasion of Bengal, Bihar and Orissa," JIH, (1926), pp. 85-90.

Letters to the Court of Directors mentioned one t n after another from where the proto-industrial producers ran away, commodities could not be procured due to the Marāthā presence. The proto-industrial producers that included weavers, washerman, spinners and other proto-industrial producers from Bardwān, Nadia, Murshidābād, Qassimbazar, etc. had deserted the aurangs and left the Company's cloths and goods in an unfinished state.

These factors contributed to an escalation of prices: in 1753 it was noted that the cost of cotton rose upto Rs. 22 or 23 per maund; rice and grain too demonstrated a rising trend. The price of rice had risen by three or four times. Marāthā incursions into the Nawab's territory were occured in 1753, 1760.

Since the Marāthā raids into the countryside started after every monsoon and lasted throughout the winter, it affected the rural activity. It interrupted communications between villages and aurangs, between factories and markets; and villagers deserted their place of work for safer areas.

The eastern zone was also not safer due to regular attack by Maghs of Arakan regions between 1746 and 1769.

Open warfare was resorted amongst the French, the Dutch and the English with similar results. The final round for commercial dominance led to military confrontation with the Nawābs of Bengal with known results. These developments of the later 18th century affected the economic and social conditions of proto-industrial producers. Gumāshtās were obstructed in their procurement in villages by local officials and in some instances washermen were beaten up. Subsequent delays in delivery upset the

shipping shedule and sales in London. This meant an indirect loss of opportunities to the earnings of the proto-industrial producers because demand and consequently supply decreased.<sup>104</sup>

The economy of Bengal in general and different proto-industrial producers in particular were adversely affected by abnormal weather conditions that led to famine. In 1769-70,<sup>105</sup> 1783-84 and again in 1787-88, abnormal weather created famine conditions in large tracts all over Bengal. The immediate impact was recorded as depopulation, death by starvation, sickness etc.

The proto-industrial producers were disasterously affected. From this time on, weaving ceased to occupy a place of great eminence in the economy of Bengal which was regarded as the direct result of the famine. Contemporary records informed that spinners, weavers and cotton growers had died in great numbers. This sharply raised the prices of materials and finished goods which is accompanied by a reduction in quality. Consequently, Bengali cotton cloths gradually started lessening its markets in Europe and the earnings of the proto-industrial producers employed in cotton cloth manufacturing proto-industries gradually reduced. Other proto-industrial producers were felt the evils of the famine even more worst partly because of the less job opportunities and partly because of the sharp rise of the prices of the

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104. K.K. Dutta, The Bengal Subah, pp. 318-26, 331.

105. For details of this famine see, Charles Grant, "Observations on the state of Asia," p. 14. Also see Ainslee Embree, Charles Grant and British Rule in India, (London, 1962), p. 35. The famine started in Nov, 1769. There were repeated droughts until the summer of 1770. The famine was felt in all the Northern districts of Bengal. Also see Hameeda Hussain, loc. cit., p. 10. Charles grant thought that three million people had died during the famine, but this was too low a figure. Sir William Hunter concluded that ten million was a more reasonable estimate. A large proportion of the famine victims were children.

food grains due to hoarding and monopolies by the Company's servants. The price of rice rose to 40 times and later to even 10 times its usual price. That was why, the Bengal famine is regard as the product of grain manipulations on the part of the Company's servants.<sup>106</sup>

Specific mention of the damage to proto-industrial producers during 1783-84 is not found in the records.

The calamity of 1787-88 due to floods and cyclonic storms in Dacca, Lakhipur, Māldā, Shāntipūr, Burron and Chittagong led to shortages and famines. The proto-industrial producers engaged in cotton cloth proto-industries were once more affected seriously. Production stopped, and looms were ruined. Other proto-industrial, producers of these regions were also hard hit. In Dacca, the cotton crop was destroyed and the price of rice and salt had gone up. By August 1788 the failure of the Boro rice crop created the prospect of even higher prices. The proto-industrial producer's wages were not adjusted to sudden fluctuations in prices, higher wages were demanded to offset the increased cost of production. The dearth continued and empelled the proto-industrial producers to using their advances for subsistence, leaving little for the purchase of raw materials to feed their respective proto-industries.<sup>107</sup> Unemployment and low wages further reduced the purchasing

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106. Ainslee Embree, Ibid, pp. 35-38.

107. Hameed Hussain, op.cit., pp. 12-13. In Lakhipur, the unusual price of rice and cotton during two years had increased the market price of cloth, although the quality had considerably deteriorated. This was a clear consequence of a scarcity of kapas and reduction in the number of spinners. In Malda the price of cotton had increased by 50% by Feb 1788. The scarcity of grain was felt even as far as Sylhet, Rangpur, Nadia, Birbhum, Chittagong, Mymensingh and Comilla.

power of the proto-industrial producers that turned many weavers away from their occupation.

The cumulative effect of various wars, confrontations and disasterous famines can apparently be envisaged in the rise of prices of various grains. K.K. Datta has calculated the rise in the price of rice to be in the range of 30%.<sup>108</sup> S.M.S. Hussain has calculated the annual fluctuations of rice, gur, mustard oils, sugar and ghi. Hameeda Hussain used his data in following manner: "The price of rice peaked during the famine years to an average of Rs.1.57, the highest price being Rs.3.33 in 1771. In 1783 and 1797 it came down to Re.1.00 per maund. Mustard oil increased steadily until 1787; sugar prices were significantly higher between 1769 and 1773. Gur showed a marginal increase during this period but no abnormal peaks as in the case of Sugar."<sup>109</sup>

The periodical price rises are attributable to scarcity conditions caused by climatic changes in 1769-71, 1776, 1783-88 and 1791-92, which is apparent in the fluctuations of prices in different regions of Bengal.<sup>110</sup> These periodic rise in the prices

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108. K.K. Datta, "Markets and prices of Articles in Bengal, 1700-1765", IJE, Vol. XI, part. 4, (1931), pp. 669-82. Hameeda Hussain quotes him: "In 1738 one rupee bought 2 maunds 20 seers of rice, whereas by 1751 only 1 maund 32 seers were available for the rupee. In 1754, 32 seers of fine rice and 40 seers of coarse rice could be bought for a rupee at Calcutta;" See her, Ibid, p. 17.

109. Hameeda Hussain, op. cit., p. 17.

110. Hameeda Hussain argues that in Murshidābād the quantity of rice available for a rupee dropped from 6-7 seers in June 1770 to 3 seers in July. In Qassimbazar area, this was 15 seers per rupee. By the end of 1771 rice crops had improved but the fall in prices adversely affected the peasant's income. It was not before the middle of the decade that prices stabilized. In the 1787-88 famine a similar tendency could be seen.

of such basic like rice, gur, mustard oil etc. must have affected subsistence levels, which were not compensated by an increase in the wages of the proto-industrial producers throughout the period.

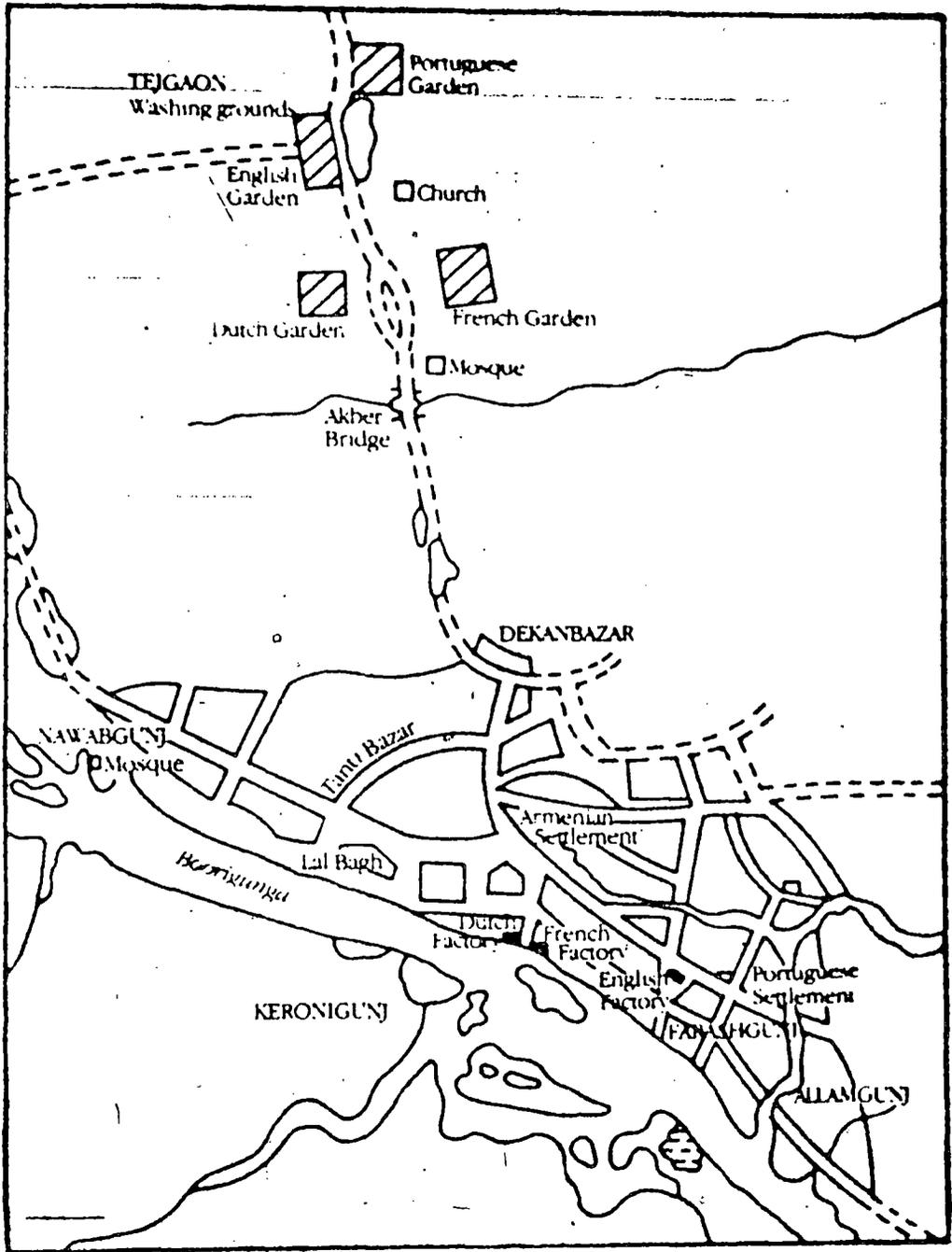
The gumāshtā system during the Company period became very oppressive, because force was applied to make the weavers undertake the Company's business not at a fair price for their labour.<sup>111</sup> At Dacca, for example, the weavers got 20 to 30% more by working for the agents of other Companies. The weavers earned commonly not more than Rs. 6 or 8 per month from their labour. There is no doubt that normally the advances would be received readily enough. Although the change was commonly made that they were often forced upon the manufacturers by the agents of the Company.

To do away with this oppression of the weavers the Company declared freedom in trade on the 12th April, 1773 with partial success. It relieved the weavers from the oppression of the Company's servants to some extent. Now, the weavers started refusing to accept the orders of the Company.

To rectify this evil, the Company re-introduced contract system based on monthly basis on 1775 without much success. The pricing system employed in the Company's warehouse was faulty

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111. C.J. Hamilton, Trade Relations between England India, (1600-1896), (Delhi, 1975), p. 150.



MAP. 9. COMMERCIAL SETTLEMENT AND WEAVER'S QUARTERS IN DACCA

that meant a further loss on the part of the weavers.<sup>112</sup> The heavy extortions of the weavers has been described in following words in 1784: "We have until now transacted the business of the circar through the dalals, which does not yield us a sufficiency for our subsistence.... We are employed perhaps two months in the year and are necessitated to remain idle the other ten months, we are moreover subject to survival impositions on account of russoms demanded by the dālāls to the amount of 4 annas in the rupee, so that there remain little or no profit to us."<sup>113</sup>

For relieving the British Cotton cloth manufacturers from dependence on American supply and also for compensating the losing market for cotton-piece goods in Europe, the Directors in the 1780s suggested that Company should invest, procure and ship raw cotton to England. The suggestion was aimed to spoil the cotton proto-industry of Bengal, throw its poor proto-industrial producers out of employ by depriving them of the material on which their labour and subsistence depend and finally, open a new and sufficient market for British machine cotton products. The Board in 1787 made an effort to improve the quality of Bengal cloth by introducing a new system of reeling thread then was in operation in England without much success.<sup>114</sup>

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112. D.B.Mitra, The Cotton Weavers of Bengal, 1757-1833, pp.47-66.

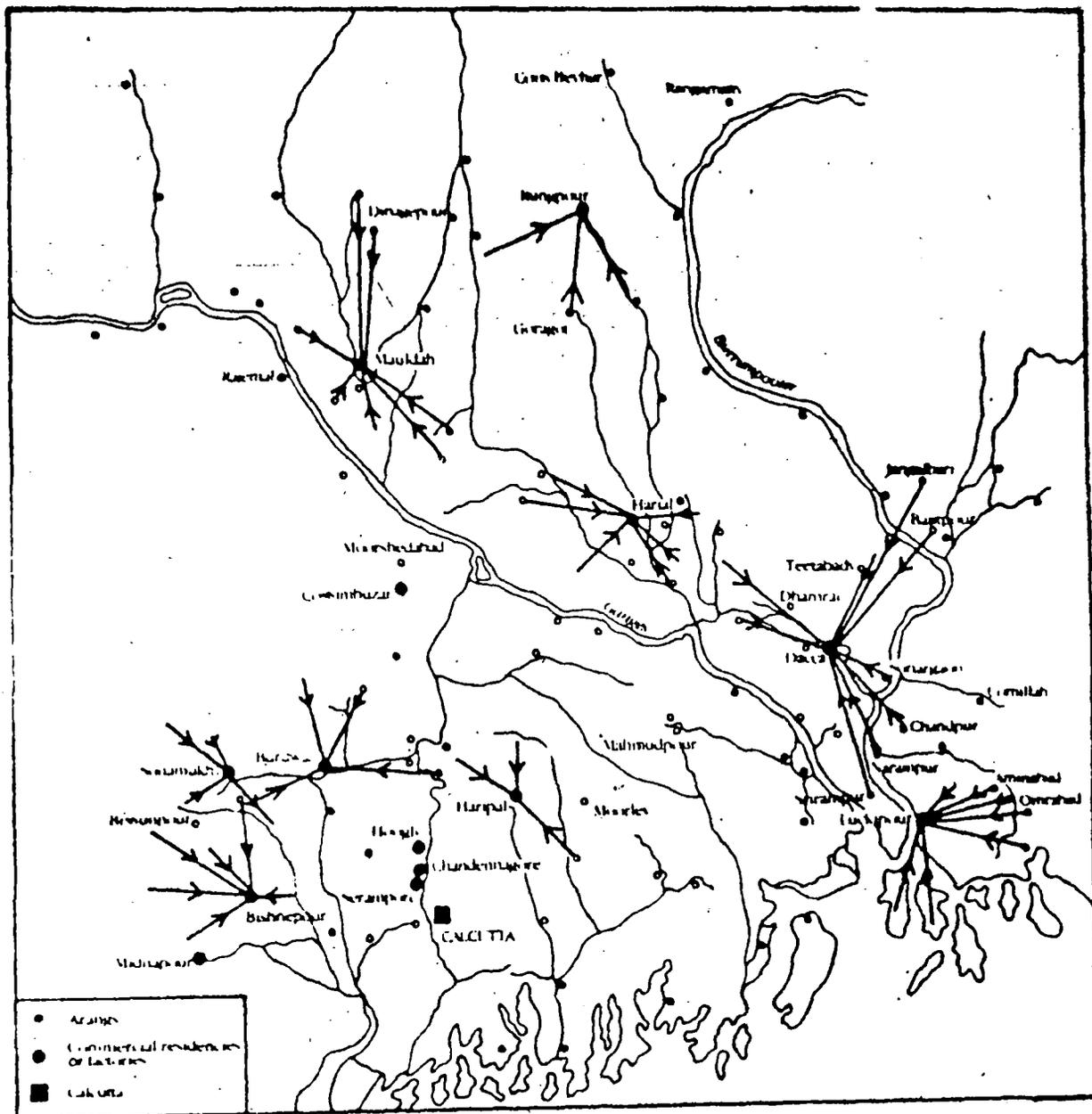
113. Translation of a petition of Luckum, Muktaram, Subram and other feagees, inhabitants of Chittagong-Board of Trade (Commercial) proceedings, 1st June, 1784, J.Kumar, Select Document on Indian Trade and Industry, (New Delhi, 1981), p.163.

114. Ainslee Embree, Charles Grant and British Rule in India, (London, 1962), pp.104-105.

The new Board of Trade made significant contribution to the creation of a legal Framework for the relations between the Company's government and the people, which was embodied in the "Regulations of Weavers," issued by the council in July 1787. The fundamental purpose of the Regulations for Weavers' was to end the oppression of the weavers by providing for Bengal a substitute for the laws of contract which were the basis of European commerce and the lack of that in India increased the oppression and fraud. One of the main contentions of the 'Regulations' was to improve the Company's commerce. Since the political power in Bengal was in the hands of the Company, the Company's servants had no hesitation

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115. Regulations for weavers, More particularly those in the Company's Employ, with a general Supplementary Article, passed by the Right Honourable the Governor General in Council on the 23rd July 1787, (Calcutta, the Honourable Company's Press, 1787). The author of the 'Regulations' was Charles Grant. The 'Regulations' began with the declaration that once a weaver had accepted advances from the Company he had to abide by the contract. (Art. 1). Two further regulations were made to enforce the declaration. The First, "Aimed at the private traders and representatives of foreign companies, made any person liable to prosecution who bought cloth from weavers who had accepted the Company's advances, (Article V). This was a clear assertion of the primacy of the Company's power over all rivals. The other regulation for preventing the weavers defaulting on their deliveries to the Company gave the Commercial Residents the right to set 'peons' or 'guards' over workmen to ensure that they fulfilled their contracts." (Art. III). The brutality of these guards were frequently condemned by weavers but Grant felt that the system could not be abandoned until a stronger sentiment existed in favour of keeping contracts. (Art. VII). The Article IX of the Regulations forbade the imprisonment of the Company's weavers without prior discussion of the case with the Commercial Resident. The 'Regulations' ended with the injunction that all of the Company's servants, whether in the 'Revenue or in the commercial or in the judicial line' should treat the proto-industrial producers 'with kindness and encouragement! (Art. XIV).



