CHAPTER - I

INTRODUCTION

INTRODUCTORY STATEMENT

Health is an important component of overall social and economic development. All those concerned with the promotion of health and prevention of disease have increasingly begun to realise that health and disease are not merely the concern of the physicians and the medical scientists, but have their social, economic and psychological dimensions as well. Their full understanding requires a holistic attitude that provides due recognition to socio-cultural aspects.

There is an intimate relationship between health and development. Better health ensures availability of effective manpower which is important to development. It is also true that efforts made by developing countries to improve their socio-economic status have positive impact on health, it is found that it also exerts a negative influence by enhancing the consequences of environmental pollution and degradation, and contributed to the problems created by rapidly increasing rates of urbanisation. As economic conditions improve, the control of communicable diseases and diseases of poverty and malnutrition is achieved. With changes in life style and life expectancy, problems like diseases of old age, non-communicable disease like cancer and cardiovascular ailments, begin to crop up. Today India faces the problems of both, diseases of poverty and diseases of affluence.
Medical geography as a subject has divergent opinions on the nature of it. In USSR, the emphasis of the subject was upon studies of multi-factorial disease complexes and upon public health as a contribution to the productivity of labour and hence to the development of a national economy on socialist lines.

On the other hand, in the West, medical geography has been used as an aetiological research tool with emphasis on reducing mankind's load of suffering from ill-health. To this extent all geographers have a common bond in the types of questions they ask, the viewpoint they develop and the analytic methods they employ. May has questioned "whether there is such a thing as a distinctive method applicable to the systematic acquisition of knowledge in medical geography." May defines geogens as factors of environment which have a relationship with disease causation. Alexander and Armstrong place the same emphasis on subjective judgement when they emphasize study of factors "believed to be significant". Thus every individual worker has choice of what factors he believes may be relevant and that he will include in his field of study. Since most diseases are known to be multifactorial in aetiology the relevant factors for study are usually numerous.


Another aspect which has received emphasis is that health too needs to be studied in its spatial variations, in which the concept of "degrees of health" makes up a continuum from the ideal of absolute physical, mental and social well-being through variations of morbidity and mortality. Disease is thus looked upon as a lack of adjustment between our living cells and the challenges consequent upon their existence within an environment.

Health problems in a developing country such as India, are predominantly reflections of ignorance and poverty. Substantial decrease of morbidity and mortality is more likely to be accomplished through an improved system for health including preventive services than from further advances in medical science. Indeed in the end such improvements are likely to result from all-round social and economic development, from structural change in the society of some kind. Therefore, the necessity of sufficient availability of health services such as hospitals, health centres, beds, doctors and other health personnel can hardly be over emphasized. The present health facility structure is inherited from colonial India. The colonial masters believed in selective development in order to serve their purpose.

Port towns were developed and the status of western type of health care was raised even beyond the need of the select population, and the hinterland was neglected in terms of everything. Later selected urban, industrial and hill resort centres were developed without any consideration of
need-based health planning.

According to Radhika Ramasubban "at all times the highest priority was the protection of the European population. Another was to ensure that disease and epidemics did not affect Britain's trade." The Royal Sanitary Commission Report also states that "the main enemy of the British soldier in India was not the Indian enemy but disease." Simultaneously, the indigenous or traditional system of medicine that used to serve the vast majority of the population was greatly discouraged and the western type of medicine introduced, that too in the selected places. Such process had led to enclaves of development in terms of health facilities, and it may rightly be said that health facilities are abundant where there is less need and vice-versa.

The health problem of India is more aggravated due to the reason that being a post-colonial country, it still bears the legacy of British Raj, especially in the medical ideology that creates the present pattern of health problems and health care facilities, without any consideration of need-based health planning. The urban, industrial and port areas got the maximum benefit of this kind of "selective


development."

On the other hand, these areas are most exposed to congestion and pollution. With the prevalence of endemic diseases, malnutrition and inadequate health care facility, the working population are at risk of aggravating general health problems by inadequately controlled occupational hazards.

With the emergence and growth of Calcutta as the colonial metropolis in eastern India, the existing labour force faced a structural change. The increasing demand for labour from an enclave sector led to a considerable congregation of different types of semi-proletarian labourers in Calcutta and in the other port cities and major administrative centres. By mid-nineteenth century there was a sizeable urban labour force working for hire.

It was primarily with the intrusion of metropolitan capital and the launching of colonial enterprises like tea plantations, collieries, engineering industries, jute textile and new modes of transport (e.g. railways) that a distinctly new kind of labour force, the industrial working class, emerged. The development was accelerated by the entry of Indian capital into the sphere of modern cotton


textile production and certain other fields of processing and manufacturing activity (cotton ginning and pressing, rice milling, oil milling, sugar production etc.).

The mark of this social process was the transformation of segments of population. The most significant feature, common to all types of workers engaged in these different industries and enterprises, was that labour was yoked to capital for generating surplus value. Together with it, an important feature associated particularly with the factory worker was that it was using new kinds of tools and energy previously unknown to him. The formation and development of this labour force also entailed significant changes in working habit. The rise of the industrial proletariat led in its turn to accelerated spatial mobility and extended the geographical dimensions of the labour market. A no less important feature was the demographic change involving expansion of the industrial workforce and increase in the heterogeneity of its composition.

There was a stage in the history of Calcutta when the city owed its economic importance and fame to the jute mills that - due to British enterprise in India - lined the two sides of the river Hooghly both north and south of the city. "To write about Calcutta without saying a word about jute", said a tourist guide to the city in 1906, "would be as bad as to deprive the lamb of its mint sauce." 7

1855, this industry by the 1910s was the most important jute industry in the world, consuming more raw jute than the "rest of the world put together." The chief advantage that the industry had over its rivals in other countries was its proximity to the source of its raw material. India and Bengal in particular, had a virtual monopoly in the production of raw jute. In 1945-46 India produced 97% of the total world supply of raw jute and by far the greater part of it was produced in Bengal, eastern Bengal alone accounting for "nearly 60% of the total production of jute in the whole of India." According to one estimate, Bengal produced more than 88% of the jute grown in India between 1922 and 1931. Bengal was thus the main producer of jute; and jute manufactures - mainly cheap packing and wrapping material - being largely meant for overseas markets, most of the Indian jute mills came to be set up within a very narrow geographical region around the port city of Calcutta. "In 1940," writes T.R. Sharma, "95.5% of the jute looms in India were located in Bengal and all the jute factories containing these looms were situated in a small strip of land about 60 miles long and 2 miles broad.


along both the banks of the Hooghly, north and south of Calcutta."