MAP. 10. SOME FACTORIES AND AURANGS ESTABLISHED BY THE COMPANY WHICH INDICATE THE DENSITY OF PRODUCTION

in manipulating the regulations in the favour of their (Company's servants) commercial interests in Bengal.

The weavers in their capacity as traders were subject to the payment of police tax.<sup>116</sup>

The socio-economic condition of the other proto-industrial producers of cotton proto-industry of Bengal was not better than the weavers. The spinners income in North Bengal on the average was onconsiderable. Three rupees was the yearly average. But these were exceptions. There were many women spinners who earned "as much as from 4 to 7 shillings a week" by spinning. We have even instances of women meeting the whole expenses of their family out of their income from this occupation.<sup>117</sup>

Other proto-industrial producers like silk reelers, silk winders, silk cloth weavers were no better placed. The Shāntipur silk weavers complaint that the prices provided to their cloths by the Company's gunāshtās amounted to no more and in some cases even to less than the cost of the materials. They laboured without any wages and they simultaneously, were forbade under Corporal chastisement and forfeitures to work for private merchants. As a result, they have no substitute of subsistence but to consume a part of advances and made them irrecoverable balances.<sup>118</sup>

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116. W.W.Hunter, Bengal Ms Records: A Selected list of 14,136 letters in the Board of Revenue, Calcutta, 1782-1807, with an introduction and index, Vol II, letter No. 3469, (London, 1894), p. 31.

117. J.Kumar, Company India: A Comprehensive History of India: (1757-1858), (Patna, 1980), p. 237.

118. Extract of Consultation dated 12th April, 1773, Board of Trade, (Commercial), General letters from Court of Directors, 18th Dec, 1765 to 15th Sept, 1785, (Cyclostyled), p. 48.

The standard of living of the proto-industrial producers engaged in salt manufacturing, fishing, marine, iron mining and manufacturing, coal mining, corundum, etc. were pitiable.<sup>119</sup>

The standard of living of the proto-industrial producers engaged in ship building in a colony established near Calcutta was high because they were very expensive. A common Bengal Caulker earned  $\frac{1}{2}$  dollar per day there.<sup>120</sup>

Various duties imposed upon the transit of the products of various proto-industries of 'pull; 'pull corridor; 'corridor; 'push corridor' and 'push areas' of Bengal had an adverse effect on the standard of living of the proto-industrial producers of these areas during Company's period. The transit of goods and commodities from one place to another within Bengal was subject to transit duty while<sup>121</sup> the flow of goods and commodities to and from certain specified towns was subjected to town duty.

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119. For details see Balai Barui, The Salt Industry of Bengal, 1757-1800: A Study in the interaction of British monopoly Control and Indigenous Enterprise, (Calcutta, 1985), pp. 37-56. Also see general letter to the Court of Directors, dated 28th Oct, Board of Revenue, General letters to the Court of Directors 1771-1885, 30th August 1771 to 24th April 1772, Vol. 1, p. 66. For iron proto-industrial producer's condition see Ranjan Kumar Gupta, "Iron Manufacturing Industry of Birbhum: A Study of its growth and Extinction," JIH, Vol. 38, Part I-III, (April, August, Dec, 1980), p. 105. Also see Hites Ranjan Sanyal, "The Indigenous Iron Industry of Birbhum," IESHR, Vol. 5, No. 1, (March, 1968, pp. 102-103. Also see V. Ball, Jungle Life in India, (London, 1880).

120. James Kyd, esq., "On Indian Timber and Ship building, Copy of letter to Admiral Drury in 1808," John Phipps (compiled), A Collection of papers relative to ship building in India, (Calcutta, 1840), pp. 8-9.

121. Tarasankar Banerjee, History of Internal trade barriers in British India, Vol. 1, (Bengal Presidency), (1765-1836), (The Asiatic Society, Calcutta, 1972), p. 1. Taxes in the Mughal period had two principal branches: land revenue and sair. The term sa'ir denotes market, but in its wider sense, it meant various kinds of imports upon trade and property and transit duty (rahdari) was originally a branch of the sa'ir. In course of time transit duty developed into a separate full-fledged customs duty. There are references in the Abu-l Fazl's, A'in-i Akbari that during the reign of Akbar the collection of transit duties was a feature of the Mughal taxation system.

N.J.Shah recognises the native system of transit duties as 'more of the nature of a toll' imposed in every sub-division of district on each load of goods transported through it or imported for consumption therein or exported therefrom to other sub-divisions. These goods moving within its limits were free from duties until they reached the frontier.<sup>122</sup> During Company period when disorder and dishonesty were omnipresent phenomena, the rulers of provinces, the tax farmers and the imperial tax collectors usurped the unrestricted right of managing and collecting the transit duties (originally meant for great thorough fares of trade) upon petty traffic in articles of general consumption and of village to village trade. In Bengal numerous agents were employed in the collection of transit duties who greatly aggravated the vexation of this levy by imposing a host of petty and unauthorised exactions. The burden of the transit duties differed at different places and even varied at the same place according to the disposition of the collectors. The duties were levied upon almost every article of life and they were collected either at custom houses or at the markets.<sup>123</sup> The real and heavy material loser were the different proto-industrial producers because they were the persons who were involved in inland commerce, local trade and bāzār, qaṣba and mandī level transactions.

The customs duties levied on the export and import of goods and commodities at different custom houses indirectly

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122. N.J.Shah, History of Indian Tarrif, (London, 1924), p.13.

123. Ibid, p.18.

adversely affected the standard of living of the proto-industrial producers of the different areas of Bengal. The Court of Directors in their letter dated 3rd March, 1758 fixed the general customs on both imports and exports at 4% leaving the Council at Fort William the right to impose and change more or less on particular commodities.<sup>124</sup>

In 1760s Vansittart agreed on the plan that the import and export trade of the Company was to be exempted from duties on condition that the Company's dastak was invalid for inland trade. Duties were to be paid on all goods and commodities of inland trade at a fixed rate of 9% on the prime cost at the places where the goods were provided. The plan was condemned and rejected by Calcutta Council. The Council decided that the English were entitled by Farman to trade in country produce duty free, the nawab could be allowed a 2.5% custom duty on salt only. The gumashtas were beyond the jurisdiction of the nawab's officials.<sup>125</sup> In Bengal,

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124. H.N. Sinha (ed.), IRS, Fort-William-India House Correspondence Vol. II, 1757-1759, (Delhi, 1957), pp. XIIIV, XIV, XVI. For the collection of these custom duties, they ordered the establishment of two custom houses with two custom masters. The principal custom house was to be established by the river side and all sea exports and imports were to be collected there. The head of this office was called sea custom master. The second custom house was to be established at the extremity of the Company's bounds as contiguous to the Grand Trunk Road as possible and at this post duties were to be levied on all goods introduced into Calcutta or sent to other parts of India. The head of this post was called as Land Custom Master. To prevent smuggling, the Court ordered guard boats to patrol the river every night and on land European guards were to go their rounds from 10 at night to five in the morning. All these regulations were adopted by the Council except that in respect of certain commodities they fixed the custom's duty at 2% instead of 4% as ordered by the Court.

125. S. Srinivaschari, IRS, Fort William-India House Correspondence, Vol. IV, 1764-1766, (Delhi, 1962), pp. XVIII-XIII.

it is estimated, that the net revenue yielded by customs duty at the port of Calcutta on an average of the three years 1768<sup>126</sup> 1769 to 1771-1772 was arrived at Rs.1,90,285 or £ 19,028. The contribution of the proto-industrial producers in the custom duty was indirect and larger, because on the whole, the merchants were charged these charges from the proto-industrial producers while purchasing the commodities. They further charged these levies while selling these commodities in the markets to the peasants, proto-industrial producers and others which hampered the standard of living of these people.

On 16th Feb. 1773 a notification was made which involves the following notice: "After first day of Bysack or 12th day of next April, no Dustaks, Ruannahs, Perwannah, orders or immunities will be granted to any person whatever; but an equal rate of duties will be established for all goods or merchandise belonging to the Company's servants, foreigners or natives, without distinction whatever."<sup>127</sup> This system was abolished in 1788 by Cornwallis. There was, however, an increase during the next three years, the annual average rising to Rs.3,40,908 (£ 34,090)<sup>128</sup> that meant a further deterioration in the standard of living of the proto-industrial producers of Bengal. In the year 1793, the revenue from custom duty in Bengal approximately doubled (i.e. it stood at about Rs.6 lakhs).

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126. Pramathanath Banerjee, Indian Finance in the Days of the Company, (Macmillan and Co, Limited, London, 1928), p.208.

127. Tarasankar Banerjee, History of internal trade barriers in British India, Vol. 1, (Bengal Presidency), (1765-1836), p.12.

128. Pramathanath Banerjee, op.cit., pp.209-210.

By the regulation 1 of 1797, an additional duty of 1% was levied upon imports into or exports from Calcutta (money and bullion excepted), to assist in defraying the expenses of an armed vessel employed for the protection of the commerce of this part of the country against privateers.<sup>129</sup>

The town duty throughout the Company period was so heavy that it affected the standard of living of the various proto-industrial producers of different areas of rural Bengal much more negatively than transit and custom duties. Holwell's "Report on the Company's Revenue in Calcutta" dated the 15th Dec. 1752 mentioned many other tolls imposed on the goods and commodities brought for sale. Monopolies were also subject to these taxes. The bāzār farmers and their agents used to stay on the principal roads leading to their respective bāzārs and exacted a sort of toll from the dealers passing to other bāzārs. Many farmers renewed their engagements after the expiry of their terms, on condition that these collections would not be made in future.<sup>130</sup>

Contemporary documents record that before the attack of Calcutta by Siraj-ud-daullah a commission of 5% on all sales of European houses was attempted to be imposed as town duty. Due to the stiff resistance by the European inhabitants of Calcutta, the Court of Directors in 1757 ordered for the relinquishments of this imposition.

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129. Ibid, pp.209-210.

130. Tara Sankar Banerjee, History of internal trade Barriers in British India, Vol. 1, (Bengal Presidency), (1757-1836), p.45.

The Court of Directors in a letter of 10th April, 1771, described that many bāzārs in Bengal had existed without governmental authority which must be an infringement of its right, a great detriment to the public collection, and a burden and oppression on the inhabitants and proto-industrial producers. Zamīndārī Chaukīs and petty chaukīs were abolished. Despite this prohibition, ample evidences were available to demonstrate that the transit as well as town duties were being levied by zamīndārs and this practice was general upto 1790. Lord Cornwallis in his minute on 10th Feb. 1790 had recorded such actions of zamīndārs. In the interior where the collectors of the Company were less effective and less active, the evils existed to a greater extent.<sup>131</sup>

Mr. Scott, Collector of Calcutta, provided the following information about the town duties in his letter of March 1785 to the Committee of Revenue. According to that letter the collections in the bāzārs consisted of rents called bāzāri and 'tollah' paid daily by each of the bāzār ra'iyat for retailing articles in the government bāzārs. The 'tollah' was previously a customary collection in kind but from 1779 it had been commuted for money.<sup>132</sup> In

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131. Ibid, p.15.

132. Ibid, p.44. Report of Dewan in 1779 has been quoted by Tarashankar Banerjee to display the collection of 'tollah' before 1779 in cash. The rate of tola had never been fixed by the government. It has always been settled by mutual agreement between the bāzār and ra'iyat; and in all disputes on the rate collected the complaints was decided from former custom. The payment to the government was fixed either in perpetuity or for a long period of years. The government control over the erection of bāzārs and the levy of bāzār duties had already been established in 1781. The Governor General in Council on 21st Sept 1781 announced that goods sale in shops, the property of individuals were exempted from town duty. The town duty was levied on the stalls and shops situated on Company's ground.

1781 a town duty of 4% on the Calcutta price was levied at Calcutta on all foreign goods passing through the port.<sup>133</sup>

After 1788, Town duties were allowed to continue as usual. The Regulation 42 of 1793, Section II, modified the rules for collecting town duties of Calcutta by providing liberty for merchants and persons to transport goods within the province of Bengal free from all duties and tolls whatever. A custom house with custom master at Calcutta was established at Calcutta for the collection of these duties.<sup>134</sup>

Section 2 of the Regulation 39 passed on 22nd May 1795, abolished the town duties.

Most of the respectable and wealthy merchants enjoyed favourable differential treatment. The amount of duties levied and extracted on merchandise of every description transported by them was invariably low. Inferior bepāris and proto-industrial producers of the bāzārs of Bengal had to pay an increased duty in the proportion of 20 or 25 or even 30% upon articles transported or exposed for sale<sup>135</sup> which considerably reduced their earnings as well as standard of living.

133. N.J. Shah, History of Indian Tarrifs, (London, 1924), p.45.

134. Tarashankar Banerjee, op.cit., p.20. Following duties were charged as obvious from the statement of Town duties in 1794:

On goods imported from the interior<sup>o</sup> of the country-

Piece goods	-	2%
Raw Silk	-	2%
Cotton thread	-	1%
Gruff articles (grain)	-	4%

On goods imported from sea

From Europe:

- (i) On the English Ships - 4% on the invoice cost.
- (ii) On Foreign ships - 4% upon a Calcutta value estimated at 60% on the invoice cost.
- (iii) From places within the Company's chartered limits 4% on the amount of the estimated Calcutta value.

135. Ibid., p.46.

The drain of wealth, during Company period through various means too well a documented subject in recent years to be repeated here, had an adverse effect on the standard of living of the proto-industrial producers. The villages and the towns were plundered outright. The sweat and blood of the Indian peasants and proto-industrial producers reduced to money, became one of the principal source of the primitive accumulation of capital for the British landed aristocracy and the moneyed plutocracy.

Most of the recent writers seem to agree silently with Furber's weighty argument, in The Cambridge Economic History of India, Vol. II that the annual despatch of Indian wealth to the metropolitan country caused no injury to India. Irfan Habib vehemently criticised Furber's argument. He maintains that the large part of Indian wealth was set apart for 'investments' was,

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136. For the detailed of statistical study of drain of wealth see following works: Pramathnath Banerjee, Indian Finance in the Days of the Company, pp. 78-129. Irfan Habib, "Colonization of Indian Economy, 1757-1900," cyclostyled. J. Kumar, Company India: A Comprehensive History of India, (1757-1858), (Patna, 1980), p. 20. James Mill and H.H. Wilson, The History of British India, Vols. IV, pp. 109, 357, 358, 359, 360, Vol. V, pp. 348, 350, 351, Vol. VI, pp 4, 252, 472-473, 474, 475, 476 etc. Amlesh Tripathi (ed.), Fort William-India House Correspondence, Vol. XII, 1793-95, (Delhi, 1978), pp. 5-11. P. Patwardhan (ed.), Fort William-India House Correspondence, Vol. VII, 1773-1776, (Delhi, 1971), pp. XXXII-XXXIII. P.C. Gupta (ed.), Fort William India House Correspondence, Vol. XIII, 1796-1800, (Delhi, 1959), pp. XVIII-XXXVII. Bisheshwar Prasad (ed.), Fort William-India House Correspondence, Vol. VI, 1770-1772, (Delhi, 1960), pp. XXXI-XXXVII. John Dunning Baron, East India Company: A Defence of the United Company of merchants England Trading to the East Indies and their servants against complaints of the Dutch East India Company, (London, 1762), p. 39. Sourinranath Ray, "British connection with India as a factor in pre-industrial capital accumulation in England," India, Past and Present, Vol. 1, No. 1, (1984), pp. 72-76. A.I. Levkovsky, Capitalism in India: Basic trends in its Development, (Delhi, 1966), pp. 4-25; Michael Edwards, British India, 1772-1947: A Survey of the nature and effects of alien rule, (London, 1967), p. 86.

137. Irfan Habib quotes it from Ferber's article. See Irfan Habib's, "Process of Accumulation in pre-colonial and colonial India," IHR, Vol. XI, Nos. 1-2, (July, 1984-January, 1985), p. 76.

after all, not sent out in gold and silver, had that been the case, no one would have found employment. This is a doubtful generalization. What the Company and the English did, however, was to buy Indian cotton goods, silk etc. thus providing employment to numerous weavers, silk winders etc.

What Furber, first of all, missed is that India lost use as well as exchange values when these products went out of the country without any return from there. Had these immense wealth been used within the country, the numerous proto-industrial producers would have certainly been 'happier' and even 'wealthier' in material terms thereby improving their standard of living.

The diversion of revenue into Company's investment affected employment opportunities for the proto-industrial producers. We suppose that the pre-colonial rulers by equivalent amount of expenditure maintained, in the first instance the same number of artisans. To keep close to the hypothetical argument, we further suppose that they purchased the same quantities of cloth, employing same number of weavers as the English did. Once the purchases had been made, they would have large quantities of cloth on their hands and they could begin issuing such cloth in payment of wages (not in fact a rare practice with Mughal potentates). "The result: the cloth, by such distribution, would give livelihood to a further class of persons paid through this means. The case would be no different had the Indian potentates simply sold the cloth on the market and employed retainers or brought other commodities out of the proceeds: employment would have been given to a large

number of people in addition to the weavers already employed. It is easily seen that the argument is not affected if actually the Indian potentates bought goods different from what the English invested in. The very retention of those goods in India would enable employment to expand, whenever these were sold or paid in form of wages.<sup>139</sup>

The plebeian culture of the proto-industrial producers of Bengal during the Company's period is characterized by the forms of actions to be adopted by the proto-industrial producers etc. Most of the political economists postulate that protests of proto-industrial producers in industrializing countries pertain a series of negative reactions and responses to the impact of the process of early industrialization and that protests tend to consist of short-term incidents and to involve spontaneous fights, riots, demonstrations, violence and mob action etc.<sup>140</sup> But these forms of actions can no longer be recognized as spontaneous outbursts rather they are viewed as rational uses of the available resources, governed by a web of rules. Here the destruction of property was not random, 'as would be expected on the view that protest spontaneous and unorganized; instead, targets were carefully selected.'<sup>141</sup>

Similarly, violence was not the prerogative of the desperate and poorly organized members of the workforce but tended to be used by groups of skilled workers in order to exert pressure on their employers. Threatening letter, arsons, physical violence etc.

139. Ibid., p.77.

140. P.K.Edwards, "Conflict at Work: A materialist Analysis of Work Place Relations", (Basil Blackwell, Oxford, 1988), p.107.

141. Ibid.

were used by proto-industrial producers.

During the mature phase of the proto-industrialization and the early phase of industrialization, pure labour protest was a rarity because of three reasons. The most important cause that must have militated against the development of collective organization by proto-industrial producer was the small scale production and the dispersal of proto-industrial producers between many different factories and workshops. The second factor was the way in which work was controlled. Division between managers and employees were often unclear and customary understanding affected work relation and prices as well, not in terms of wage levels but also regarding the hours of work, accepted standard of workmanship and the organization of work tasks. The third factor was the mainlines of division lay not between masters and journeymen but between those two groups, as direct producers and merchants. The potential for conflict between masters and workers was not absent, but

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142. Ibid., p.108. Also see Roger A.E. Wells, "The Development of the English Rural proletariat and social protest, 1700-1850," UPS, Vol. 6, No. 2, (Jan, 1979), pp. 127-129. Also see Michael R. Weisser, Crime and Punishment in Early Modern Europe, (Sussex, 1979), p. 17. For details of crime in Europe see J.A. Sharpe, "Crime and Delinquency in an Essex Parish: 1600-1640," J.S. Cockburn (ed.), Crime in England, 1500-1700, (Methuen and Co. Ltd., 1977), p. 99. Also see Cockburn, "The nature and Incidence of Crime in England: 1559-1625: A Preliminary Survey," J.S. Cockburn (ed.), Crime in England, 1500-1800, pp. 49-71.

143. Op. cit., p. 113. E.J. Hobsbawm asserts that in pre-capitalist times, the working class was a crowd not an army. Enlightened, bureaucratic and orderly strikes were impossible and thus, workers could only fight by means of demonstrations, shouting, cheering and cat-calling intimidation and violence, in this effort labourers followed machine breaking. See his, Labouring Men: Studies in the History of Labour, (London, 1964), p. 10.

it was constrained by several influences which meant that overt disputes about the terms of the effort bargain were rare. <sup>144</sup>

In case of Bengal proto-industrial producers in Company period lacked organizational strength and bargaining power. In spite of a community of interests which developed among proto-industrial producers, who supplied their goods for export trade, they failed to evolve an effective social organization. In their work a division of occupational caste groups into panchayats had given a loose organizational structure. But as much of the work was carried on by individuals, little cohesiveness was developed amongst spinners, dhuneras etc. The social divisions of labour which were accentuated by the presence of intermediaries also prevented a link-up between different occupational groups. It was the export trade that enabled certain classes of proto-industrial producers specially the weavers, washmen and embroiderers etc. to evolve into a loosely defined, separate occupational group with shared economic interests. The proto-industrial producer's direct involvement in market negotiations, the opportunities the proto-industrial producers received to work together, etc., provided them a limited cohesiveness. The proto-industrial producers could now identify their economic interests with their village and the particular buyer they worked for, or the specific material they produced. Within their rank and file an order of authority was established which could be seen in the case of the master weavers down to the journeymen or apprentice in each village weaving caste. But the capability of their caste-based

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144. P.K. Edwards, Conflict at Work: A Materialist Analysis of Work Place Relations, (Oxford, 1986), p. 113.

organization to protect proto-industrial producer's interests remained inadequate, particularly when the market was manipulated by a more dominant, central organization.<sup>145</sup>

This, however, should not be meant that the proto-industrial producers did not react against the gradual imposition of the Company's controls. The proto-industrial producers adopted varying forms of resistance, directed against circumventing the authoritarianism of the Company's official agents as well as the system of appropriation. Most of the proto-industrial producers accepted the system, while surreptitiously they continued to work for other merchants. Some of them escaped the system by migrating from their villages and aurangs and also by deserting their occupations. Even then there was little possibility of the proto-industrial producers being able to organize a collective response.

Slowing down of production or a refusal to accept advances in the face of forced and uneconomic appropriation was the initial response. With a visible increase in demand and a multiplicity of traders appeared in the aurangs, particularly between 1775 and 1787, the proto-industrial producers refused openly. Reports from the commercial Residents indicated that during this period 'combinations of weavers' were formed to resist and defy the orders of the factory or aurang.<sup>146</sup>

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145. Hameeda Hossain, The Company Weavers of Bengal: The English East India Company and the Organization of Textile Production in Bengal, 1750-1813, pp. 123-124.

146. From Dacca, Grueber complained in 1776 against the existence of such a 'combination' under his factory. He reported that weavers from two villages noted as conchanaghat and Tangabo under Sonargaon arung refused to work for the Company. During the course of the investigation he learnt that they had been intimidated by weavers of Sonargaon. Two witnesses from Sonargaon gave evidence supporting this. Similar reports can be have from Narainpur, Shanti-pur, Malda etc.

Such non-cooperation was possible as long as there were other buyers to turn to. Market competition increased their bargaining strength. These proto-industrial producers were instigated or supported by those dālāls who had been dismissed by the Company in 1774. A 'Combination' continued with varying strength until 1794, when John Taylor, traced six ring leaders who were then sent for trial to the Faujdarī Adālāt. These 'combinations' of the proto-industrial producers were guided by various interest groups, initially by dālāls on behalf of the proto-industrial producers, mainly for fixing prices and advances. Later, the head weavers, ijārādārs or village māṅḍal became influential. These 'combinations' adversely affected the procurement of the Commercial Residents.

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These exploitation of the proto-industrial producers contributed considerably to the development of professional dacoiti in the affected regions as well as hilly regions protected by local zamīndārs. Sanyasis and faqirs became notorious groups of religious raider. They became more active in the regions of Rangpur, Chilmari and Karatia.

At one time the Nischindpur factory was threatened by a Sanyasi raid. As late as 1793 reports came in from Malda of armed faqirs infesting the country, disrupting industry and cultivation.

The economic situation developing in Bengal after famines of 1770 and 1787-88 had improved conditions of agricultural employment. This induced a shift from manufacturing occupations to agriculture. In 1790s, the Permanent Settlement, reduced the importance of manufacture. The consequent negative impact, alongwith

other factors, helped to increase the relative weight of agriculture in the rural economy.

From this detailed examination of the standard of living of the proto-industrial producers throughout the period under review, we identify a decreasing trend in the living standard of the proto-industrial producers. The living standard of the Mughal proto-industrial producers was better than that of the nawab proto-industrial producers. The proto-industrial producers of the nawab's period were undoubtedly better placed than those of the Company proto-industrial producers. The reasons for this is varied and divergent. In the same period the standard of living of the English proto-industrial producers shows an upward trend.<sup>148</sup> The real wage of the adult male working class failed to increase between 1755 and 1819, but from 1819 to 1891 it rose at an annual rate of 1.85%.<sup>149</sup> Within the Britain the debate revolves mostly round the 'Lower classes' which is more or less equivalent to bottom two thirds or three quarters of the income distribution. Sometimes the debate

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148. For a detailed study of the standard of living of British proto-industrial producers during early Industrial Revolution see, P.K.O'Brian and S.L.Engerman, "Changes in income and its distribution during the Industrial Revolution;" R.Floud and D.McCloskey(eds.) The Economic History of Britain Since 1700, (Cambridge, 1981), p.180. Also see P.H.Lindert and J.G.Williamson, "English workers living standards during the Industrial Revolution: A new Look;" and G.N.von Tunzelmann, "The Standard of living debate and optimal Economic Growth;" both in, Joel Mokyr(ed.), The Economics of the Industrial Revolution, (London, 1985), pp.177-205. and pp.207-226 respectively. Also see, Eric Hopkins, "Working hours and conditions during the Industrial Revolution;" EHR, Vol. 35, No. 1, (1982), pp. 55-57. Also see Joel Mokyr and Cormac O' Grada, "Poor and Getting poorer? Living standards in Ireland before the Famine;" EHR, Vol. XL1, No. 2, (Second Series, May, 1988), p.231. For further details see, Joel Mokyr, "Is there still life in the pessimist case? Consumption during the Industrial Revolution, 1790-1850;" JIH, Vol. XLVIII, No. 1, (March, 1988), pp. 70-87.

149. Jeffery G.Williamson, "Why was British Growth so slow during the Industrial Revolution;" JEH, Vol. XLIV, No. 3, (Sept, 1984), p.688.

revolves round the 'workers' but that excludes lumpen proletariat as well as vagrants and occasional labourers in the countryside. Therefore, several doubts arise regarding Lindert's and Williamson's findings as decisive evidence in the standard of living debate.<sup>150</sup> This data did include the incomes of those who were employed in formal labour markets and received a money wage. They excluded the self-employed and domestic servants, as well as the other portions of the employed labour force such as women and children. Still some kind of improvement is traceable in England whereas in Bengal's proto-industrial producers' standard of living during our period we have altogether a different trend that is a regular decline in the standard of living of the proto-industrial producers. The improvement in England's proto-industrial producers' standard of living was accompanied by the process of the industrialization proper, whereas a regular decline in Bengal proto-industrial producer's standard of living is accompanied by de-industrialization.

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150. Joel Mokyr, "Is there still life in the pessimist case? Consumption during the Industrial Revolution, 1790-1850," JEH, Vol. XLVIII, No. 1, (March, 1985), pp. 70, 87.

CONCLUSION

From this politico-socio-economic, cultural and historical study, it becomes quite clear that proto-industrialization in 'pull', 'pull corridor', 'neutral', 'push corridor' and 'push' areas of rural Bengal throughout the period under review had been deep rooted. The development of different proto-industries in these areas of rural Bengal was slow, steady and systematic. The penetration of different modes of production in proto-industrial system at different levels of its development were not upto the point from where proto-industrialization makes a move towards its transformation into capitalist-industrialization. The Bengal's contract system lagged far behind the English putting-out system in promoting the technological innovations. The centralized manufacturing system occurred throughout the proto-industrial phase in England had no match to its Indian counterparts in regards with management, organization, utilization of modern knowledge and machines, supervision and regulations of work and leisure.

This high phase of proto-industrialization was not sufficient to make transition from proto-industrialization to industrialization proper. For making such transition some inputs were required to be provided by the government, merchant capitalists and proto-industrialists. These inputs were not provided by the English government in India and especially in Bengal or local nobles or merchants. Instead, in Bengal, specially after 1750s, efforts were being employed to discourage the steady and rapid development of proto-industrialization by Company's

administration for their own interests through different administrative, political, social, cultural, economic and technological means. Resultantly, while proto-industrialization in England made transformation to capitalist-industrialization, in Bengal, it made transition to a devolutionary process, called 'de-industrialization'!

In case of British industrialization Deane and Habakkuk have questioned the validity of the hypothesis of Rostow and Lewis that assigned a strategic importance to capital in the 'take off' period. Deane's empirical findings have been supported by the researches of Kuznets, Solow and Cairncross who maintain that 'changes in capital investment proportions in any economy during industrialization were gradual'.<sup>1</sup> Improvements in productivity can be obtained mainly through using more efficiently the existing capital stock and through the 'centralization and disciplining' of a growing supply of wage labour.

More recently, Feinstein has challenged the Deane and Kuznets thesis by statistical, calculative and figurative estimates. He concluded that fixed capital<sup>2</sup> formation in Britain

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1. Pat Hudson, The Genesis of Industrial Capital: A Study of the West Riding Wool Textile Industry, C. 1750-1850 (Cambridge, 1986), pp. 4-5. The view that growth does not invariably, or even largely depend on a high level of capital formation gained strength from stressing the negligible results of extensive economic aid to the Third World Countries since the Second World War. Since then onwards, political and cultural dimensions of development theory were getting prominence.

2. The term 'fixed capital' includes factories and farmsteads, mines and machines, irrigation and drainage works, roads and sewers, canals, ships, stock of raw materials, semimanufactured products, finished goods held by manufacturers and traders and the work in progress and the net acquisition of foreign capital both physical and financial. See C.H. Feinstein, "Capital Accumulation and the Industrial Revolution," R. Floud and D. McCloskey (eds.), The Economic History of Britain since 1700, Vol. 1, (London, 1981), p. 182.

increased at a rate more than double that previously suggested by Pollard for the period 1770-1830. For 1830-5 Feinstein's calculations are close to those of Pollard.<sup>3</sup> This change according to him led to a major alteration in both the 'organisation of industrial production' and in the 'methods by which finance was raised'.<sup>4</sup> The period before 1850 saw a little or virtually no improvement in the ratio of fixed to circulating capital investment in British industry and commerce together which was at 1:1 (C.1760) to more than 3:1 (C.1860). And even the timing for this transformation differed from industry to industry.<sup>5</sup> This delay was not due to the shortage of sufficient funds, but due to the lack of willingness on the part of landlords, merchants, religious and educational institutions and banks to invest in industrial concerns.<sup>6</sup> The pioneers of the factory system had to invest their private savings in the industry.

These indications of the overriding importance of circulating capital are very relevant because the sources of long- and short-term capital were often quite separate and distinct. Then the changing ratio of fixed and circulating capital required for competitive industrial enterprise has important implications for the raising of finance and its social and economic

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3. Pat Hudson, op.cit., p.5.

4. C.H. Feinstein, op.cit., pp.128-142.

5. Sidney Pollard, "Fixed Capital in the Industrial Revolution in Britain," Francois Crouzet (ed.), Capital Formation in the Industrial Revolution, (London, 1972), pp.148-149.

6. M.M. Postan, "Recent Trends in the accumulation of Capital," F. Crouzet (ed.), Capital Formation in the Industrial Revolution, (London, 1972), p.71.

costs. A new approach is wanted involving a much less rigid distinction between the two. Fixed and circulating capital were often interdependent and, to some extent, interchangeable. If the elaborate credit network that evolved in the different trades eased the manufacturers need to tie up large sums of money in stocks, this obviously released funds for productive investment. If the domestic outworking system was gradually usurped by more centralised forms of production, partly because of the travel time and delays involved, the saving in circulating capital could be used to finance increased plant and equipment outlays. If bill-discount and short-term accommodation by banks expedited the purchase and sale of commodities, so the manufacturer could divert finance from circulation to production. Since circulating capital played a major determinant role in financing the investment in the expansion of plant and equipment, fixed and circulating capital sources must be studied as an integral relationship both in the long-term and through cyclical fluctuations.

The previously accepted view of the minimal relationship between banks and the medium-and long-term finance of industry in the 18th and early 19th centuries is in process of revision by most modern writers like Pressnell, Cameron and Methias. The English banker's role in financing the expansion of productive capacity is now being recognised.

In their short-term and credit dealings too, banking activities released the manufacturer's own capital for fixed investment. By discounting bills, granting overdrafts and short term

loans, banks financed the movement of goods as well as the production of commodities. Banks played even more dynamic role in the economy of the 18th century England by creating currency.<sup>7</sup> The rise of the London discount market at the beginning of the 19th century stimulated banks in industrial areas to have bills discounted in London via the agency of bill brokers that considerably enlarged the credit facilities available to their manufacturing clients.

More upto-date publications on the dynamic role of banks in Industrial Revolution in England have demonstrated that banks were ready to finance longer term investment in industry.<sup>8</sup> A short-term loan could become a medium and instrument of long-term investment by being renewed by agreement or unwillingly from the bank's point of view when the borrower failed to redeem. Examples of such relationships are found in Yorkshire and elsewhere, where finance capital and industrial capital were integrated, where bankers established industrial enterprises or where industrialists became bankers.<sup>9</sup>

Diverse sources of capital became frequently operative in a sizeable new industrial undertakings. In England during late 18th and early 19th centuries, the need of capital for

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7. Pat Hudson, op.cit., p.20. "As in Lancashire, the Yorkshire textile entrepreneurs in their relationship with local banks can be said to have constituted a mutual credit source each endorsing the activities of other."

8. Ibid, p.20.

9. Ibid, p.20.

financing industrial enterprises was attracted from mercantile credit, land mortgage, family friends etc. In time of emergency due to heavy burdens for the resources of a single entrepreneur, the finances were undertaken by a partnership which was usually a combination of a few friends. Early joint stock forms of organization as source of capital finance for the establishment of centralized production was subscribed only rarely.<sup>10</sup> But the pre-dominance form of financing industrial enterprises during the initial phase of Industrial Revolution was the 'self finance.' The pioneers of the factory system self financed their industrial enterprises by ploughing back regularly and almost automatically, the greater part or even the whole of their private profits or savings.

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10. See M.M. Postan, "Recent Trends in the Accumulation of Capital," Francois Crouzet (ed.), Capital Formation in the Industrial Revolution, (London, 1972), p. 71. Also see Pat Hudson, The Genesis of Industrial Capital: A Study of the West Riding Wool Textile Industry, C. 1750-1850, (Cambridge University Press, 1986), p. 21. For the different and diversified functions of capital see, P. Dean, "The Role of Capital in Industrial Revolution," Explorations in Economic History, Vol. 10, No. 4, (Summer, 1973), p. 353. Dean maintains that capital has two functions: the investment function and the savings function. The investment function increases the rate of growth of output whereas saving function releases the resources for further investment. Thus, capital becomes stock asset at a point of time for generating a flow of economic output. Capital accumulation, then, is the annual flow of additions to these assets which comes either out of failure to consume all of current income or out of borrowing abroad. Also see John Caville, "Primitive Accumulation and Early Industrialization in Britain," Socialist Register, (1969), pp. 247-271.

A systematic survey of significant secondary and contemporary sources shows that through out the 17th and 18th centuries, proto-industrial producers in most of the trades, in most of the rural regions of Bengal, were very poor cottagers<sup>11</sup> who were least or not bothered to arrange circulating and fixed capital for their proto-industries. It, therefore, would be pertinent to suggest that 'self-finance' from the side of proto-industrial producers or from below through ploughing back 'regularly and almost automatically' the greater part or even the whole of their private profits or savings for financing status of the proto-industrial producers, to finance centralized manufacturing, kārkhānas through 'partnership' basis by undertaking finances from partners even in emergency or in rare cases was also an impossibility.