The Indian jute industry was thus much more localized, geographically speaking, than the other important industry of India, the cotton textile industry. Moreover, individual jute mills employed a larger number of workers than did individual cotton mills. While the average number of workers employed in the cotton industry was about 1150 per establishment in 1929, the average number employed in the jute industry per establishment was nearly 3635 in the same year. The jute industry, therefore brought together a very large number of people and put them all within a narrow geographical area under broadly similar conditions of life and labour. At the peak of the prosperity of the industry, in the 1920s, this was a labour force well over 3,00,000 in number. Even in the 1930s, when the industry suffered a depression, the number of people employed by it remained substantially greater than 250,000.

Most of the jute labourers were adult males, women on an average forming about 16% of the labour force between 1921 and 1931 and about 13% in the decade that followed. Ranajit Das Gupta, who has made a detailed study of the supply of labour to the Calcutta jute mills, notes that

11. ibid, p - 94.

before the 1890s most of the labourers were Bengalis. Before long, however, streams of migration flowed in from other provinces of India — mainly the United Provinces, Bihar, Orissa, Madras and the Central Provinces — and the majority of the jute workers in the twentieth century belonged to the category of "migrants." A census was taken of the jute mill labourers in 1921. By this time, according to Das Gupta, "the formation of the jute labour force had been completed." In 1921, of the approximately 280,000 jute mill workers in Bengal, only 24% were Bengalis, 33% came from Bihar, 10% from Orissa, 23% from United Provinces, 4% from Madras, and less than 3% from other parts of India or outside India.

The Indian Censuses 1911 and 1921 also gave some information regarding the caste background of the workers. The details have been reproduced in Das Gupta's study. His analysis shows that most of the labourers were low caste people and "untouchables", "cultivators with little or no land, members of traditional labouring and service categories and artisans from the declining crafts of northern India." The western districts of Bihar (Gaya, 13. Das Gupta, R - "Factory labour in Eastern India: sources of supply, 1855-1946: some preliminary findings "The Indian Economic and Social History Review", Vol. 8, No. 3, 1976, pp - 282.

14. ibid, p - 281 and Table 7, p -298.

15. ibid, p - 315.
Patna, Shahabad, Saran and Muzaffarpur), the eastern district of United Provinces (Azamgarh, Ballia, Gazipur, Benaras and Jaunpur), Cuttack and Balasore in Orissa and Ganjam in Madras Presidency were the main supply areas for jute labour in Bengal. In terms of their religious composition, about 30% of the jute workers were Muslims in 1929 and a little more than 69% Hindus.

Though one of the largest working classes in the country, the jute mill workers were also among the lowest paid of the industrial workers in India. The average monthly wage for workers in Calcutta jute mill between 1900 and 1939 was Rs. 15.61. The corresponding figures for the textile mill workers in Bombay and Ahmedabad were Rs. 23.71 and Rs. 23.21 respectively. This was reflected in their dismal poverty and in their problems of housing, health and chronic indebtedness. Their wages were often not enough to support their families and most jute workers left their families at "home" in the countryside and took long leaves to visit them when their means permitted. The majority of

16. ibid, p - 292.
17. West Bengal State Archives, Commerce Department, Commerce Branch, April, 1930, pp 19 - 20.
the jute workers then, as a government report put it in 1946, "had some connection with lands in their villages". This, however, did not "always mean that they owned the land". More often than not, "instead of receiving income from agriculture, they have to meet certain incidental expenses regarding farming being done in the villages by their relatives," apart from having to provide money "for certain conventional, although nonetheless obligatory expenses, such as marriages and funerals", when the workers had "no option except to borrow money to meet these obligations."

The conditions of jute-mill labour in Bengal were never as fully documented as the Government of India wished. The inaccuracies in the attendance registers of the jute mills were witness to these failures, the Chief Inspector of factories admitted to the Royal Commission of Labour in 1929 that "the records given in such registers did not represent the true conditions of labour."

The Labour Office of Bengal, moreover, suffered from a peculiar bureaucratic problem, the history of which only indicates that the Bengal Government never shared the


Government of India's enthusiasm for knowledge of labour conditions. For one thing (as the Labour Commissioner of Bengal recalled in 1939) the office was set up with "no immediate purpose of having a large investigating office, with cost of living indices and other standard concomitants of an organised labour office". Besides, so low was the priority of his office in the eyes of the Bengal Government that when "the first Retrenchment Committee" reported in 1921, "the Labour Office seemed bound to go, "but" instead of abolishing it, the Bengal Government changed its character." To economize, the labour intelligence officer was saddled with various other responsibilities and his investigative functions suffered badly in consequence. He was placed "in charge of the Commerce Department, and later of the Marine Department. He was made responsible for the administration of all the labour laws that were to come in the twenties, as well as for other legislative measures only "partly concerned with the welfare of labour, e.g. the Boilers Act and the Electricity Act." The Labour Intelligence Officer, thus became in his own words, "an ordinary secretariat officer" who had little time to investigate the conditions of labour. "With the growing volume of office work and the addition of one duty after another, the Labour Intelligence Officer found it impossible to continue his personal investigations regarding every

The atrophy of the Labour office was not a matter of simple bureaucratic mindlessness. To the "mind" of the bureaucracy, any interest in labour conditions beyond that called for by the immediate needs of capital, or of law and order, was suspect. "For some peculiar reason", wrote a Labour Commissioner in 1935, "in Bengal interest in labour matters or desire for knowledge of labour developments is read as sympathy for the labour point of view".

The "reason" for this suspicion is not difficult to see. The Government of India's "desire for knowledge of labour development" assured that the investigating authority would be capable of maintaining a degree of independence from the point of view of particular capitalists. The Government wished to stand about the "unevenness" of such particular views. For example, in insisting on "uniform rules" for fines or accident compensations, the Government of India argued that the question of the "welfare of the working classes" could not "any longer be left to the uneven generosity of employers." Such "natural" unity that had existed in Bengal for years between the provincial government and owner of capital (especially those represented by such powerful

23. ibid, p - 3.
24. ibid, p - 4.
25. West Bengal State Archives, Commerce Department, Commerce Branch, July 1922, pp A34 - 72.
organisations as the Bengal Chamber of Commerce and Indian Jute Mills Association).