Finance for funding different industrial enterprises from other sources like from Mughal and Company bureaucrats, merchants, usurers, commercial bourgeoisie etc. was possible to make operative but these men of fortune were hardly willing to invest their

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11. Tapan Ray Chaudhuri, Non-Agricultural Production: Mughal India, "Tapan Ray Chaudhuri and Irfan Habib (eds.), The Cambridge Economic History of India, Vol. 1, C. 1200-C. 1750, (Delhi, 1982), pp. 261-264. A Karim quotes J.A. Taylor's report of 1800 to show the annual and monthly wages of cotton weavers of Bengal in his, Dacca, The Mughal Capital, (Dacca, 1964), pp. 84-103. Taylor, the Company's commercial resident at Dacca observed in 1800 that a weaver with two assistants to produce a piece of the best muslin working for a whole year yielded Rs. 250. Yarn cost 100 rupees. If the weavers were not cheated, they earned 150 rupees a year or 8 rupees a month for the master weaver and 2 rupees a month each for his assistants. Also see, V.I. Pavlov, Historical Premises for India's Transition to Capitalism, (Moscow, 1979), pp. 117-127.

hoarded capital or private profits in more productive enterprises like proto-industries, centralized manufacturing concerns etc. They invested greater part of their hoarded capital or private profits to trade and to the acquisition of landed property.<sup>12</sup> Finance through hundi was never made operative in centralized manufacturing concerns before high proto-industrial phase, during high proto-industrial phase and immediately afterwards.

Finally, and most importantly, banks could finance proto-industries of Bengal and could catalysed its promotion by extending loans to proto-industrial producers and by establishing industrial enterprises. But the history of banking system in India is obscure. A.K. Bagchi is of the opinion that the first attempt to establish a bank by the officers of the Company seems to have occurred in Madras, in 1683.<sup>13</sup> It was a bank of deposit and discount, managed by the members of the council and most probably, it did not issue notes.

Between the 18th and the first half of the 19th century, European controlled banking, primarily under the auspices of European Agency houses was gradually growing up. In some cases a single Agency house or two or three Agency houses found it useful to float a bank as a separate entity; in other cases, an Agency House simply carried on the functions of a bank along with

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12. Ernest Mandel, Marxist Economic Theory, (trans.), Brian Pearce, (Marlia Press, London, 1977), p. 114.

13. A.K. Bagchi, The Evolution of the State Bank of India, Part-1, The Early Years: The Roots; 1806-1876, (Oxford University Press, Calcutta, 1987), p. 32.

its other business. Agency houses accepted deposits, lent money to merchants, shipowners, ship managers, planters and governments and generally helped finance external trade. They issued bank notes which were sometimes accepted even for public payments, particularly in periods when the government finances were embarrassed. But such banks were almost never real joint-stock banks, the capital was not subscribed by a large number of independent persons.<sup>14</sup> The oldest bank of this kind was the bank of Hindustan established and managed by Alexander and Co. from the 1770s but the exact date of its foundation cannot be ascertained. In 1773, Warren Hastings floated the General Bank for Bengal and Bihar with two main offices—in Calcutta and Murshidābād—and 14 branches besides several subagencies. It was a private establishment but under the patronage of the Company's government with Hazari Mal and Dayal Chand as its managers.<sup>15</sup> Bengal Bank was operated during these period. The General Bank of India was floated in 1786.<sup>16</sup>

Following were the main objectives of these banks:

- (i) to regularise the batta or rates of conversion between the different types of coins circulating in the Company's territory;
- (ii) to regulate the hundian or internal rate of

14. Ibid, p.32.

15. Ibid, p.45. Also see Pamathanath Banerjee, Indian Finance in the Days of the Company, (London, 1928), p.69.

16. Ibid, p.46.

exchange for transfer of funds from one place to another; and (iii) to limit the extreme seasonal variations of the supply of coin by persuading district collectors to deposit the revenue in the branch houses of the bank and take out bills on the head office payable in sicca rupees at a fixed rate of batta and hundian.<sup>17</sup>

From the brief description of history, aims and functions of banks in Bengal, it is possible to postulate that most of the officials of different banks of Bengal were most interested to finance those enterprises which were meant for yielding high profits. Their interest in financing proto-industrial and centralized industrial enterprises was negligible. Hence, these lack of finances from different financial channels available to invest in varieties of proto-industrial and centralized industrial enterprises, contributed significantly to the stagnation or de-industrialization or backwardness of Bengal.

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17. Ibid, pp.45-46.

The drain of wealth through various channels is alleged by political economists and economic historians as the major cause of deindustrialization or backwardness of Bengal's economy. It is a well documented area of economic history to be repeated here.<sup>18</sup> The drain of wealth, undoubtedly, had an adverse effect on industrialization in Bengal, employment opportunities, standard of living of the proto-industrial producers, national income, capital formation, etc.

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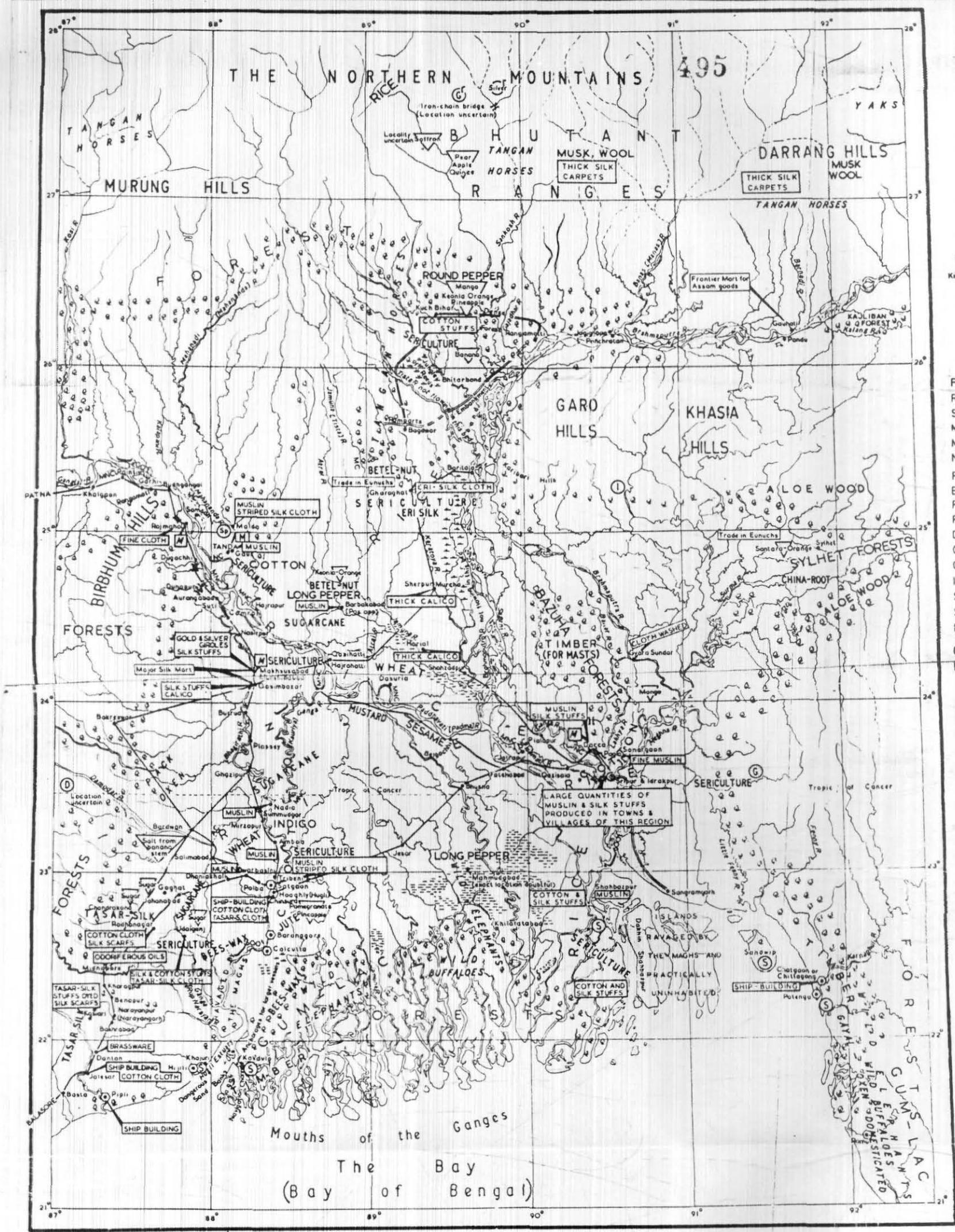
18. For a detailed description of drain of wealth see Morris D. Morris, "Towards a Reinterpretation of 19th Century Indian Economic History," IESHR, Vol. 5, No. 1, (Jan., 1968), pp. 1-15. Toru Matsui, "The Nineteenth-Century Indian Economic History: A Review of a Reinterpretation," IESHR, Loc., cit., pp. 17-33. Bipin Chandra, "Reinterpretation of 19th century Indian Economic History," IESHR, Vol. 5, No. 1, (Jan. 1968), pp. 35-75. Tapan Raychaudhuri, "A Re-interpretation of Nineteenth Century Indian Economic History", in the same Volume, pp. 77-100. Sourindranath Roy, "British Connection with India as a factor in pre-industrial capital Accumulation in England", India, Past and Present, Vol. 1, No. 1, (1984), pp. 72-78. Also see, K.P. Misra, Banaras in Transition 1738-1795: A Socio-Economic Study, (Delhi, 1974), pp. 95-154. Parmathanath Banerjee, Indian Finance in the Days of the Company, pp. 22-122. Irfan Habib, "Colonization of Indian Economy, 1757-1900", cyclostyled. S. Bhattacharya, "Industrial production, Technology and Market Structures in Eastern India, 1757-1857" cyclostyled, Irfan Habib; "Process of Accumulation in Precolonial and Colonial India", IHR, Vol. x1, Nos. 1-2, (July 1985-January 1986), pp. 76-77. Romesh Dutt, Economic History of India, Early British Rule, (London, 1906), pp. 18-24. Lajpat Rai, England's debt to India, (N. Delhi, 1967), p. 32. V.B. Singh, Indian Economy: Yesterday and today, (PPH, Delhi, 1970), pp. 8-22. ect. According to S. Bhattacharya, the Company's acquired 'domination' in the industrial field was of three kinds: "(a) domination of the market as the biggest single buyer; (b) extra market means, when supply of export goods and terms on which such goods were obtained were controlled; restrictions were imposed, informal or legal on the freedom of the producers; (c) in order to reinforce the above controls, a machinery for the procurement of export goods was devised so as to either subjugate or exclude Indian trading capital from spheres chosen by the Company."

Technologically, Bengal was far behind compared to the later 18th Century England. In Bengal, demands of various commodities played an important role in shaping the degree and level of industrial production, whereas in England it was primarily the supply. In Bengal, supply of various commodities was not a difficult problem on the part of the merchant capitalists. It was the proto-industrial producers who carried all the risks of supply of the commodities demanded by European Companies, European, Asian, African and India private merchants. That was why, while European putting-out capitalists in general and English putting-out capitalists in particular, explored appropriate and pertinent means to speed up the production process, merchant capitalists in Bengal did not promote the proto-industrial producers or educationists to explore the new areas of technological innovations and the time saving devices.

The raw materials for manufacturing machineries were of inferior quality and could not be utilised industrially. Coal, too, was of bad quality and could not be utilised for producing high energy to be used in manufacturing machineries.

Britain was far ahead of India so far as the decentralization of centres of learning and technology was concerned. London played relatively an insignificant role as an administrative and cultural centre compared to Agra, Delhi, Murshidabad and later Calcutta. India, during our period, did not establish local academic institutions like Britain's the Manchester Literary and Philosophical Society or the Universities of Glasgow

and Edinburgh, Cambridge and Oxford, that were situated near centres of industry. Hence, Delhi and Agra drained large number of talent from provinces and local centres of learning and technology. Since, the modern industries of manufacturing were situated in the rural regions, although some manufacturing activity definitely developed around the capitals, a highly centralized state capital city like Delhi and Agra and later Calcutta is at disadvantage compared to a de-centralized state like Britain. This was a major cause in the de-industrialization of Bengal.

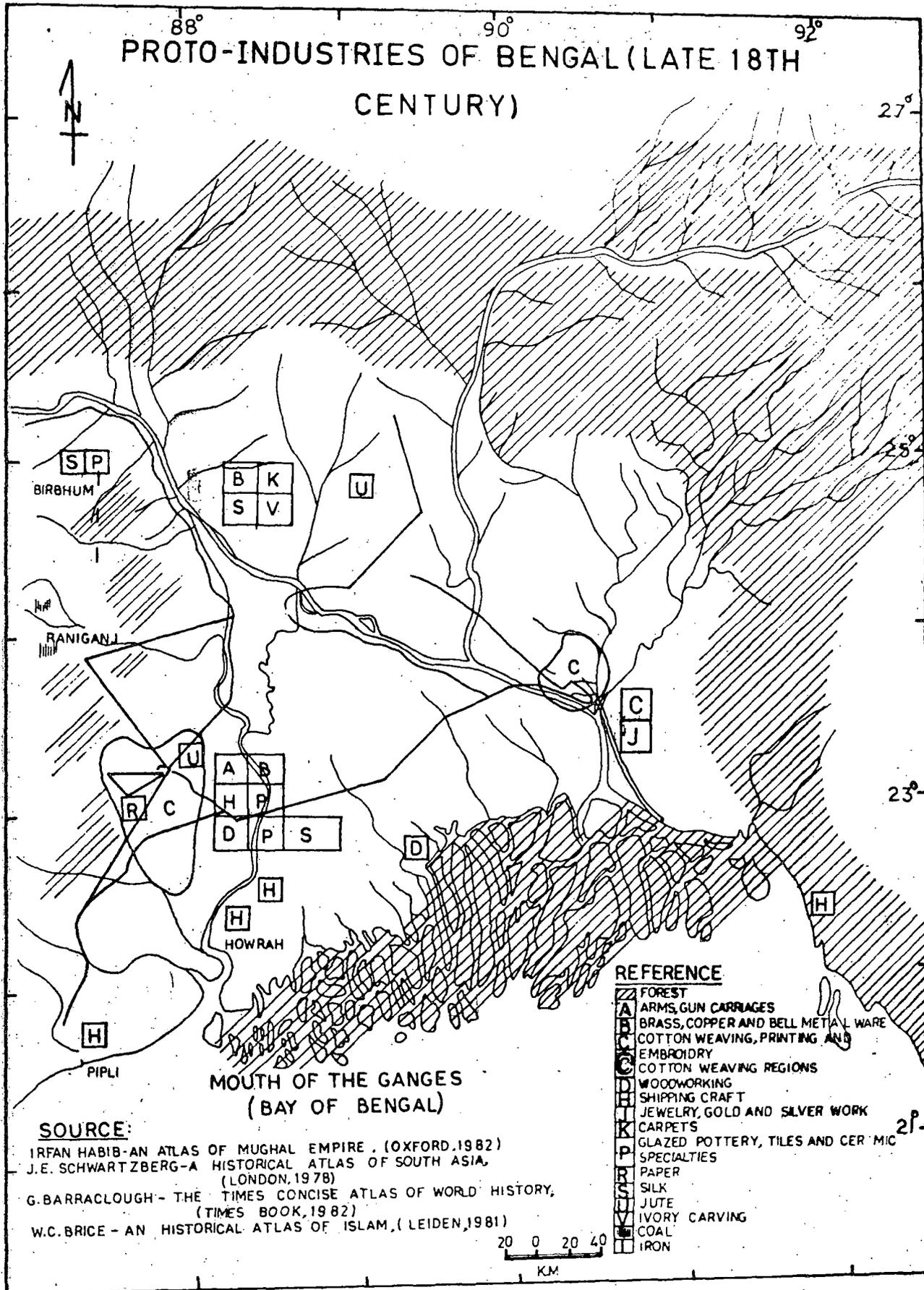


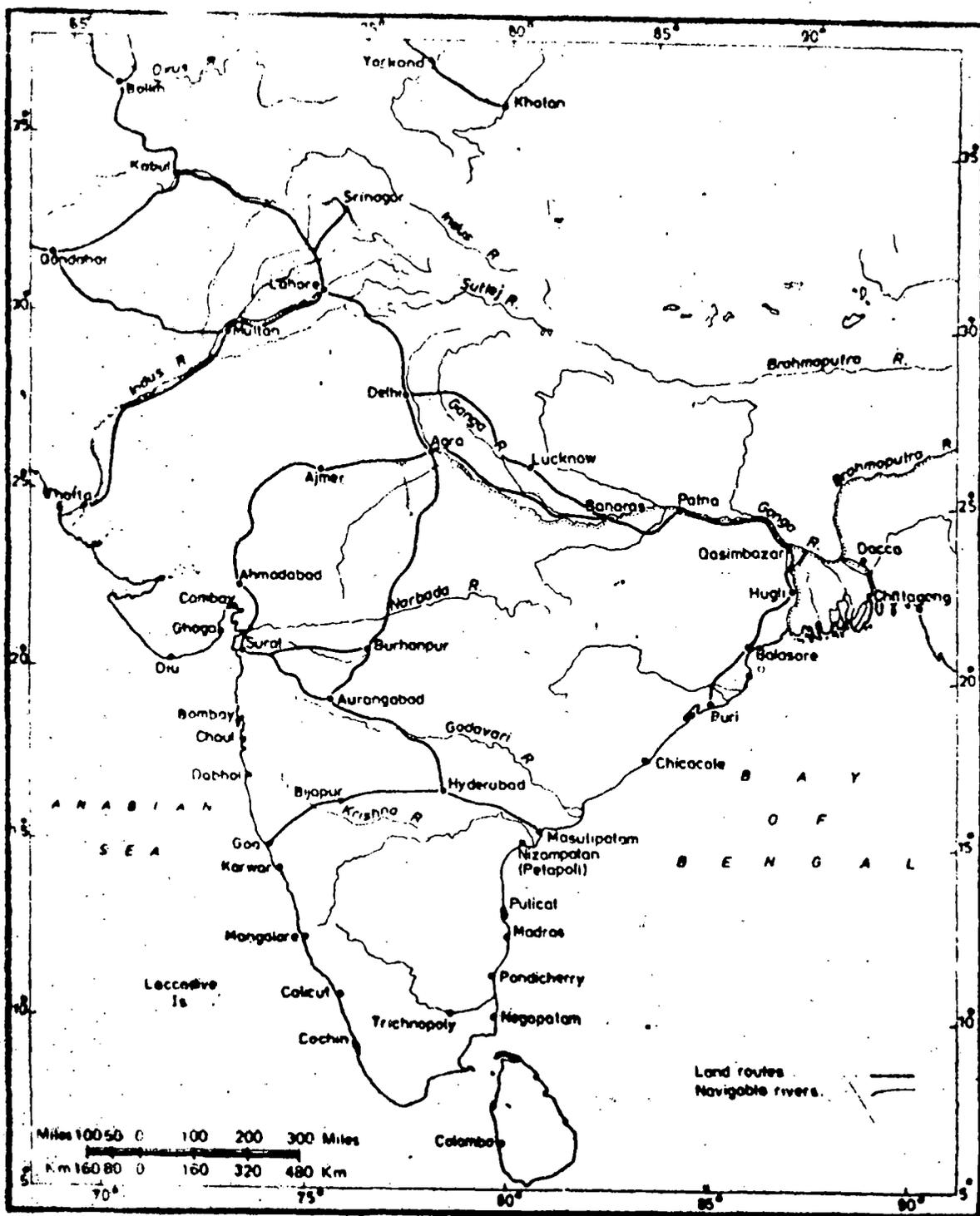
MAP. 11. PROTO-INDUSTRIES OF BENGAL (17TH & 1ST HALF OF THE 18TH CENTURIES)