This "natural unity" had received its fullest expression in the nineteenth century when the moral order of the day had been unashamed procapitalist and when the Government of Bengal plainly considered it its duty "to do all it can to afford moral support to the jute mill-owners" in the face of labour unrest." In the 1890s even the meager provisions of the first two Factory Acts of India were seen by senior officers of the Government of Bengal as "needlessly harassing to the mill managers". A Factory Inspector who once insisted on age verification for all jute mill child workers in his jurisdiction was sharply pulled up by the Chief Secretary of the Government of Bengal. "Inspectors", he was told, "by making the medical examination of every child compulsory, would give to owners or managers of factories the maximum of trouble, and to the Government the maximum of expenses without conferring any compensating benefit on the majority of the children employed."

Improvement in the conditions of workers was severely limited. Too much "bettering" of conditions was thought to

27. West Bengal State Archives, General Department, Miscellaneous Branch, July, 1882, pp A73 - 81.
28. ibid, p -78.
be disastrous from the point of view of the Government.

"Rice is very cheap, and this makes the workers independent," was the diagnosis of a police officer who quoted jute-mill managers' views in support of his own: "Experienced mill managers seem to think that .... when the labour market becomes once more over-stocked, as they said it will be, mill hands will grow less independent, and matters will quiet down to their normal state." In taking a law-and-order view of the labour conditions, then, the State incorporated within its own outlook the point of capital.

Much of this nineteenth century spirit can be read in twentieth century documents as well, especially those coming from the years before the First World War. There was, for instance, the civil Surgeon of Serampur who thought (in 1909) that "the mills in Hooghly need no legislation for the well-being of the operatives"; or the factory inspector who felt (1910) that he was "legitimately entitled to place the telescope to his blind eye" if he came across "a child of seven or eight years sewing or hemming a gunny bag in the vicinity of the mother", even though the law demanded "the Manager ......... be prosecuted for employing a child under

29. West Bengal State Archives, Judicial Department, Police Branch, January, 1896, pp A6 - 11.
30. West Bengal State Archives, General Department, Miscellaneous Branch, August, 1910, pp A 33 -86.
or the even more striking case of C.A. Walsh, the Chief Inspector of Factories, boldly declaring in 1912; "I see no poverty in the quarters surrounding the great jute mills at Khardah, Titagarh, Shamnagar, Kankinara, Naihati, Budge-Budge or Fort Gloster."

The tone of the official pronouncements changed somewhat after 1920, due to the efforts of the Government of India and of nationalist and radical politicians who supported the cause of labour. "The increasing solidarity of labour" entered the calculations of the Government of Bengal and the realization dawned upon it that "industrial disputes will in future form an integral part of the industrial life of this province." Yet this did not mean any "epistemological shift" in the status of the "conditions of labour" question. It never acquired any priority over the question of control. The Industrial Unrest Committee of 1921 recommended that the Bengal Government set up machinery for investigating strikes but made it clear that the machinery proposed "must be designed for the purpose of alleviating unrest ....... rather than for a detailed investigation of current labour

31. West Bengal Archives, General Department, Miscellaneous Branch, August, 1911, pp A 17 - 63.
32. West Bengal Archives, Medical Department, Medical Branch, January, 1914, pp B 287 - 295.
33. West Bengal Archives, Commerce Department, Commerce Branch, December, 1923, p - A 8.
The factory Inspectors' reports bore ample testimony to this absence of a spirit of investigation. A good example is the treatment given to the question of "health" of the workers. This was an important question from the Government of India's point of views, carrying obvious implications for the dietary conditions, the standard of living, the wages situation, and the efficiency of the worker. None of these considerations, however, ever influenced the Bengal factory inspectors. For years, their report carried a section called General Health of the Operatives, where the workers' health was always described as 'good' if there had been no epidemics. "The general health of the operatives has been good", said the Factories Act report for 1928, "no outbreak of disease in epidemics form having been reported during the year." Why was health a question of epidemics, and not one of diet, nutrition, or standard of living? The following quotation from the Factory Inspection report for 1921 suggests the answer:

34. West Bengal Archives, Commerce Department, Commerce Branch, July, 1921, pp A43 - 45.

35. For evidence of the Government of India's interest in these questions see West Bengal State Archives, Commerce Department, Commerce Branch, February, 1927, A1 -8; November, 1933; A1 - 27; June, 1935. A35 - 48. For the Government of Bengal's reluctance to carry out a wage census see West Bengal State Archives, Commerce Department, Commerce Branch, November 1921, pp. B200 - 201.

"The Naihati Jute Mills at Naihati, Baranagar Jute Mills at Baranagar (etc.) ...... reported a shortage of labour in the month of August last owing to outbreaks of malaria and influenza. The shortage ....was not serious and the general health of the operatives .....has on the whole been satisfactory."

In a report for 1923, this attitude was put in a precise form, "the general health of operatives during the year ............... has been comparatively good, no shortage of labour on account of epidemic diseases or sickness having been reported by the mills."

In the jute mills, health care for workers was essentially aimed at prevention of epidemics. Information regarding diseases treated free by the doctors of twenty three jute mills in 1928 was collected by the Government of Bengal for submission to the Royal Commission on labour. It is interesting to observe that none of the diseases treated was of nutritional origin; chief among them were cholera, small pox, malaria, typhoid, fever, relapsing fever, kala-azar, dysentry, diarrhoea, pneumonia, tuberculosis of the lungs and respiratory diseases" other than infectious. Clearly, most of them were infectious diseases or water or food-borne diseases, capable of affecting a number of people at the same time, especially under conditions of

37. West Bengal State Archives, Commerce Department, Commerce Branch, June, 1921, pp. A29 - 30.

38. West Bengal State Archives, Commerce Department, Commerce Branch, April, 1924, pp. A34 - 37.

39. West Bengal State Archives, Commerce Department, Commerce Branch, April, 1930, pp. A7 - 12.
overcrowding. In other words, attention was confined to diseases that were potentially epidemic. It was epidemics that caused large-scale absenteeism and thus affected production. To the jute industry, the measure of the severity of epidemics was the drop in production. Epidemics therefore became the most important issue whenever the employees turned their minds to the question of the health of the workers.

Other aspects of working condition and health problems were overlooked, quite conveniently— for the mill owners and the Government of Bengal. This was what in the end undermined the Government of India's project for 'knowledge' of these conditions. The Government of Bengal lacked the political will necessary to distance itself from the employers in the jute industry. This was well known even to the Government of India, which however, never felt powerful enough to force anyone's hand. On 13th September, 1928, Lord Irwin, the Viceroy of India, wrote to the Secretary of State:

"We had a discussion in Council this week on the contemplated enquiry into labour matters .... no Local Government except Bengal had any objection to our announcing now that such an enquiry would be held, but the Bengal Government entered a strong protest .... The influence of the employers - and particularly the European employers - is strong there (in Bengal), and they were not likely to receive the news of an enquiry with joy."40

Thus, if working condition in the jute mill never became an object of knowledge in the way envisaged by the Government of India, the "failure" occurred at two levels. The industry never produced the necessary documents, and the Government lacked the political will to carry out own investigations.

This study is an attempt to bridge this gap in knowledge, between the existing condition of the health situation of jute mill workers and the present lack of information about it.

STATEMENT OF THE PROBLEM

Occupational health and safety is primarily concerned with the detection, evaluation, prevention and control of environmental health and safety hazards in places of employment. These hazards include chemical, physical, biological and ergonomic stresses causing illness or injury to the employee.

The chemical stresses include liquids, dusts, fumes, mists, vapours, solvents and gases. The physical hazards include radiation, noise, vibration, extreme temperatures and pressures. Biological hazards include insects, rodents, food and fur animals, bacteria, viruses, molds, yeasts and fungi. Ergonomic hazards include unusual body positions, repetitive motions, fatigue, monotony and boredom.

All these types of occupational health hazards are present in the jute industry. According to Government of
India Survey Report on Labour Conditions in Jute Mills, 1971, "the rate of accident has increased 5 times between 1961 and 1971, while only 35% mills had ambulance room and only 56% had first-aid boxes. None of the factories provided respiratory or protective equipments and the workmen use only the end of their towel as a cover to prevent jute dust. Occupational diseases like jute dermatitis, bronchitis, pneumonia and asthmatic allergy (byssinosis) were common."

The accident rate in jute manufacturing is relatively high and the proportion of machinery accidents is also high. The high accident rate can be related to the obsolete machinery and inadequate preventive measures. The following table shows the incidence of accidents (in %) -

<table>
<thead>
<tr>
<th>Year</th>
<th>Incidence of accidents</th>
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<tbody>
<tr>
<td></td>
<td>Persons affected by accidents to total no. of employees</td>
</tr>
<tr>
<td>1976</td>
<td>50.80</td>
</tr>
<tr>
<td>1977</td>
<td>52.17</td>
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<tr>
<td>1978</td>
<td>55.79</td>
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<td>1979</td>
<td>54.54</td>
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<tr>
<td>1980</td>
<td>59.04</td>
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<tr>
<td>1981</td>
<td>62.88</td>
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</tbody>
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(Source: Yearly Bulletin of Regional Occupational Health Centre (Eastern), ICMR, Calcutta)

Another problem of the jute industry is frequent closures and lockouts. Intensification of labour to extract excessive output had been an old practice in the jute industry. R.P. Dutt had observed that "ruthless measures of rationalization and wage cutting were pushed through to
maintain profits, especially in the textile industry ..... In jute, the mill consumption rose from 4.7 million bales in 1922-23, to 6 million bales in 1935-36 or an increase of 28% while the numbers employed actually fell from 321,000 to 278,000 or a decrease of 13%". In the years of 1981, 1982 and 1983 there was a mass lockout. The number of workers locked out had been 81,000, 75,000 and 83,000 respectively. The number of mandays lost due to lockout were 5.36, 10.89 and 10.36 million days respectively. These problems of industrial relations further aggravate the economic and social problems of the labourers e.g. malnutrition, high suicide rate, alchoholism, drug addiction, domestic violence etc.

Another problem that the workers face is extreme insanitary conditions at home and work. As most of the workers stay in barracks provided by the factories, they face an extremely unhealthy condition without facilities like drinking water, toilets etc. Crowding is at its maximum with a total lack of privacy. Inside the factories also, washing facilities are not provided. The workers have to work in extreme heat and humidity, amidst dust and noise, in a standing position for 12 hours or more. The provisions of the Factories Act (1948), regarding ventilation, toilets, even drinking water, not to speak of dirt and fume, are observed more in breach.

This extremely dusty conditions leads to skin dermatitis, asthma, mill fever or byssionosis, and tuberculosis.
Excessive noise in weaving operations is associated with gradual irreversible hearing loss. Hoarseness and throat troubles like pharyngitis are found among the workers, partly because of excessive noise and partly due to dust.

Skeletal deformities of the legs are also found among jute-mill workers who start work at a young age. This is due to constant standing on a continually vibrating floor. It causes nervous disorders. Constant standing and working in a restricted space where proper movement of limbs is not possible causes several ergonomic problems.

OBJECTIVES

This research has set before itself the following objectives:

i) to explore the ecology of diseases of the jute mill workers in the context of home environment and the environment at the work place;

ii) to probe into the past and present morbidity pattern of the jute mill workers and their families.

iii) to explore the nature of differences in work in different types of mill operations and its impact on the specific health problems of jute mill workers;

iv) to examine and study comparatively the health hazards of workers in different mills situated in different localities.
RESEARCH QUESTIONS

To attain these objectives the following research questions are framed -

a) What are the various -
   i) environmental hazards;
   ii) organisational hazards, and
   iii) health problems due to an inadequate quality of life faced by an average blue-collar jute mill worker?

b) How do the different types of environmental hazards affect his health?

c) What is the impact of various organisational problems on the health of jute mill workers?

d) What is the quality of life of a jute mill worker and how does it affect the health situation?

e) What is the morbidity pattern of jute mill workers due to various causes?

f) What are the differences in the morbidity pattern of jute mill workers and disease ecology in different mills?