Scale 1:2,000,000  
 Miles 0 10 20 30 40 50  
 Kilometres 0 10 20 30 40 50 60 70

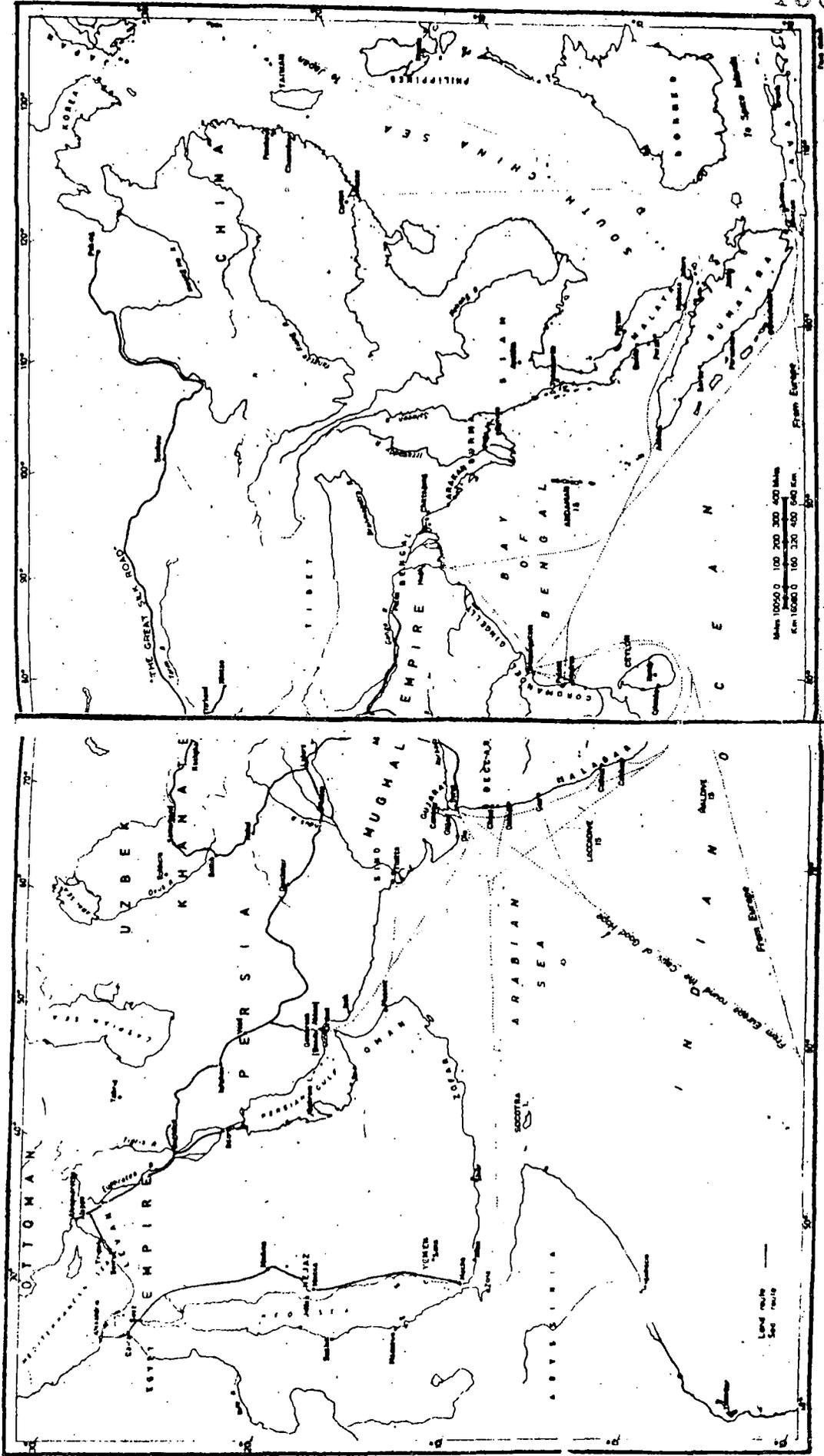
- REFERENCE
- Forest
  - Reeds
  - Swamps
  - Main channel of river
  - Main navigation channel
  - Navigable, with tonnage of larger boats/ships
  - Port
  - Bridge
  - Raised highway(ail)
  - Route
  - Diamond mine
  - Gold mine
  - Gold from river sand
  - Iron mine
  - Salt pans
  - Saltpetre
  - Fruits, processed/localised agricultural product
  - Craft product
  - Rupee mint, 1595
  - " " Aurangzeb
  - Active channel
  - Navigable channel

# PROTO-INDUSTRIES OF BENGAL (LATE 18TH CENTURY)





MAP. 13. MAJOR ROUTES AND PORTS, 17TH CENTURY



MAP. 14. ASIA AND THE INDIAN OCEAN : MAJOR TRADE ROUTES AND PORTS, 17TH CENTURY

APPENDIX-ICOMPARATIVE AND STATISTICAL DESCRIPTION OF THE SUPERIORITY  
OF INDIAN MUSLINS

It was generally believed that in the exhibitions of 1851 and 1862 there were muslins of European make which appeared finer than any thing there from India. It was admitted by all that so far as the apparent fineness was concerned 'India bears the palm! This is because of the greater compression of the thread, depending on the mode of spinning and by a consequent lessening of its diameter.<sup>1</sup> Apparent fineness is not actual fineness, but actual fineness loses much of its value by seeming coarse. It was thought that the superiority of muslins was determined by the diameter of the thread, the number of filaments in it, and the diameters of the filaments themselves.

These measurements lead to the following conclusion:

- (i) That the diameter of the Dacca yarn was less than that of the finest European. ~~The two finest specimens of the diameters of threads of European.~~ The two finest specimens of the diameters of threads of European muslin, gave .00222 and .002167 of an inch while the two specimens of Dacca malmal khās gave .001526 and .001869 respectively. It was the appreciable difference among the samples in favour of Dacca malmal khās.
- (ii) That the number of filaments in each thread was considerably smaller in the Dacca than the European yarns. The two European yarns gave 13.8 and 14.9 and the two Dacca yarns gave 9.0

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1. J. Forbes Watson, The Textile Manufacture and the Costumes of the People of India, (H. Allen and Company, London, 1867), p. 39.

and 8.6 respectively.

(iii) That the diameter of the ultimate filaments or fibres, of which the cotton of the Dacca yarn consisted was larger than that of the European. The two Europeans gave .0006427 inch and .000539 inch whereas the two Dacca are constructed of .000803 inch and .000719 inch.

(iv) From the table I it appears that the superiority of Dacca yarn depended chiefly on the fact that it contained a smaller number of filaments. The mode of spinning compressed it more that affected the result greatly. By taking into account the greater thickness of the filaments in Dacca cotton, it became obvious that their smaller number must provide a finer thread 8 to 9 filaments of a diameter of .000803 and .000719 in the two Dacca muslins must provide a thread smaller in size or finer than the European filaments shown in figure I.<sup>2</sup>

The measurement of the diameter of the thread of the specimen Muslins was important because the sizing might influence the quality. The expert of these specimens was Thomas Houldsworth of Manchester, an expert in the muslin production of Manchester, who remarked that "A comparison, however, of this muslin with the Dacca piece as tested by the eye and feel would lead "to the opinion that the Indian piece was the finer."<sup>3</sup> The condition of the fibre with reference to the amount of twisting received in the process of spinning constituted another advantage for the Dacca muslin.

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2. Ibid. pp.61-62.

3. Ibid. p.62.

TABLE - I

Description and C		Diameter of threads (Parts of an inch)			Number of Filaments in thread			Diameter of Filaments in thread in parts of an inch †		
		Minimum	Maximum	Mean	Minimum	Maximum	Mean	Minimum	Maximum	Mean
French Muslin, manu- factured by M. Thibel Michon, of Lavone, from thread of 440's spun by Thomas Hou- ldsworth & Co. Shown at the International Exhibition of 1862.	1st sample	.0020	.0040	.003000*	5	12	8.5*	.00036	.00100	.00068*
	2nd "	.0015	.003	.002200	8	21	12.7	.00050	.00075	.000618
	3rd "	.00125	.003	.002025	7	18	11.7	.00050	.00087	.000637
	4th "	.0015	.003	.002350	10	20	15.5	.00037	.00087	.000625
	5th "	.0015	.003	.002225	9	26	15.8	.00050	.00087	.000687
	Mean	.....	.....	.002220	...	..	23.8	.....	.....	.0006427
English Muslin, sta- ted from thread of 540's yarn. Exhibited in International Exhibition of 1851	1st sample	.0018	.0032	.0025*	7	14	10.5*	.00030	.00084	.00057*
	2nd "	.00175	.0031	.00215	9	23	16.7	.00050	.00075	.000575
	3rd "	.000125	.00325	.00215	7	22	13.6	.00037	.00075	.000500
	Mean	.....	.....	.002167	...	.....	14.9	.....	.....	.000539
Dacca Muslin, Mulmul Khas from Indian Mu- seum. Length 4 yards + width, 1 yard. Warp, + threads per square inch, 100. Weft thr- eads in square inch 92. Weight of piece 566.8 grs. Computed no. of yarn in piece 406's.	1st sample	.0014	.0032	.0023*	5	12	8.5*	.00030	.00102	.00066*
	2nd "	.001	.0025	.001625	5	14	9.2	.00062	.00125	.00080
	3rd "	.0075	.002	.00135	4	18	8.9	.00062	.00112	.00082
	Mean	.....	.....	.001526	.....	...	9.0	.....	.....	.000803
Dacca Muslin, Mulmul Khas exhibited in Indian Section of the International Exhi- bition of 1862. Length, 10 yards 12 inches. With 1 yard. Warp th- read in squar inches, 104. Weft thread in square inch 100. Weight of pi- ece, 1565 grains. Compu- ted No. of Yarn in piece 380	1st sample	.0015	.0035	.0025*	4	10	7*	.00038	.00098	.00068*
	2nd "	.00125	.00375	.002175	5	15	9	.00050	.00075	.000681
	3rd "	.00125	.00225	.001825	4	12	8.1	.00062	.00087	.00095
	4th "	.001	.0025	.0017	5	16	8.9	.00062	.00100	.000725
	5th "	.001	.0025	.001825	4	17	8.8	.000375	.00100	.000725
	Mean	.....	.....	.001896	...	...	8.6	.....	.....	.000719

Source: J. Forbes Watson, The Textile Manufacture and the Costumes of the People of India, P.61.

\*Those marked thus are the means of the highest and lowest of all the measurements made. The means without the asterish are calculated from the sum of ten separate measurements. The general means are calculated by using the means marked by the asterisks as one observation the other being multiplied by ten, and so giving the sum of all the observations from which they are drawn.

† To ascertain this, the size was in each case removed before the separation into filaments was attempted.

‡ This applies to the portion used for experiment; the original length of the piece was 10 yards.

TABLE 2

\*Calculated from ten separate measurements

Description	Diameter of threads (Parts of an inch)			
	Minimum	Maximum	Mean*	
French Muslin (International exhibition of 1862)	1st sample	.001	.00325	.001875
	2nd sample	.00125	.00325	.001925
	Mean			.0019
English Muslin (International Exhibition of 1851)	1st sample	.001	.00275	.00180
	2nd sample	.00125	.0025	.00180
	Mean			.0018
Dacca Muslin (India Mus- lin)	1st sample	.00075	.002	.00130
	2nd sample	.001	.0025	.001375
	Mean			.0013375
Dacca Muslin (Internati- onal Exhi- tion 1862)	1st sample	.001	.00225	.00155
	2nd sample	.001	.00225	.001575
	Mean			.0015625

Source: Ibid, p.62.

TABLE 3

Description	Number of twisting in thread per inch			
	Minimum	Maximum	Mean*	
French Muslin (International Exhibition 1862)	1st sample	32	172	73.2
	2nd sample	46	166	64.4
	Mean	-	-	68.8
English Muslin (International Exhibition 1851)	1st sample	26	114	55.6
	2nd sample	28	146	57.6
	Mean	-	-	56.6
Dacca Muslin (Indian Muslin)	1st sample	64	260	121.8
	2nd sample	46	190	98.4
	Mean	-	-	110.1
Dacca Muslin (International Exhibition 1862)	1st sample	48	196	82.8
	2nd sample	88	144	78.6
	Mean	-	-	80.7

\* Calculated from the sum of ten separate determinations

Source: Ibid, p.63.

APPENDIX-iiTHE DIFFERENT VARIETIES OF MUSLIN.

The muslins were comprised of plain, stripped, chequered, and coloured varieties and were distinguished by names which signified fineness, or and transparency of texture or denoted its origin with their patterns, etc. Most of the muslins produced at Dacca comprised most commonly of the following dimensions: Dacca muslins were 20 yards in length by 1 in breadth. The number of the threads in the warp is reckoned by the number of dents in the reed used in weaving the fabric, but as 2 threads passed through each division of this instrument, the actual number of thread became twice as expressed by the weavers.<sup>1</sup> There were more threads in the warp than in the woof, in a piece of muslin weighing 20 tolās or sicca in the proportion of 9 to 11.

Thread spun at Dacca, woven into muslin in the proportion of 7200 yards to 1 tolā or 180 grains weight of cotton or upwards of 160 miles to a pound of the staple. The Dacca thread was usually softer than the English mule twist. It was irregularly twisted and appeared under the microscope, like an ill made hair rope bristling with loose strands and the filaments were flat and ribbon shaped. It was on this shape of the filaments in their separate state that the transparency of the Dacca muslin depended.<sup>2</sup>

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1. James Taylor, A Descriptive and Historical Account of the cotton Manufacture of Dacca in Bengal (John Mortiner, London, 1851), P.41.

2. James Taylor, A sketch of the topography and Statistics of Dacca, (Calcutta, 1840), P.169.

The cost of a plain muslin was estimated by its length and the number of threads in the warp compared with its weight. The greater the length and the number of threads in the warp, the less the weight of the piece, the higher the price. It was rare that a web of a finest muslin consisted wholly of the finest thread possible to spin. It was often difficult to procure a sufficient quality of this article for the loom. As a result, the commercial resident of Dacca in 1800 mentioned that no cloth was ever made at Dacca of thread of one quality only. Each variety of muslins comprised fabrics of 3 or 4 assortments or degrees of quality and designated as 'ordinary', 'Fine', 'Superfine' and 'fine super fine'.<sup>3</sup> It is stated that in the time of Jahangir a piece of abrawān muslin could be manufactured measuring 10 cubit in length by 2 cubits in breadth and weighing only 5 Siccas or 900 grains, cost Rs.400.<sup>4</sup>

Following are the important qualities of muslins:

Malmal khās- It had from 1800 to 1900 threads in the warp and generally manufactured in half piece, each measured 10 yards in length by 1 in breadth. It costs Rs.100 weighed 3 oz. 2 divt.

Jhuna- was a net like muslin, dimensions 20 yards by one, number of threads in the warp were 1000 weighed 8.5 oz. This fabric was only worn by native dancers and singers.

Rang- was a muslin resembling the Jhuna in transparency and

3. James Taylor, A Descriptive and Historical Account of the cotton Manufacture of Dacca in Bengal, P.42.

4. James Taylor, A Sketch of the topography and Statistics of Dacca, P.172.

texture. It was produced by passing a single thread of the warp through each division of the reel. Its dimension was 20 yard by 1 yard and the number of threads in the warp was 1200. It weighed 8 oz 4 drs.

Abrawān- was a fabric possessing a very thin texture. Its dimension was 20 yard by 1, number of thread in the warp was 700 to 14000 which weighed 9 toll. 5 oz.

Sarkār Alī muslin - was of delicate texture manufactured for the use of Nawabs of the province. It was 10 yards by 1 yard, consisted of 1900 threads and weighed 4 to 4.5 oz.

Khāsa- was a muslin of a fine close texture. The finest variety of it was called Jungle Khāsa made of 20 yards by one yard or 1.5 yard consisted of 1400 to 2800 threads and weighed 2.1 oz.

Shabnam- was a thin pellucid muslin of dimensions of 20 yard by 1, number of threads in the warp was 700 to 1300 which weighed 10 to 13 oz.

Ālābalee-was a muslin of close texture of the dimensions of 20 yards by 1, which was consisted of 1100 to 1900 threads in the warp, weight of a piece with the latter number of threads was about 17 oz.

Tanjeb- had the dimensions of 20 yards by 1 having 800 to 1900 threads in the warp and weighed 10 to 18 oz.

Tarāndam- was of similar dimensions consisted of 1000 to 2700 threads in the warp and weighed 15 to 27 oz.

Nain-Sukh- price 4 to 80 Rs. per piece of similar dimensions which was made of 2200 to 2700 threads in the warp.

Buddun Khās- was of 10 to 24 yards by 1.5. It was made of 2200 threads in the warp which weighed 12 oz.

Surbud - of 20 to 24 yards by .5 to 1 yard, comprising 2100 threads in the warp which had the weight of about 12 oz.

Sharbati- was a muslin that was worn as a turban. Dimensions, number of threads and weight are the same as the surbud.

Kumees- used for making Muḥammadan Kurta made of 20 yards by 1, consisting 1400 threads in the warp with weight about 10 oz.