IDEOLOGICAL FRAMEWORK

Capitalist development made possible an improvement in standards of physical health as measured by indices such as life expectancy and mortality rates. But this was by no means an immediate effect. The beginning of commercial agriculture produced a very significant deterioration in the
material conditions of most people in the countryside, while the Industrial Revolution and the growth of factory production had a similar effect in the cities. As a consequence the physical health of both agricultural and urban workers and also of their families, deteriorate.

It is important to understand exactly why the development of industrial capitalism should have produced such a rapid deterioration in the living and working conditions of millions of people. The development of factory production meant that workers were deprived of the opportunity to sell their labour on a relatively informal basis in dispersed geographical locations. The newly emerging wage workers were forced to migrate to the cities. As a consequence, towns expanded with enormous speed, and physical conditions soon became extremely unhealthy.

This process of the development of the forces of production had two dimensions. First, it was ultimately dependent on a particular mode of economic and social exploitation of the under-developed world, which was damaging to the health of Third World populations. Secondly, while it removed certain threats to health in the developed world, the development of industrial capitalism itself created new health problems, many of which are now only becoming apparent. Thus the relationship between capitalist

development and health has been a contradictory one.

The physical processes of commodity production itself will affect health in a variety of ways. Clearly the imperatives of capital accumulation condition the nature of the labour process, and the need for shift work, de-skilling, overtime or the use of dangerous chemicals, will all be reflected in the health or ill-health of the workers. They may suffer directly, either through industrial injuries and diseases, or in more indirect ways with stress-related ill-health, or in psychosomatic problems. Yet commodity production also has more indirect effects on health, and the physical effects of the production process extend beyond the work place itself. Damage to the surrounding environment and pollution of various kinds are often the by-products of industrialised production. Finally, commodity production may damage health through the nature of the commodities themselves, and, as a result, concern about the quality of a product (including its effects on health) will usually arise only in the context of an assessment of its selling potential.

It is very characteristic of capitalist society that everyone is not equally affected by these illness-producing process. Class differences in morbidity and mortality are very pronounced. Working class people die

42. Ibid, p. 28.
sooner, and generally suffer more from ill health than do middle-class people. Hence in order to explain those differences, the aspects of social and economic relations under capitalism - especially distribution of income and patterns of work and consumption, should be probed. The most obvious cause of class differences in morbidity and mortality will be the differential health risks of special occupations. Certain groups of workers have more dangerous and unhealthy jobs than others, but these occupational risk factors do not account for all the observed differences in morbidity and mortality. Physical proximity to the production process caters a lot to the increased rate of morbidity and mortality. Workers 'import' dangers from the workplace into their home and clearly this will affect working class families more often. In addition, they are more likely to live near the factories, and therefore, to be more affected by pollution and industrial wastes.

The distribution of ill-health in capitalist societies broadly follows the distribution of income. Those with lower incomes tend to have higher rates of morbidity and mortality, for a number of reasons. In a capitalistic society, income is a major determinant of the kinds of housing individuals and families can obtain, of where they live, of their diet, and of their ability to remain comfortable. Moreover, the quality of life (and therefore

43. Ibid., p. 95.
of health) is increasingly influenced by access to the goods and services provided by the State. Though they are on principle distributed on an universalistic basis, in practice they are allocated neither equally nor on the basis of need.

In an under developed country like India, the extremes of ill-health and premature death are to be found. Here the major causes of death are not, as is often assumed, the endemic tropical diseases, but rather infectious diseases and malnutrition. Those are not "natural causes" but arise generally from the particular social and economic relationships characteristic of imperialism. The incidence and severity of infectious diseases, are often directly related to the misery and squalor of both urban and rural poverty. Similarly, malnutrition does not simply result from too many people and too little food in any particular country. Like urban and rural poverty, it is often a direct result of the exploitative relationship between the metropolitan countries and the under developed world, and the consequent uneven development and allocation of resources.

Ill-health, cannot, therefore, be attributed simply to capitalism in any crude sense. On the other hand, we cannot make sense of patterns of health and illness outside the

context of the mode of production in which they occur. As Eyer and Sterling have said, "a large component of adult physical pathology and death must be considered neither acts of God nor of our genes, but a measure of the misery caused by our present social and economic organisation."

HYPOTHETICAL FRAMEWORK

In the case of jute mill workers the cause of health hazards can be grouped under three headings. They are -

a) environmental hazards;

b) organisational hazards; and

c) hazards related to quality of life.

The environmental hazards include -

i) chemical stresses due to dusts and dyes, and

ii) physical stresses caused by noise, vibration, extreme temperature and humidity, and

iii) ergonomic stresses caused by unusual body position, unusual body movement, fatigue, monotony and boredom.

The organisational hazards include -

i) work overload,

ii) odd hours and prolonged shifts,

iii) low pay scale,

iv) insanitary working conditions,

v) obsolete machinery and

vi) lack of work space.

The health hazards related to quality of life are -

a) bad housing,
b) insanitary living conditions,
c) lack of living space,
d) indebtedness.
e) inadequate diet and
f) illiteracy.

These hazards lead to various -

a) individual and
b) organisational symptoms.

The individual symptoms are -

i) water-borne diseases,
ii) vector borne diseases,
iii) diseases of malnutrition,
iv) respiratory diseases,
v) ergonomic diseases,
vi) skin diseases,
vii) high rate of child mortality,
viii) high fertility rate,
ix) alcoholism and drug addition.

The organisational symptoms are -

i) high rate of absenteeism,
ii) strained industrial relations,
iii) poor quality control,
iv) prolonged strikes,
v) frequent lockouts,
vii) frequent and severe accidents,
ix) poor performance and low productivity.
STUDY AREA

The jute mill area comprises of five districts of West Bengal - North 24-Parganas, South 24-Parganas, Haora, Hooghli and Calcutta. The jute mills are situated on both banks of river Hooghly. On the east bank of the river, the mills are scattered in a narrow urban belt from Kanchrapara in the north to Birlapur in the south. On the west bank of river, the mills are again found in a narrow urban belt running north - south along the river, from Chinsurah in the north to Uluberia in the south. Most of the jute mills are centralised in North 24-Parganas. Out of the total of 59 jute mills in West Bengal, North 24-Parganas has 25, South 24-Parganas has 5, Calcutta has 4, Haora has 15 and Hooghli has 10. The Kankinara - Jagaddal Municipality area in North 24-Parganas, is supposed to be the core area of jute mill industry, having 10 jute mills in the two adjoining municipalities.

The jute mills where this study has been conducted are situated in two districts - North 24-Parganas and South 24-Parganas. One of them, the Meghna jute mill is situated in Jagaddal in North 24-Parganas, Birla jute mill is situated in Birlapur in South 24-Parganas. The Meghna jute mill is found in the core area of jute industries while the other is at the periphery.

DATA BASE AND METHODOLOGY

Due to various reasons, secondary information of the conditions of jute mill workers had always been scarce. Apart from these, the medical geographers generally face
various problems while handling epidemiological data.

Firstly, the strict medical information upon health, ill-health or death is not usually gathered in the neatly compartmentalised way in which it would be most useful. Even in a case of certification of cause of death, there may be secondary or tertiary potential causes other than the primary cause. There is the question of medical "fashions" in diagnostic terminology, the special interest or skills of the physicians and his consideration for surviving relatives, all of which may influence the cause of death as recorded.

Dealing with morbidity, some examples of difficulties with data are - confidence may be breached by allowing access to patients' particulars; some conditions may be socially inaccessible, extra-marital pregnancy or psychiatric disturbance for instance. Diagnosis may alter after being first recorded; the patient may suffer from several conditions and be recorded only under the most treatable one. Comparability of diagnostic standards as between different practitioners, differences of patient recognition of sickness and degrees of effort put into seeking treatment; cost of treatment, and in some places, religious flavour with treatment, all these need to be studied and allowances made.

The second main group of difficulties with the data may be classed as medical statistical, the availability of adequate, and comprehensive figures of vital statistics are still lacking in many countries. Measures of standardising those figures one wishes to use and a scientific awareness of how they can be utilised; alternatively, in underdeveloped countries, ways in which some usefulness can be derived even from partial data; these are part of the fascination of medical geography.

Thirdly, there is the question of the locational specificity of the data. For instance, medical data are often collected from hospital statistics which may not include for each patient a home address. Data may refer to administrative divisions, and home and work places lie in different divisions. Occupational risks to diseases may arise from previous or present employment, from journey to work or any one of the various home places or social contacts. All of them need locating. Census data may utilise different areal units to those referring to morbidity or mortality information. Then for base maps it may be more suitable to use a demographic base instead of a normal map, whereas, in some places, even the most basic


topographical map may not exist. The handling of problems of this nature are quite common.

Forthly lies the choice of other data to be considered, which are often an intensely subjective matter. Vast stores of information are held by government agencies in most countries, but they are not always easily accessible or easily assimilable. Such information, say variations of staple plant yield for example, may not exist or may first have to be processed and mapped before use. Where data are readily available, mapped and published, they are often not up-to-date. Where data seem to be non-existent (as they often are concerning local and intimate details of custom), the researcher has to devise a survey schedule or questionnaire suited to his purpose and geared to the understanding both of his staff and of his respondents.

While working on this topic, the biggest problem faced was the lack of relevant data. There were no secondary data on health problems or on the home and work environment of jute mill workers. The study is mostly based on primary data collected from the workers of both mills. Some secondary data are availed of various Government and Non-Government sources, e.g. Jute Manufacturers Development Council (JMDC), Indian Jute Mills Association (IJMA), Employees' State Insurance Scheme (ESI), Regional Occupational Health Centre (Eastern), Indian Council of Medical Research (ICMR), Royal Commission of Labour, India (RCLI), Report of the Indian Factory Commission, 1890,
The data generally comprise of descriptions of various things - mainly of the technological and commercial side of jute industry. The workers of jute industry are usually discussed in the context of labour problems - as a key component of under-production. The reports of Jute Manufacturers Development Council (JMDC) and the Indian Jute Mills Association (IJMA) generally discuss the technological aspect of the industry. They also give reports of various financial positions of the industry, regarding import, export, shares and profits of different mills and of the industry. The Employees' State Insurance Scheme (ESI), Regional Occupational Health Centre (Eastern), and Indian Council of Medical Research (ICMR), surprisingly, seem to neglect the health, accident and compensation problem of the workers of the jute industry. Except a few references of the alarming increase of accidents in jute mills, there has been no other discussion on the general health problem of jute mill workers.

On the other hand, the pre-independence reports of the Royal Commission of Labour, India (RCLI) discussed largely various aspects of jute mills - both technological and non-technological. Though financial aspects of the jute industry got most priority, labour problems were also
discussed. These early reports, though very much imperialistic and merchantile in nature, are invaluable because they reflect the problems which the workers used to face.

The various reports from time to time generally concentrate not only on jute mills but on the industrial scenario on the whole. Most of them were carried on before independence and represent the apathy of the British Government on labour issues. The Foley Committee report on labour in Bengal (1906) gave some details on the working and living conditions of jute mill workers while the report of the Bengal Jute Enquiry Committee (1939) tried to assess the working conditions, efficiency and wage structure of the labourer. Most of the findings are descriptive in nature and hardly generate any comprehensive numerical data.

There was only the Chattapadhyay Committee Report (1952) that was carried out after independence. This study was done from an anthropological view point and concentrated on the family structure of the workers in various jute mills.

Apart from these, various unpublished reports have also been consulted. They are - Government of India Files at National Archives of India, Delhi:

a) Department of Industries and Labour Files, 1921 - 31; and

b) Home Department Political Files 1925 - 31.
Some Government of Bengal Files are consulted at the West Bengal State Archives, Calcutta. They are -

i) General Department Miscellaneous Branch Files, 1882-1911;

ii) Judicial Department Police Branch Files, 1890-1900;

iii) General Department Education Branch Files, 1913-1915;

iv) Medical Department Medical Branch Files 1914;

v) Finance Department Commerce Branch Files 1915;

vi) Local Self-Government Department, Public Health Branch Files 1927-1932;

vii) Commerce Department Commerce Branch Files 1937-1940, and

ix) Home Department Political Branch Confidential Files 1900-1940.

No data or information were available after this period. There are one or two articles here and there on the labour unrest of jute mill workers in various newspapers. These reports or articles are generally politically motivated and tend to give the viewpoints of various political parties. Apart from these, nothing was available on the conditions of jute mill workers in Bengal.