Doriā- was a striped muslin. From each thread in the stripes being composed of 2 threads twisted together. These threads were generally made of a variety of cotton called bangā through the process of 10 to 12 yards by 1 to 1.5, which had 1500 to 2100 threads in the warp.

Chārkhanā- was the chequered muslin with similar dimension and number of threads in the warp as the doriā.<sup>5</sup>

Bāftā- was a cloth of stout and strong texture, made principally at the manufacturing stations of the Tipperah and at Kalakopa in Dacca jellore. It held the dimensions of 12 yards by 1.

Booneea- a cloth which was made of either with a red or black border. Its dimensions were of 10 yards by 1.

Ekpattā- was a cloth of which two pieces formed a dress.

It was chiefly worn by Brahmins.

5. James Taylor, A Descriptive and Historical Account of the cotton Manufacture of Dacca in Bengal, pp.43-53.

## APPENDIX-iii

VARIOUS DESIGNS USED IN JĀMDĀNI MUSLIN

Among the loom-decorated fabrics of India, the flowered and figured weaves, named jāmdānis had the world wide reputation and it was most artistically produced in some parts of Bengal.<sup>1</sup> The fabric was generally of grey cotton, embellished in bluish-black designs or sometimes in brilliantly coloured cotton or gold or silver thread. When the fabric was used for sāri, the end had large bold motifs in the cornus, with variations of the cone or shawl pattern. The field of the sāri comprised of small sprays of flowers, either scattered on the whole of the sāri or arranged in diagonal lines. If the flowers' patterns were scattered on the sāri, it was called butidār. While it was called tercha in case the sprays were in diagonal lines. If the floral designs form a regular network, it was called jālaār.<sup>2</sup> The finest jāmdāni was the pannā-hazārā i.e. a "thousand emeralds", so called when the patterns in a butidār fabric were conneted with each other by horizontal bands of closely set, irregular, quâtrefoil spots.<sup>3</sup>

The finer descriptions of flowered muslins were made of country thread. They were sent to Oudh and the different native courts of Hindustan but the whole quantity manufactured did not exceed one lakh of rupees in value. This manufacture had been introduced by the muslims who dominated its manufacture during the period under review. During the Mughal period, the weavers of jāmdāni muslins were prohibited from selling it above a stated value to foreign

1. Dr. S.K.Saraswati, Indian Textiles, p.22.

2. Rustom J. Mehta, The Handicrafts and industrial arts of India, (Bombay, 1960), p.97.

3. T.N.Mukherjee, Art and Manufacturing, p.369.

merchants. The weavers of jāndāni muslin were also taxed.<sup>4</sup>

Among the other designs were the phulwār, in which a floral pattern ran all over the piece at the torādār containing large and realistically depicted flowers. Designs of jāndāni were as follows :

Buti- Single flower.

Butā- Flowers are large.

Turang- Shawl pattern.

Chāndā- Circular buti.

Pānbuti- Like the leaf of the pan.

Fandibuti- Spots.

Bati Jhardans- Springs of flower.

Torā buti- Star shaped buti.

Jamewar buti- Large flowers arranged in rows.

Dorakata- Striped design.

Kabutar chap- designs like pigeon holes.

Gopul char- Floral designs.

Doriā- stripped.

Shaburgā- spotted.

Gendā- marigold.

Jālāār- When the patten run like network over the fabrics.<sup>5</sup>

4. James Taylor, A Sketch of the topography and statistics of Dacca, (calcutta, 1840), pp.172-173.

5. Ruston J. Mehta, Op.cit., pp.98-99.

## APPENDIX-iv

LIST OF ASSORTMENTS MANUFACTURED IN BENGAL BETWEEN 1750 AND 1800 CLASSIFIED BY PLACE OF MANUFACTURE AND EXPORT.

<u>Assortment.</u>	<u>Place of Manu- facture.</u>	<u>Export Market</u>	<u>Quality.</u>
<u>Addatis,</u> <u>addis</u>	Harial, Dacca, Malda, Qassimba- zar.	London re-export <sup>ab</sup>	Fine <u>malmal</u> wigh gold thread
<u>Achhabani</u>	Sonamukhi	London re- export <sup>ab</sup>	Fine Cotton
<u>Allabani</u>	Duniakhali, Hughli, Malda	London re- export <sup>ab</sup>	Silk and cotton striped
<u>Allaballi</u>	Songargaon	ab	Very fine white mal- mal
<u>Abrawahs</u> <u>Baftas</u>	Dacca Birbhum, Jagdia, Chittagong, Lakhipur, Rang- pur	ab Barsra, Achee n, Malacca, Jeddah, Pegu, Mani- lla <sup>ab</sup>	Fine <u>malmal</u> Ordinary plain cotton
<u>Bandannoes</u> <u>(Bandhama)</u>		London re- export; <sup>a</sup>	Silk scarves dyed in the thread
<u>Caradari</u>	Burdwan, Midna- pur, Harial	London re- export Eu- rope <sup>a</sup>	Silk and cotton striped or checked
<u>Callapatti</u>	Lakhipur	b	
<u>Chillaes</u>		London	Blue and white stri- ped handkerchief
<u>Chucklaes</u>	Midnapur and Patna		Mixed silk and cotton
<u>Cuttanis</u>	Sonamukhi		Mixed silk and cotton
<u>Cushtaes</u> (from kush- tia)	Burdwan, Nadia	b	Mixed silk and cotton
<u>Chintz</u>			
<u>Chaharkhana</u>	Midanapur Dhakal, Hughli	London re- export <sup>b</sup>	Silk and cotton checked cloth
<u>Chowbars</u>	Hughli, Midnapur	a	White thick calicoes
<u>Coopris</u>	Midnapur	ab	Plain white
<u>Malmal</u>	Dacca, Santipur Midnapur, Balsore Malda, Kasijura, Shabazar, (Lakhipur)	Europe <sup>ab</sup>	Fine white/embroi- dered

<u>Mushroes</u>	Harial		
<u>Nillaes</u>	Midnapur, Balasore		Striped blue cloth <u>tasar</u> and cotton
<u>Nainsukh</u>	Haripal, Dacca	b	Plain superior used for neck-kerchiefs
<u>Peniascoes</u> ( <u>Panaskil</u> )	Midnapur		Coloured from pineapple fibre
<u>Photaes</u>	Gollaghar	b	Dyed calica coarse to medium
<u>Roomals</u> ( <u>soot roomals</u> )	Burdwan, Baranagar, Gollaghar	Manilla, <sup>b</sup>	Handkerchief
<u>Raing</u>	Dacca	Europe <sup>b</sup>	Transparent <u>malmal</u> thread passes through each reed
<u>Sannas</u>	Midnapur	Amboyne, Borneo <sup>b</sup>	Plain flax or linen, medium quality
<u>Sera Sakhara</u> ( <u>Seersucker</u> )	Santipur, Midnapur, Haripal, Malda		Silk and cotton crepe like turbans
<u>Shalbashta</u>	Midnapur		<u>Shawls</u>
<u>Soosi</u>	Malda, Harial, Burdwan, Radhnagar	Amboyne, Borneo, <sup>b</sup>	Striped or checked silk and cotton
<u>Sarkar Ali</u> ( <u>Circar Ali</u> )	Dacca		Fine muslin
<u>Shabnam</u>	Dacca	b	Plain muslin
<u>Tanjeb</u>	Buddaul, Dacca, Malda	Manilla, London, <sup>b</sup>	Superior plain cotton embroidered
<u>Terrandam</u>	Santipur, Dacca, Buddaul, Haripal, Burdwan	Manilla <sup>b</sup>	Fine plain muslin

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Embroidered Assortments	Place of Manufacture	Quality
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<u>Chikan</u>	Dacca (Dhamrai)	Muslin embroidered with white cotton thread
<u>Kashida</u>	Dacca, Malda	Muslin embroidered with silk thread

<u>Tartore</u>	Dacca	New designs introduced in 1789.
<u>Samadlahar</u>	Dacca (Sonargaon)	(Nb: Samadlahar thread was made in Jangalbari and sent to sonargaon for embroidery)

Additional assortments listed in the French Trade

Puteahs

Teapoys

Additional Assortments listed in Private Trade

Jāhāngīr Malmal Dacca

Additional Assortments listed in Private Trade

<u>Baftas</u>	Dacca
<u>Saris, Lungis, Dhutis</u>	Qassimbazar
<u>Kotuses,</u>	Birbhum
<u>Cockpattis, Kaberdul,</u>	
<u>Nababy, Brossboy,</u>	
<u>Chierbari</u>	Radhnagar
<u>Plachas, Mushroes</u>	Malda
Lawn	Midnapur
<u>Duriya Muga</u>	
<u>Sarpeach</u>	

Collated from :

1. John Irwin & Schwartz, Studies in Indo-European Textile History, (Ahmedabad).
2. IOR. Bengal Commercial Reports.
3. IOR. Accountant General's Reports IAG/1/6/14.p.207.
4. Io. Bengali MSS.4017-4048.
5. Hameeda Hossain, The Company Weavers of Bengal : The East India Company and the Organization of Textile Production in Bengal, 1750-1813, (Oxford University Press, 1988).

APPENDIX-VDIFFERENT TYPES OF EMBROIDERY IN BENGAL IN THE 17TH AND 18TH CENTURIES.

On cotton fabrics the patterns were made of cotton, silk or gold or silver and were twisted with silk thread called the kalabatun. The heaviest kind of embroidery was known as karchob.<sup>1</sup> The silk which was utilized in both of common and floss varieties, previously was an article of exportation from Dacca in the name of Dacca silk. The gold and silver thread and wire were of different types:

- i) Goolabatoon, used for embroidering muslins;
- ii) Goshoo, for embroidering caps;
- iii) Sulmah, utilised for embroidering caps, slippers, Hookah and nakes etc.
- and iv) Boolum, for the manufacture of gold lace and brocade.<sup>2</sup>

Gold and silver lace was made in Boorhanpur, Murshidabad, and other places. It was of two kinds: the first was called kinara and was from 1 to 3 inches in width; the second was known as gota, which was only from 1/8 to 7/8 of an inch in breadth. The gold and silver wire was usually of a superior quality. Occasionally, inferior article called gilt or or silvered copper wire was utilised.<sup>3</sup>

Dacca weavers frequently made the patterns run obliquely across a piece called tercha. When the patterns ran like a network over the fabric, it was called jaldar. Other patterns

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1. J. Forbes Watson, The textile Manufacture and the Costumes of the people of India, p.113.

2. Ibid, p.117.

3. Ibid, p.113.

of jamdani cloth were known as genda, shaburga or spotted etc.<sup>4</sup>

The humid climate of Bengal was particularly favourable for the manipulation of fine yarn and at Dacca muslins of exquisite delicacy and texture were woven on looms of almost primitive simplicity. Some of them were patterned in stripes, charkhana etc. and worn in thicker and softer threads of white cotton. Jamdani were woven by a brocading technique which was loom embroidery.<sup>5</sup> The needle embroidery of Dacca exploited the same technique of thick soft white cotton upon fine cloth. Much of the production from this technique were piece goods for costume, though the motifs had greater freedom of design. Upon rumals the design covered was figurative, subjects were borrowed from the imagination of folk embroidery.

Kasida was the name given to cloths embroidered with mugga silk or coloured cotton thread.<sup>6</sup> This was the most celebrated branch of art at Dacca and formed the leisured occupation of most of the females of Muslim community. Kasida embroidery was done on gold coloured mugga silk in dark stitch and in satin stitch on muslin. Charming specimens of kasida embroidery were found among the nilambaris of Dacca. Azinganj in the Murshidabad district was famous for its embroidered kamarbands done in satin stitch. Hill tribes of Eastern Bengal produced elegant kasida embroidery.<sup>7</sup> Kasida was a favourite

4. T.N.Mukherjee, op.cit. , p. 369.

5. John Irwin and M.Hall, Indian Embroidery Historic Textiles of India at the Calico Museum, Vol.II, (Bombay, 1973), p.180.

6. T.N. Mukherjee, op.cit., p.369. Also see James Taylor, op.cit., pp.106-107.

7. Dr. S.K. Saraswati, Indian Textiles , pp.43-44.

cloth among the Arabs. Especially the Persian and Turkish patterns were known as mugga-charkhana-kasida, kata-rumi-kasida, nila-charkhana-kasida etc.

Embroidery with cotton threads rather than silk thread was generally called the chikankari or chikan-dazi.<sup>8</sup> Chikankari involved a great variety of ornamental figured or flowered work on muslin gowns, scarfs, tippetts etc. It also constituted a variety of network, which was formed by breaking down the texture of the cloth with the needle and converting it into open meshes. Muslim dresses were frequently ornamented in this style. There were probably 30 varieties of chikankari.<sup>9</sup>

This embroidery employed a considerable number of people.

In chikankari, the patterns (nakshas) were first sketched on paper and afterwards, along the lines of the drawings were smeared a coloured liquid that contained charcoal powder. The perforations allowed the designs to be transferred to cloth on which delicate embroideries were worked out by women artisans. Cheaper products consisted of 'cut work' with small bits chipped off from the cloth according to design and the edges were stitched by hand to produce motifs.<sup>10</sup>

Kanthas of East Bengal were really like phulkaris and were made primarily for domestic use and represented in folk

8. T.N. Mukherjee, Op.cit., p.369. Also see Rustam J.Mehta's The Handicrafts and Industrial arts of India, p. 97.

9. James Taylor, op.cit., p.106.

10. Aniya Kumar Banerjee, West Bengal District Gazetteer, Hooghli, (Calcutta, 1972), p.289.

expression of the embroiderer's art. It was embroidered in a variety of designs.<sup>11</sup> The whole cotton fabrics of discarded old saris and dhotis was first pieced together to make the ground, several layers being utilised to form the required thickness and the edges folded and loosely tacked together. The field work was then quilted in white thread. Coloured threads extracted from the borders of the pile and the surface ornamented with various human and animal figures, foliage and floral designs,<sup>12</sup> were used for the needle work.<sup>13</sup> Sometimes parts of the design were composed in applique work.

Though in the common type, an original and reverse side could be seen, in the finest ones, the embroidery stitches were so cunningly made that the designs appear the same in shape and colour on both sides of the fabric, so much so, that it became difficult to differentiate the obverse side from the reverse.

In some of the kanthas, embroidery started from the middle with a lotus motif and went round and round spirally to decorate the centre of the field. The tree of life motif extended from each corner towards the centre. In another kind, the kantha was divided into panels each filled with rich embroidery.<sup>14</sup> Simple running and darning stitches were combined with ingenuity to make lotus medallions, richly decorated cones or

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11. Dr.S.K. Saraswati, op.cit., p.45.

12. Ibid., p.115.

13. John Irwin and M.Hall, Indian embroidery, vol.II, p.171.

14. Ruston J.Mehta, op.cit., p.115.

whorl like flowers worked in concentric spirals of pattern designing.<sup>15</sup> These motifs appeared in constant variety, their decorative sensitivity resembled the alpanas.<sup>16</sup> Some of the kantha border patterns had close similarities to woven designs of Assam and Arakan. Combined with these patterns which spring naturally from the technique of stitchery were hand drawn motifs of great vitality. The borders consisted of ~~floral~~ floral scrolls, creeper designs, spirals, vortices and many other such linear devices. Subject matters were borrowed from domestic life, evocations of music and dancing. Animals appeared frequently as single motif or in lively scenes.<sup>17</sup>

In kantha, the embroiderers first laid out the pieces of cloth, the best pieces forming the surface and the inferior, the interior. The embroiderers first finished the work of the centre through all layers of the fabric to form a pattern on both back and front of the quilt. Then the embroiderers worked outward by adding the surrounding motifs and consolidated the firmness of the quilt. After the embroidery of the motifs was completed, the intervening ground was sometimes quite in running stitch in white. The embroidered border was always closely worked to firm edge to the quilt.

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15. John Irwin & M. Hall, Indian Embroidery, vol. II, p. 171.

16. Alpanas, the designs drawn by Bengal's women in rice paste upon parts of the house as a domestic ritual. See, Ibid, p. 171.

17. Ibid, p. 171.

The outline of the design was generally in dark blue, filled ~~ed~~ with stitches of the same colour. Sometimes, the outlines and the area enclosed by the outlines were in blue, with stitches in red between the outlines and the fields. Any area left while embroidering the design, were further reinforced with stitches in white running parallel with the outlines of the motifs.<sup>18</sup>

Seven different types of kanthas were recognised:

- i) The Lep, a warm wrap for the winter, about six feet by four feet in size and were thickly quilted.
- ii) The sojni, generally large and rectangular in shape, about six feet by three feet in dimension. It was also used as a bed spread or blanket. Sujnis were made at malda, Rajshahi, Nadia, puri and other districts of Bengal.
- iii) The Baytan, a wrap for books and valuable articles. It was in square shape about three feet each way with wide borders made of rows of animals and human figures. The centre was embroidered with lotus motif. The four corners might also show the lotus or kalka designs.
- iv) The Oar, was a pillow case and rectangular in shape. An extra ornamental border was always sewn round the four edges.
- v) The Arsilata, was a wrap for combs and mirrors. Thus design motifs were generally free.
- vi) The Durjani or Dhalia, was a kind of wallet, square in shape. The borders were embroidered with an additional lotus design in the centre. To make the wallet, three of the corners were

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18. Ruston J. Mehta, op cit., p.45.

folded inwards so that their points meet in the centre, the edges were next together and a string fixed to the loose top and wound round the wallet to secure it.

vii) The rumal, was in square shape. The designs in rumal were were simple mostly a lotus in centre, around which a variety of other motifs was arranged.<sup>19</sup>

Some kanthas had the ritual designs, especially the mandala and kalsa designs. In the centre of mandala was fixed the satadala padma or hundred petalled lotus and this was surrounded by several concentric rings of thread work.<sup>20</sup>

Applique work done on kanthas quite commonly were of two types: first was used on large areas as on flags and canopies. The motif was of lotus or lion kind cut out of red cloth and stitched on the background of white cloth; second, coloured lotus were cut up into narrow stripes and sewn on as a braid round the outlines of the design. This was most common on pillow cases.<sup>21</sup>

Different types of stitches were utilised, the commonest and the most typical being very small darning stitches, providing dotted lines. For enlarged one back stitches were applied to cover the closely made lines. Simple basic stitches were predominated by chain, running and stem stitches. In the 17th century embroideries, the silken stitches were employed to reflect an interplay of light where the sheen of the silk

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19. Ibid, pp. 115-116.