The research was carried out in two mills - One is a typical mill representing the general trend of the industry and the other which is an atypical one, representing a kind of its own, that does not follow the general trend of the industry. The Meghna Jute Mill has been selected as a
typical mill and Birla Jute Mill as an atypical mill. The mills are situated in North 24-Parganas and South 24-Parganas respectively. Both the mills are privately owned and are functioning from 1920's.

Meghna Jute mill has been selected as a "typical" jute mill because of the following reasons -

i) The mill is situated in the core area of jute mill industry.

ii) The mill started functioning in 1920's; at the same time when most of the mills started working.

iii) The mill faced lockouts and strikes in the recent years and changed hands as frequently as most other mills did.

iv) The mill produces sacking, hessian and carpet backing. This kind of diversified production process is typical of the jute mills in that area.

v) The workers in this mill are generally untrained.

vi) The workers in this mill did not get ESI benefits.

vii) The mill does not provide living quarters to most of the workers.

The choice of Birla Jute Mill as an atypical one was made due to the following reasons -

i) Unlike Meghna jute mill, this mill is situated outside the core area of jute mill industry.

ii) Unlike most jute mills, this mill had fewer strikes and lockouts. The ownership of this mill never changed.
iii) The workers get the benefit of the local Birla hospital at nominal cost.

iv) The workers are provided with living quarters which are quite comfortable compared to those of Meghna jute mill.

SAMPLING METHOD

One of the most important as well as most difficult problems in social research is the problem of sampling. Instead of studying every case which might logically be included in an investigation, only a small portion is selected for analysis, from which to draw conclusions. Most statistical studies are based on samples and not on complete enumerations of all the relevant data. A statistical sample is a miniature picture or cross-section of the entire group or aggregate from which the sample is taken. The entire group from which a sample is chosen is known as the 'population' or 'universe'.

From an ideal standpoint a complete count of all the relevant cases would probably be considered preferable to a sample. However, it may be found impossible or impractical to include more than a small portion of the total number of cases. The factors of time and cost are usually important considerations in social research. It is more economical and efficient to base studies on samples, and for most practical purposes the conclusions drawn from a sample can be just as valid as conclusions drawn from the analysis of the entire universe of cases.
There are two basic aspects to the problem of statistical sampling—first, the actual selection of the items that are to make up the sample, and second, the measurement of the reliability of the sample.

Generally speaking, the same mathematical laws of chance or probability should govern statistical sampling in the same way that they do in the flipping of evenly balanced coins. The most important consideration in selecting a sample is to see that it is closely representative of the universe. The size of a sample is no necessary insurance of its representativeness. Relatively small samples properly selected may be much more reliable than large samples poorly selected. The actual selection of a sample should be so arranged that every item in the universe under consideration must have the same chance for inclusion in the sample.

A good sample must be representative of the universe as well as adequate in size in order to be reliable.

In general, there are four basic procedures usually followed in the selection of items for statistical samples. These procedures are:

a) simple random sampling;

b) stratified random sampling;

c) sampling by regular intervals and
d) area sampling.

These different types of sampling procedure are not mutually exclusive but overlap to a greater or less degree. Moreover, in actual practice a sampling design may include two or more of these procedures.
If the composition of the universe is known, it is possible to select a sample by taking sub-samples - usually proportional to the size of the significant elements of subdivisions in the universe. After the relative size of each sub-sample has been determined, the individual items are actually chosen either by random selection or according to regular intervals. The size of each sub-sample is usually determined by the number of cases in each classification.

The main objective in stratification is to secure a more reliable sample. Sometimes the gains in stratification may be very high and at other times very trivial. If the various strata are so chosen that the variable under consideration is relatively homogenous within the strata and heterogeneous between strata, variance will be reduced. If, however, the variable is randomly distributed throughout all the strata, little or no improvement will take place through stratification. Sampling variance can also be reduced by increasing the number of cases.

It should be pointed out that the sampling ratios in a stratified sample are not always proportional to the number of cases in the various sub-groups. In fact, where the standard deviations of the sub-groups are comparatively large, higher sampling ratios are usually taken.

In this study, emphasis has been given on the health hazard of the worker and his household and the relationship between his environment (both home and workplace) and his health. Since working conditions inside the factory and the exposure to various specific machinery or chemicals give
rise to specific health problems, the workers were divided into groups of specific mill operations. The total number of workers were divided into nine sub-groups; each of which having homogeneous mill operation involving specific machinery. In this way, the various mill operatives were divided into homogenous sub-groups, in an otherwise heterogeneous universe.

There still remains the question of how to select the exact cases from within such strata, once they have been set up. The random sampling methods are used, since each of the sub-samples is treated exactly like a universe as in the case of simple random sampling. The usual randomization techniques have been applied within the strata.

The problem in selection of the exact samples concerns that of proportionality. Here the most common procedure of selection is used. The procedure is to select from each stratum in proportion to the contribution which that stratum makes to the total universe.

The members of the household are included in the survey. The worker was interviewed at his house. The interview consisted of a survey schedule and a discussion with him. Only primary data has been collected. The blue-collar workers with a monthly pay less than or equal to Rs.2000/- were interviewed.

The data were collected on the basis of stratified random sampling. From both mills, 5% of the total number of regular workers from each kind of mill operation were
interviewed. The sample size is as follows :-

<table>
<thead>
<tr>
<th>Name of the department</th>
<th>Meghna Jute Mill</th>
<th>Birla Jute Mill</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Raw Jute</td>
<td>10</td>
<td>18</td>
</tr>
<tr>
<td>2. Batching</td>
<td>21</td>
<td>26</td>
</tr>
<tr>
<td>3. Preparing</td>
<td>15</td>
<td>20</td>
</tr>
<tr>
<td>4. Spinning</td>
<td>26</td>
<td>31</td>
</tr>
<tr>
<td>5. Winding</td>
<td>17</td>
<td>22</td>
</tr>
<tr>
<td>6. Beaming</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td>7. Weaving</td>
<td>53</td>
<td>58</td>
</tr>
<tr>
<td>8. Sack - sewing</td>
<td>18</td>
<td>23</td>
</tr>
<tr>
<td>9. Finishing</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>180</td>
<td>230</td>
</tr>
</tbody>
</table>