20. Ibid, p. 116.

21. Ibid, p. 116.

produced an illusion of several shades of yellow to which the restrained use of opaque white cotton gave a subtle foil.<sup>22</sup>

Another Dacca embroidery was known as jhappan, made in a vertical loom. It was embroidered both with cotton and silk. "The patterns are very beautiful, sometimes consisting of a square chequere diaper of green double lines, the longer squares being changed with the figure of a split pomegranate in maroon gold colour, the smaller squares at the intersections of the double lines of the chequer bands have 8 foiled rosettes of alternate green and gold colour petals, the intervening band-spaces being filled with green foliage."<sup>23</sup> Others show "a very singular 'all over' scroll arabesque of birds, insects, foliage, flowers and fruit." jhabba was another embroidered cloth of Dacca.

Jhappan piece of the dimensions of  $4 \frac{3}{4}$  yards long by 34 inches in breadth, cost Rs. 15 to Rs. 60. Kasida  $5 \frac{3}{4}$  yards long by 34 inches broad cost Rs. 12 to Rs. 30. jamdani cloth,  $11 \frac{3}{4}$  to 34 inches cost Rs. 30 to Rs. 90.

Gold and silver embroidery was done with kalabatun thread in Murshidabad and Patna. Elephant-jhuls, horse trappings, canopies with fringes, palki-covers, prayer carpets, caps, slippers, monkey bags etc. were embroidered with karchob or karchikan work.<sup>24</sup>

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22. John Irwin and M. Hall, Indian Embroidery vol. II, p. 161.

23. T. N. Mukherjee, Art and Manufacturing, (Calcutta, 1881), pp. 369-370.

24. Ibid, p. 372.

APPENDIX-VI

TYPES OF SILK.

Most of the modern historians believe that three varieties of silk were produced in Bengal: mulberry, tassar and eri.<sup>1</sup> The first was grown more or less, throughout the North and West Bengal and in parts of Bihar. A Comprehensive study of the typology of mulberry silk will display that three well known varieties of mulberry silk were produced in Bengal. The first was called nistry, which was regarded as suitable for the warm and rainy seasons. The second was chota palu which was suitable for the cold season. And the third was called the barapalu, which was an annual variety, of which the egg stage continues for 10 months instead of 8 to 16 days as in the case of the other two.<sup>2</sup> Tassar cocoons existed in the whole tract from Rangarh to Midnapore. And endi worms were the common produce of Dinajpur, Rangpur and Assam. The Company's silk supply consisted generally of mulberry silk which was of two kinds: filature silk or factory produce and country wound or Bengal wound silk produced by indigenous workmen at home.<sup>3</sup>

J.F. Royle's information regarding the various quality of silk worms is as follows: The First kind according to

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1. J.Kumar, Company India: A Comprehensive History of India (1757-1858), (Janki prakashan, Patna, 1980), p.246.  
 2. Art in Industry through the Ages, Monograph series on Bengal, (Delhi 1976), p.8.  
 3. J. Kumar, Loc.cit, p.246.

him was the large annual worm reared only once in the year and yielded its produce from the middle of the March till May. Second important variety was the desi of which the cocoons were obtained throughout the year. This implied that there were four or five collections annually, of which the worm of the cold weather or March and April breeds were superior.<sup>4</sup> Thirdly, the china silk worms introduced into Bengal, next in estimation to the annual and country breeds; of these both the yellow and white cocoons were produced in abundance in the Radnagore districts. Fourthly, the resident also described the nistry type of worms, which were of three types: the Madraassie, the Soonamukhi and the cramee. The fifth important silk worms were tussah or tussar. These were of again three kinds: mugga, Toerah and Bonbund. The cocoons of these were collected in september and were called the rain weather sorts. There were other kinds of this quality collected in the dry weather months. These were denominated as dabba, and buggoy. Torry was an inferior sort collected in December found in Ramgarh to Midnapur. And finally, the jaroo kind, a variety, described by B. Hamilton and were occurring in large numbers in the districts of Bhagalpur and Dinajpur.<sup>5</sup>

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4. J. F. Royle, Essays on the productive Resources of India, (London, 1840), p. 126.

5. Ibid., p. 127.

APPENDIX-VIITYPE OF ORNAMENT.

Following ornaments were made during the period:

Sinthe- a chain worn on the middle of the head where the hair was parted.

Jingir- chain to tie up the hair.

Kanta- Hair pins.

Chirumi-comb.

Nath- large nose ring.

Nakchabi- stud, worn on the left side of the nose.

Makri- nose ring.

Nolok- a small ring with a pearl worn through the cartilage of the nose.

Dhenti- worn on the lobe of the ear.

Machh- a fish shaped ornament.

Pasha- flat circular ornaments worn through the lobe of the ear. It was a very old ornament.

Jhumka- it was flower shaped ornaments.

Kanphul- ornament of the ear.

Kanbala-a big ring shaped ornament.

Kan- ornament of the ear.

Birbauli-an old ornament.

Chandani- large earrings.

Pipul Patta- an ear ornament.

Dun- an earring.

Champa- an ear ornament.

Kantha Mala- a necklace made of elongated beads.

Mohan Mala- a necklace made of round beads.

- Panchnali- necklace consisting of five strings of beads.
- Satnali- necklace consisting of seven strings of beads.
- Har-a kind of necklace.
- Check-faceted necklace.
- Hansuli- ornament used on the neck of the women.
- Mardana- wristlet made of beads.
- Jobdana- bracelet of beads shaped like banyan.
- Churi- bracelet of various patterns.
- Bala- hand ornament.
- Ananta- an armlet.
- Baju- flat armlet.
- Bauti- an old armlet.
- Taga- plain armlet.
- Kankan- thin bangles.
- Damdum- a twisted form of the bangles, silver gilt.
- Labangakali- bracelet of beads shaped like cloves.
- Narikhelphul- bracelet of beads.
- Pahnchi-an ornament used in hand,<sup>1</sup> etc.

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1. Art in Industry through the Ages, Monograph series on Bengal, (Delhi, 1976), p.292.

APPENDIX-VIII

TYPES OF DOMESTIC UTENSILS.

Copper, brass and bronze articles may be classified as follows :

- 1) Sacrificial vessels;
- 2) Water pots;
- 3) Cooking utensils;
- 4) Eating and drinking utensils;
- 5) Others household articles and
- 6) Miscellaneous articles.

SACRIFICIAL VESSELS.

Kosā- a vessel shaped like the petal of the flowers of the plantain tree,<sup>1</sup> was made of copper mainly at Calcutta, Bansbora, Navadwip, Shantipur etc. It functioned as open water vessel. It was of two kinds : heavy and light. Heavy Kosā was called aghya and lighter ones were known as moja.<sup>2</sup>

Kūshi- a small spoon used with the former to take water out from the Kosā.

Tamrakund- circular basin with a high rim in which the idol placed. It was also functioned as bathing basin for the idols. It was made of copper.

Tāt- a copper plate on which the idol was placed. The ornamental plates in copper called pushpapātrās, made in different sizes to hold flowers and other offerings during ceremonies.

Lamps-was used in temples, the most characteristic being the

1. Rustam J. Mehta, The Handicrafts and Industrial arts of India, p.37.

2. Art in Industry through the Ages, Monograph series on Bengal, p.284.

lamp in the form of a female figure holding in her two hands a shallow bowl for the oil and the wick pāoli, panchpātrā, sānkh, bāti, sinhāsān, kāmlāl, garuḍāsān, padmasān, chheppya, tripadi, gilās, saji, panchpradip, ekdip, dhunachi, karpurdani, ghanta, and gharich were included under sacrificial vessels.

#### WATER VESSEL

Jālā- it was a large water vessel.

Ghārā- was a smaller water vessel. It was made of brass and was in extensive use. It was also an imitation of the clay utensils but very old. It was made both of cast and hammered sheet brass.

Dhalā- cast brass had only one join in the middle. That made of sheet brass had two joins, one in the middle and one in the neck.

Some ghārās- were made of by joining 3 pieces together.

Cast ghārās- mostly came into Calcutta from east Bengal especially Rajnagar in the Faridpur district.

Beaten ghārās- were made in Calcutta, at Bansbaria and in the Bardwan district.

Metā ghārā- a close imitation of the clay utensil was made at Navadwip.

Kenrā- was an utensil for keeping milk and oil.

Ghati-lotā- of other parts of India. It was of following kinds:

- 1) Shamsāi- was an utensil of long brass made at Bali in Dewanganj.
- 2) Tukani- an ordinary brass Lotā made at Navadwip.
- 3) Paldarghati- it was made of brass at chandrakona, in Midnapur district.

4) Ramchandrapur ghati- brought from this place in East Bengal.

Gara- a kind of brass water vessel with a narrow mouth. It was of 5 kinds:

Nepali,

Hansgala,

Swan-necked,

These were made at Khankul.

Kusum- small sized made at Bansberia and

Parer- made also at Bansberia.<sup>3</sup>

Other water vessels were band, Jag, bhingar etc. It was an imitation in brass of the Persian affaba.

Balti- was a kind of brass tube, made larger at kalighat.

#### COOKING UTENSILS

Degchi- large cooking pot, made of hammered sheet copper chiefly in Calcutta.

Hāndi- smaller copper vessel. It was also made of sheet brass. Rajnagar was reputed in the production of brass hāndi.

Tijel- it was a smaller and shallower cooking pot made of sheet brass. It was generally utilised for cooking fish, vegetables and pulses.

Golkholā- it was a round cooking vessel, made at Dainahat.

Barankholā or boknā- was a kind of old cooking pot at patrasayer.

Balya or Bantloi- sārā, dhaka, kārā-frying pan, khānti a flat brass spoon, hatta-spoon, dābu-larger brass spoon, chanche-made at kalighat, gamala-brass basin, dhuchuni, kulo, chubri-basket etc. were other cooking utensils.

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3. Ibid.p.287.

EATING AND DRINKING UTENSILS

Thāl- was a large plate, made of copper, brass and bronze. Some kinds of brass thāl might be mentioned. These were as follows: ordinary large thāl, chānch, made at Bansberia, sagari, parāt, large thāl, maja beli, and beli made at Bansberia. Some of the bronze thāls were the following: man kānsā, made at kharar, gayeswani, Bagi, Baleshwari, Jahnathi thal etc. Dupit, chhola, Bagi were made at Berhampur, Khankra and other places in the district of Murshidabad. Balwani was made at Bansberia etc. Rekabi was smaller plates and dishes.

Bāti- was cups made of bronze. It was used for eating vegetables, soups, milk etc. Following kinds of brass cups were in vogue in Bengal during the period under review.

- 1) Mālā bāti- it was made at Dainhat;
- 2) Mahibāti- also made at Dainhat;
- 3) Boknā-bāti- it was also made at Dainhat.

The following kinds of bronze cups had been mentioned:

- 1) Achka-khānkārāi- it was made at chandrakona, patra sayer and other places of Midnapur, Bankura and Burdwan districts.
- 2) Jiban-tārā- it was also made at above mentioned places.
- 3) Chāndrākonā- made at chāndrākonā.
- 4) Namūnā-khānkārāi- made at above mentioned places.
- 5) Phul-posaki-
- 6) Sarposdār- etc. were made at Midnapur, Burdwan and Bankura districts.

Other drinking and eating vessels were the following.

Pāeli- smaller than lotā used for drinking purposes.

Abkhora- Muhammadan origin.

Chunkī- like ghati an old utensil.

Gilās- those made at Murshidabad were considered the best.

Dabel- was used to keep betel leaves.

Baltā- it was a circular box with several small cup.

Pāndān-gurguri, smoking bowl.

Chilām- small smoking bowl, especially used for smoking ganjā.

Baithak-brass stand for hukkah.

OTHER HOUSEHOLD ARTICLES

Pilsuj- or lamp stand on which boat shaped triangular lamp called prodip generally made of clay was placed. It was of many kinds:

- 1) Babu,
- 2) Charpaya,
- 3) Gol,
- 4) Padmā-pāyā, or lotus legged,
- 5) Samadan,
- 6) Pari-pilsui.

Pradip- boat shaped lamps.

Falilsui- or brass lamp of peculiar construction. Surprisingly enough, lamps with human motifs were not or rarely found in the north or for that purpose any where else in the country except perhaps in Bengal to a limited extent.

Chilāmchi- washing basin, made of brass in Calcutta. Baksas or boxes.

MISCELLANEOUS ARTICLES

Locks, pad locks, hinges, staples, chains, bolts, wrench-bolts, picture frame hooks etc. were produced in Bengal.

APPENDIX-IXTYPES OF FISHES CAUGHT IN BENGAL.

Many varieties of fishes were caught in the various regions of Bengal. The only sea fish that visited the district was the bhetki or bhekta known locally as korail machh. The order Apodes, were important for osseous fishes to which belonged the genera maracha, macrognathes etc. The first was seldom seen in the markets. The macrognathe or bawn was common and considered to be a highly nutritious article of diet. The cuchia unibranchiura was obtained from the marshes and sluggish creeks and was cylindrical in form and length usually 2 feet, tail compressed, head small and narrower than the neck, colour dark red, interspersed with yellowish line above and olivaceous below. Cuchias were occasionally met with of a whitish or straw colour. It was found at a depth of several feet below the surface of the ground by workmen while digging well.<sup>1</sup>

The most common genera of the thoracic order were the gobius, ophiocephalus, coins, trichopodus colisa etc. These were found in abundance in all the marshes of the district. The colisa and coins were very frequently found on land and were supposed to fall from clouds. In the months of March and April, when the marshes became dry, these fishes migrated in large bodies from one pond to another.

Several varieties of scaleless or almost scaleless fishes were found in Faridpur. Of these, the boat often attained

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1. James Taylor, A Sketch of the Topography and statistics of Dacca, (Calcutta, 1840), pp. 36-37.

a large size from 3 to 4 feet long. It was one of the most voracious of fresh-water fish, subsisting chiefly on crustacea and small fry of all kinds. The pabda, was a small flat fish, with a white, smooth and shining skin with a rich, delicate flavour. It was one of the best tasted of the scaleless tribe and a wholesome table fish, procurable nearly all the year round. The chital was a large flat fish, very oily, full of bones and far from wholesome, although much prized by the natives of the eastern districts. The same remark applied to the dwarf representative the pholui. Other varieties of scaleless fishes were the air, poar, pangas and dhain and constituted a considerable part of the fish diet of the lower orders. The air was composed of muscular fibre while the other species were fat and possess a rich flavour.<sup>2</sup>

The bhola pama or Indian whiting, abounded in all the rivers and was esteemed a light nutritious article of diet. It, frequently, attained a large size and large quantities were caught in the rains and sold in the bazar.<sup>3</sup> The mungree was one of the most common species. The boales was a common fish throughout Bengal. These were large in size. The Andwaree or Mullet, Mugil corsula was found in shoals along the shallow margins of the rivers and churs. The bazars were supplied with them in the cold season by a set of Musalman fishermen.

The herring family supplied a number of species, such as phansa, hilsa and chela. These were found in the estuaries

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2. Ibid, p.271.

3. James Taylor, A sketch of the Topography and Statistics of Dacca, (Calcutta, 1840), p.39.

of the Ganges, Meghna and other rivers and were common in the markets after the rains. They have white shining scales, very bony and were provided with an air bladder. The congener of hilsa, cupanadon hilsa,<sup>4</sup> was plentiful and in point of size and flavour was probably superior to the hilsa of any other part of the country. It was found in all the rivers but in most plentiful in the Ganges. It was caught in large quantities during the rains, preserved with tamarinds and exported to different parts of the country. The mystus chitala and mystus Ramacarati were found in tanks and rivers and were common in the bazars. The phansa was mostly found in the dry season while the other kinds might be had nearly throughout the year.

The Mullet tribe of fishes was represented by the khorsola, which was to be had in good condition all the year round and was a rich delicious fish.<sup>5</sup>

Of all the genera of the abdominal order that of cyprinus, the coins cobjojetus, Tuchopodus colisa, sipurus singi and m.magur were the most important and formed the principal part of the animal food of the natives.<sup>6</sup>

From the perch family was derived the well known tapsi Machhor mango fish only a few were caught in the rivers in the North of Dacca. These were most commonly caught in the streams to the south west. The bhola fish belonged to cod

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4. Ibid, p.41.

5. W.W. Hunter, A Statistical Account of Bengal, Vol.V, (Delhi, 1973), p.271.

6. James Taylor, A sketch of the Topography and statistics of Dacca, (Calcutta, 1840), p.41.

family and was generally about one foot long, with few bones and well flavoured, but was little thought of by the natives. The carp family had several representative in the Dacca district. Rui and katla were much prized fishes. The katbo-sh was a sweet-flavoured fish, with a small mouth, narrow muzzle and black scales.<sup>7</sup> Among shell fish, the fish abounded in all the rivers.

The other chief species were the cyprinus rohita, c.katla, C. Culbasia, and C.Pustitoria. They were the largest species of the genus and not unfrequently attain a size of 8 feet in length. The different cyprinus constituted the sub-genus 'puntius cyprinus', consisted of a great variety of species which were known as poothee. They were in large numbers during cold season and were the cheapest of the different kinds of fishes sold in the bažars. They also yielded considerable quantity of oil by the fishermen.<sup>8</sup>

Two species of panti fish were found, one about couple of inches long, the other often attaining a foot in length, the former variety being the most common and numerous. Likewise, the lata fish was of two kinds, the lata and saul. Again walking fishes were of two varieties i.e. the kai and khalisa. Two kinds of eels, i.e. bain and pankal were found everywhere in old, muddy-bottomed waters. The common chingri abounded.<sup>9</sup>

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7. W.W.Hunter, A Statistical Account of Bengal, Vol.v,p.272.

8. James Taylor, A Sketch of the Topography and Statistics of Dacca, (Calcutta, 1840).pp.41-42.

9. W.W. Hunter, A Statistical Account of Bengal, Vol.5, (New Delhi, 1973), pp.272-273.

Other kind of fishes such as singi, telapia, pholoi, Kaira, Tangra, Lobster etc. were found in Nadia.<sup>10</sup> Of these only the different varieties of carp were available in relatively large quantities. Rohu and the katkal, ponfret and sole were abounded everywhere in Bengal.<sup>11</sup> The rivers of Bankura district remained almost dry except during the rainy season, yielded a small quantity of fish only during the monsoon months. The number of perennial tanks was also very small as most of the ponds and bandhs dry up. Because of these natural reasons, pisciculture had not made significant progress in the district so far.<sup>12</sup> Only during rain some kind of fish rearing was practised. Ruhi, katla, mrigel, hilsa, bribol, katbosh, tangra, punti, chingri, sal, sol, lata, etc. were available in considerable numbers. Of these only the principal varieties of carp namely ruhi, katla, and mrigel were available in relatively large quantities.

Among the Indian fishes, the cyprinidae or carp family and siluridae or cat fishes were best represented. Mahsir, the finest fish found in all hill streams. The Mahsir was really a specie of barbel. Mention must be made of Gangetic dolphin, a mammal, It measured from 6 to 12 feet in length and in colour was sooty-black.<sup>13</sup>

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10. Durgadas Majumdar, Gazetteer of India West Bengal Nadia, (Calcutta, 1978), p. 143.

11. Imperial Gazetteer of India, Boyincial series, Bengal Vol. I, (New Delhi, 1979), p. 69.

12. Amiya Kumar Bannerjee, West Bengal-District Gazetteer, Bankura, (Calcutta, 1968), p. 261.

13. W.W. Hunter, The Indian Empire, (London, 1973), p. 764.

APPENDIX-X

TYPES OF MERCHANTS/ORGANISATIONS INVOLVED IN DIFFERENT TRADES OF BENGAL : 17TH AND 18TH CENTURIES.

A: JOINT STOCK COMPANY (at entrepots or nodal market or aurangs)

- East India Company - Calcutta-Factory residencies-aurangs
- Danish East India Company - Srerampur-through British Private merchants.
- French East India Company - Chandernagore-agencies-aurangs (either through private agents or company servants)
- Dutch East India Company - Chinsura-Private agents and Company servants.

B. MERCHANTS (at entrepots or nodal markets, aurangs)

- 1. European French, British, Dutch, Portuguese, Danish.
- 2. Americans
- 3. Others Mughals, Poggiahs, Bhutias, Pathans, Gujeratis, Armenians, Marwaris, etc.

C. MERCHANTS (indigenous)

- 1. Wholesale Merchants (at nodal markets, aurangs)
  - a) Mahajans Small Capital, hired vessels
  - b) Saudagar Large capital, possessed vessels      Subar-nabanik caste
  - c) Goswami Religious group, Small merchants, bought cloth and silk from Bengal, sold West Indian cotton at Mirzapur.
  - d) Basaks and seths Kayasths who had taken to weaving.      Chotobhagio tanti
- 2. Retailers (in the aurangs)
  - a) Kupreeas Capital of Rs.500 to Rs.1000
  - b) Amdewala

3. Intermediaries (in the small or primary markets):
- a) Paikars Capital of Rs.100 to Rs.500 :  
commission agents .
  - b) Shikdars Sold cotton at Mirzapur
  - c) Dalals Commission agents for merchants and  
company.
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Source: Buchanan Hamilton, Dinajpur.

James Taylor, A Descriptive and Historical Account of the cotton Manufacture of Dacca in Bengal.

James Taylor, A Sketch of the topography and statistics of Dacca.

Wise, Castes, Occupations and Trades of East Bengal.

Hameeda Hossain, The Company Weavers of Bengal : The East India Company and the Organization of Textile Production in Bengal, 1750-1813.

APPENDIX-XIDIVISION OF FUNCTIONS IN TEXTILE PRODUCTION WITH WAGES IN BENGAL.

Function	Performed by	Approximate Wages	Instrument Used
Cotton Cultivation	Peasant Cultivator	N.A.	
<u>YARN</u>			
Ginning	Wome/men	N.A.	Handmill, charkhi, dalan kathi
Carding	Women/of all Hindu castes	N.A.	Comb made from jawbone of the Boalia fish
Teazing	Dhunera Women/men	N.A.	Dhankara, bamboo bow with string of mugga silk or cat-gut.
Spinning	<u>Katanis</u> : Women of all castes	4-10 anas/month	Charkha for coarse yarn; takwa for fine yarn
<u>COTTON PEECE-GOODS</u>			
Preparing yarn	Weavers, Journeymen	10 anas/month	Reeds made from bamboo, earthenware vessels, starch.
Laying the warp	Weaving castes / assistants	10 anas/month	Bamboo and reed sticks and rods.
Weaving	Headweavers or prodhans/journey men/apprentice	Rs. 2.8/month : 4 anas/month	Looms, shana, etc.
<u>DRESSING THE CLOTH</u>			
Washing	Dhobis	Rs. 4/14/- per 100	Washing grounds
Bleaching	Dhobis	Rs. 5-6/month	<u>Sajimati</u> , soap, earthen vessel
Straightening of thread	Nurdeas	Rs. 5/month	Brush made from rattan and a bamboo reel

Repairing th- reads	<u>Rafugars</u>	Rs. 5/month	
Removing spots	<u>Daqh Dhobis</u>	N.A.	Amrola plant
Beetling cloth	<u>Kundigars</u>	N.A.	Chank shells
Ironing	<u>Istriwallah</u>	N.A.	Iron <sup>a</sup>
Folding cloth	<u>Nurdeas</u>	N.A.	
Compressing in bales	<u>Bastabands</u>	N.A.	

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EMBROIDERY

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<u>Chickan</u>	<u>Chikandas</u> (women)	Contract	Embroidery frame
<u>Kashida</u>	<u>Kuti</u> Women <u>Rafugar</u> women	Contract	Embroidery frame
Gold work	<u>Zurdose</u>	Contract	
Stamping design	<u>Chipigars</u>	Contract	Wooden blocks

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a The iron was a recent introduction and does not appear in earlier accounts. Even when it was introduced at the end of the 18th century, it was considered too expensive.

Source: J. Forbes Watson, The textile Manufacture and the Costumes of the people of India,

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APPENDIX-XII

FUNCTIONS AND SALARIES OF THE AURANG ESTABLISHMENT (IN SICCA RUPEES)

Employees	Functions	Jangalbari-Bajitpur Dacca, Sonargoon		Dhamrai, Titabadi		Chandpur	
		No.	Salary.	No.	Salary	No.	Salary
<u>Gumāshtā</u>	In charge of <u>aurang</u> , kept accounts, gave advances, reported to DF.	1	60.00	1	50.00	1	40.00
<u>Naib gumāshtā</u>	Asst. to <u>gumāshtā</u>	1	30.00	1	25.00	1	20.00
<u>Muqim</u>	Inspected weavers' work in the looms, sorting of yarn						
Cash keeper	Kept cash and accounts	1	30.00	1	25.00	1	20.00
<u>Dihidar</u>	Supervised orders in each <u>dihi</u>						
<u>Munshi</u>	Writer/clerk	3ea	45.00	3ea	40.00	2ea	20.00
<u>Jenadar</u>	Guard	1ea	5.00	1	5.00	1	5.00
<u>Peons/Barka</u>	Guard	10	30.00	8	24.00	5	15.00
<u>ndaz</u>							
<u>Gumāshtā at dependent aurang</u>	As <u>gumāshtā</u>	1	15.00	1	15.00	Dhamrai only	—

Source : IOR BPC, Range 2, Vol. 5, 1774, pp.567-8.

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<u>Abwābs</u>	Miscellaneous cesses.
<u>Asāmī</u>	Cultivator; tenant.
<u>Aurang</u>	Cloth markets.
<u>Bāftas</u>	Persian, <u>bāfta</u> "woven." A generic term for plain calico, of varying quality from coarse to fine, from Gujarat.
<u>Baniā</u>	Two meanings: (1) A Hindu or Jain trader. <u>vania</u> , of West India, particularly from Gujarat; (2) The English often employed this term specifically for the native brokers attached to individuals and the Company. Both meanings occur in the essay.
<u>Banjāra</u>	Itinerant grain or cattle merchant.
<u>Banksal</u>	A warehouse.
<u>Barkandaz</u>	Armed guards used by zamindars in the village and for guarding cloth bales in transit to Calcutta.
<u>Baṭṭa</u>	Discount charged for coins older than the year of mintage.
<u>Bāzār</u>	Daily market held in villages.
<u>Begār</u>	Forced labour.
<u>Bepārīs</u>	Itinerant traders.
<u>Beratta (Byratty)</u>	Variety of cotton.
<u>Bhaiyāchāra</u>	Lit. Brotherhood; a form of tenure in which estates are held by the descendants of a common stock and the shares and responsibilities for government demand are fixed in proportion to the actual area occupied by each sharer.
<u>Bigha</u>	A measure of land approximately a third of an acre.
<u>Bīma</u>	Insurance.
<u>Boaliā</u>	Variety of fish; its teeth were used to comb cotton.
<u>Bogga (Boggah)</u>	Variety of cotton.

Borobhagiyo t̄anti

Subcaste of weavers.

Bottonry

A system of lending money to a shipowner for a voyage against the security of the ship; if the ship is lost, regardless of whether the cargo is salvaged, the lender loses the money.

Butaḍār

Embroiderers.

Charai

A grazing tax.

Charakha

Wooden instrument used to spin coarse or medium cotton yarn.

Charakhi

Wooden instrument used to clean cotton.

Charas

The leathern bucket lifted out of water by yoked oxen.

Chaudhuri

Headman of the vilage or caste or occupational group.

Chaukis

A custom or toll-station, or watch-house.

Chaukidār

Person in charge of the toll-station; a toll-keeper or watch-man.

Chauth(Chouth)

Literally one-fourth; annual tax levied by Marāthās on conquered territory.

Chipigārs

Those who printed or stamped embroidery designs on the cloth.

Chitāl or Cuchiā

Variety of fish. Its skin was used to store cleaned cotton.

Chotobhagiya

A subcaste of weavers; offshoot of Kāyasthas.

Chunglea

Variety of cotton.

Dacoit

Bandit; hence dācoity or robbery.

Dādni

Deposit paid on advance orders or contracts. Dādān merchants used to book their orders by paying advances.

Dāgh-Dhobi

Special washmen who removed cloth stains.

Dālāl(Dellol)

Broker.

Dalan Kathi

Wooden instrument for ginning cotton.

Damias

Overseers of the weavers in the East India Company's employ.

Darogha

A superintendent in the revenue or judicial department or superintendent in state kārkhāna.

<u>Dastak</u>	A pass or permit.
<u>Dastūr</u>	A commission.
<u>Dhankara</u>	Instrument for carding cotton.
<u>Dhenklī</u>	Based on the lever principle, which is generally in use wherever the water level is closed to the surface.
<u>Diwān</u>	A minister, usually the chief or finance minister, in the Indian courts.
<u>Dhunera</u>	Man who cleaned cotton.
<u>Dihi (Dih, Deh)</u>	A village and land belonging to the village, a revenue unit.
<u>Dihidār (Deedar)</u>	A village inspector, overseer who supervised the village cultivation and work of the weavers.
<u>Dubash</u>	An interpreter; personal servant-broker employed by the English in South India.
<u>Famān</u>	An imperial decree or order.
<u>Faujdar</u>	A Mughal official.
<u>Golās</u>	Ware houses where costly merchandise was stocked and the more detailed accounts of Buchanan Hamilton from the early 19th century describing the <u>golās</u> of both retailers and wholesalers as a part of the traditional trade.
<u>Gumāshtā (Gomashta)</u>	An agent employed by merchants and companies for their trade; by <u>zamindars</u> to collect rent or by bankers to receive money.
<u>Haṭ (Hauts)</u>	Weekly or periodical markets.
<u>Hunḍīs (Hoondian)</u>	Exchange rate or commission paid for a bill of exchange.
<u>Iḥtikār</u>	Scourge of monopoly and engrossing.
<u>Ijāradār (Izardar)</u>	A farmer who rented land at a stipulated rate payable towards public revenue.
<u>Istriwallah</u>	Man who ironed cloth.
<u>Jachandar</u>	Appraiser or sorter of cloth.

<u>Jajmānī</u>	A system in which proto-industrial producers were paid in grains.
<u>Jāgīr</u>	An assignment of territory to provide for the support of an official or noble.
<u>Jāgīrdār</u>	The holder of a <u>jāgīr</u> .
<u>Jama'</u>	Assessed revenue; total land revenue levied on an estate.
<u>Jugi</u>	Hindu weaving caste; manufactured coarse cotton.
<u>Julaha</u>	Muslim weaver.
<u>Kaccha</u>	Unmetalled; earthen.
<u>Kāpās</u>	Raw cotton before it is cleaned.
<u>Kārkhāna</u>	Mughal workshop where weavers came to work at the looms.
<u>Katani</u>	Female spinner.
<u>Kāyastha</u>	A professional caste of writers or clerks.
<u>Kharīf</u>	Rainy season crops.
<u>Khoi</u>	Dry, fluffed rice used for starch.
<u>Khudkāsht</u>	Resident cultivator; one who had security of tenure.
<u>Kist'</u>	Instalment of revenue or rental.
<u>Kistabandi (Kistbun- ndee)</u>	Document relating to periodical payments, in which a weaver's accounts were maintained.
<u>Kothi (Kuthi; cotie)</u>	A warehouse where cloth was purchased and stocked.
<u>Kotwāl</u>	Urban police official.
<u>Langha</u>	Variety of cotton.
<u>Latchi</u>	Variety of cotton grown in Lakhipur.
<u>Malangīs</u>	Salt producers.
<u>Mahājan</u>	A merchant, banker, creditor.
<u>Mandīs</u>	Wholesale markets in the countryside.

<u>Mahals</u>	A local sub-division of a suba. 544
<u>Malguzar</u>	A person who pays revenue; payment of land revenue.
<u>Malgujari</u>	Revenue assessed on an estate.
<u>Mālik</u>	Proprietor; a cultivator possessing hereditary rights.
<u>Milkiyat</u>	Proprietary right.
<u>Manṣab</u>	Rank.
<u>Manṣabdār</u>	"The holder of office or dignity"; paid by cash or a jagir on condition of the holder providing 500, 1000 or more horse-soldiers if required by the emperor.
<u>Muggā</u>	Silk yarn made in Assam.
<u>Muhr</u>	Gold coin equivalent to 16 rupees.
<u>Mohrir (Mohreer)</u>	A clerk, writer or scribe; maintained weavers accounts.
<u>Malbus khās (Mulboos-Khas)</u>	Cloth manufactured especially for the emperor.
<u>Muqum (Mokeem)</u>	An appraiser who supervised the weaver's work and his yarn.
<u>Munda</u>	Headman of a Kol village.
<u>Muqaddam</u>	Village headman.
<u>Naib</u>	A deputy.
<u>Nakhudā</u>	Indigenous ship's captain-supercargo.
<u>Nardea (Nurdeah)</u>	Man who straightened threads of woven cloth.
<u>Nama (Numah)</u>	Variety of cotton.
<u>Nishān</u>	A particular form of grant or agreement, but without the status of a Vice-regal or Imperial <u>farman</u> .
<u>Nuniā</u>	Salt - petre producers.
<u>Pagoda</u>	Principal unit of exchange on the Coromandel Coast; a gold coin worth about seven or eight shillings.

<u>Pāikārs</u> (Pikar, Pycar)	A village broker or commercial agent who dealt with weavers on a commission basis.
<u>Pāikashta</u>	Non-resident cultivator; had on security of tenure.
<u>Panchayati</u> (Panchayeti)	Rural arbitration.
<u>Pargana</u>	Subdivision of a <u>sarkar</u> .
<u>Parwana</u>	An order, warrant, grant, or even letter from a superior to a dependent.
<u>Paṭṭa</u> (Pottah)	Assessment on cultivated land.
<u>Photi</u>	A variety of fine cotton grown in Dacca.
<u>Qasbas</u>	Foci of exchange in the heart of the countryside.
<u>Rabi</u>	Winter crops.
<u>Rafugar</u>	Muslim caste whose men repaired torn threads of cloth and whose women embroidered.
<u>Rahaṭ</u> or <u>Arhaṭ</u> or <u>Sāqiya</u>	Persian wheel.
<u>Rawana</u>	A certificate from the collector of customs.
<u>Ra'iyat</u> (Ryoot)	Cultivator, peasant.
<u>Ra'iyati</u>	Peasant holding.
<u>Pespondentia</u>	A system of lending against the security of the goods and merchandise contained in a ship, as distinct from bottomry.
<u>Rupee</u>	Silver coins, the standard unit of exchange in Anglo-India. Fluctuating values but generally exchanged at between two shillings and three pence, and two shillings and six-pence.
<u>Ruyi</u>	Cleaned cotton, free of seed.
<u>Sanad</u>	A grant, charter, patent, privilege of right, from any great man in authority.
<u>Sardar</u>	Head of the <u>rafugar</u> caste.
<u>Sarkār</u>	Head employee of the European merchant.

<u>Ṣarrāf</u> (Shroff)	Money changers or bankers such as the Seths of Murshidabad.
<u>Shahbandar</u>	Harbour-master; the chief authority with whom foreign traders and shipmasters had to transact.
<u>Siccās</u>	A new coin; silver rupees in current use in Bengal.
<u>Ṣubās</u>	Provinces into which the Mughal empire was divided.
<u>Ṣubādār</u>	The Viceroy, lord-lieutenant or governor holding the <u>subah</u> .
<u>Tagadgirs</u>	An officer employed to enforce the execution of contracts by weavers and others who had received advances.
<u>Takwa</u>	Spindle used for spinning very fine yarn.
<u>Tanti</u>	The main caste of weavers.
<u>Ṣaḡavi</u>	Loan advanced to peasants.
<u>Zamīndār</u>	One holding land on which he pays revenue.
<u>Zārdose</u>	Those who embroidered with gold.

## II, COINS USED IN BAZAR DEALINGS

1Gold <u>Muhr</u>	16Rupees
1Rupee	4 <u>Cahun</u>
1 <u>Cahun</u>	4 <u>Annās</u>
1 <u>Ana</u>	4 <u>Puns</u>
1 <u>Pun</u>	20 <u>Gandas</u>
1 <u>Garda</u>	4 <u>Cowries</u>

## III, CLOTH MEASURES

3 <u>Angullahs</u>	1 <u>Gehira</u>
8 <u>Gehiras</u>	1 <u>Covid</u>
1 <u>Covids</u> or Cubit	1 <u>Hath</u> = 18 or 19Inches



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