SURVEY SCHEDULE

Various information regarding the worker and his household were collected under these headings :-

a). Identifactory Information

Information were collected about his place of origin, caste, religion, family type, family size, years of work in the mill, occupations before joining jute mill, age, sex structure of his household, income pattern, educational status, working status etc. for the worker and the members of his household.

b). Family Structure

The worker was asked to provide information regarding his household. This information was collected under three classified groups - Wage earners, dependents residing with wage earners and dependents living elsewhere. For each of them, informations about their relationship with the worker, sex, age, education, occupation and income were tabulated.
c). Migration Pattern
The worker was asked about his ancestral place, the reasons behind migration, the type of migration and the reasons behind the choice of the present area of migration. If the worker's family migrated a few generations back, then these questions were asked about that forefather who migrated to this place.

d). Quality of life
Detailed questions were asked about housing facilities. It includes the materials used in the house, whether domestic facilities like electricity, separate toilet, separate kitchen, cattle shed, ventilation, cross-ventilation are available etc. Housing density and room per couple were calculated. The quality of life of the workers' household were measured in terms of his assets, the landed property he owns etc. The indebtedness pattern, the sources and reasons for indebtedness and the expenditure pattern were calculated from the interview.

e). Food routine
The everyday food habit of the worker's household had been questioned upon.

f). Environmental hazards
In this section, the information collected concerns the worker only. His perception about the work environment were discussed. His opinion about the abundance of jute dust, allergy and skin diseases from batching oil, problems regarding noise, vibration of the floor,
humidity, high temperature, unusual body position and movement etc. are interviewed. He was asked about the various facilities like ventilation, lighting, canteens, washing and sitting arrangements available inside the mill. He was asked about the provision of preventive measures against jute dust and other irritants. Whether precautionary measures against accidents are available was asked.

g). Organisational hazards

The workers were asked about their work and overtime schedule. His perception about work hours, recess period, work load in terms of quality and quantity was interviewed. He was asked about the training facilities, whether he faced any strike, lockout, wage-cut, and accidents in his service period was asked.

h). Health conditions

To probe into the actual health situation of the worker and his household, these following questions were asked to each of them -

i. age at marriage,

ii. number of children conceived,

iii. number of children alive,

iv. diseases suffered in the past one year,

v. diseases suffering at present,

vi. any chronic problem or seasonal complication,
vii. health centre's record about the present ailments. Questions were asked about family planning and child inoculation. The addiction habits of the worker and his family members were discussed.

i). Health facilities

The health facilities availed by the worker and his household members were asked, both disease and person-wise. The source of medical aid and the type of medicine used by each person for a specific disease were discussed.

STATISTICAL METHODS

Various methods of descriptive statistics were used. As the data are mostly descriptive, the correlation between two variables were worked out by the Chi-square method. In this method, two independent variables are cross-classified into a contingency table. If the row and column attributes are independent, the expected frequency of the cell in the ith row and the jth column in a contingency table is equal to

\[ \frac{R_i \times C_j}{N} \]

Where \( R_i \) and \( C_j \) are the total of the row and the column and \( N \) is the total member of frequencies.

The degrees of freedom in case of a contingency table of \( r \) rows and \( c \) column is \((r - 1)(c - 1)\).

LITERATURE SURVEY

The environment and health problems of the jute mill workers of Bengal were never an important topic for discussion. When the Government of India appointed a Committee in 1946 to enquire into the conditions of the jute-mill workers of Calcutta, the Committee found that there was "very little literature available" in regard to the subject. These conditions, in other words, had not been investigated before with any degree of thoroughness. To-day, this creates a special problem for the researcher. This scarcity of documents is mainly due to the lack of social investigators among the Bengali intelligentsia. It can also be explained by the non-literate nature of the working class.

This is the relative poverty of the information in the documents of the State - especially documents that needed the co-operation of employees, such as the factory inspectors' reports - which compare rather badly, say, with the richness of similar English documents that Marx put to such effective use in the first volume of "Capital". The problem of "paucity of sources" should be considered in itself an important problem. Hence, the available documents should be studied from the view point of what they say and their "silences". In this way, only the gaps and omissions

will be understood. An attempt to analyse these silences invariably takes us into questions of culture and demonstrates a point central to the argument that the theoretical understanding of the working class needs to go beyond the "political economic" and incorporate the 'cultural'.

The literature survey on the jute workers problem serves two objectives. They aspire to draw a picture, however incomplete, of the conditions of the jute mill workers of Bengal. At the same time, they seek to account for the gaps in our knowledge and argue that the gaps are as revealing of working class conditions as any direct reference to them. They provide, therefore, a history both of our knowledge and of our ignorance.

The published literature on this topic can be grouped under 5 categories. They are:

a) Historical Review of the condition of jute mill workers

The first ever book written on the health and related problems of workers was by Frederick Engels. In his book "The condition of the working class in England" he gave the first comprehensive picture of the workers' condition under capitalist production system. In this book, the home and work environment and the related health problems of workers has been discussed. The conditions of jute mill workers of Lancashire, Dundee, Belfast and Leeds were discussed along

with the workers of other manufacturing industries. According to Engels, "The condition of the working class is the real basis and point of departure of all social movements of the present because it is the highest and most unconcealed pinnacle of the social misery existing in our day." In this book Engels expressed personally, "I wanted more than a mere abstract knowledge of my subject, I wanted to see you in your own homes, to observe you in your everyday life, to chat with you on your condition and grievances, to witness your struggles against the social and political power of your oppressors.

In this book, Engels studied the physical conditions of working man's life at length. The housing conditions, the food they eat, the cloth they wear, the education they get, the recreation they have - all became objects of his study. The working conditions were also studied. The factory rules, their evolution and the related factors were discussed at length. The changes the worker faces culturally when he joins the city workforce, the dilemma of change of a countryman to a industrial labourer had been probed elaborately. While discussing the transformation of farming weavers Engels commented that by degrees, the class of farming weavers wholly disappeared, and was merged in the newly arising class of weavers who lived wholly upon wages,

52. ibid., p. 13.
53. ibid., p. 9.
had no property whatever, not even the pretended property of a holding, and so become working men, proletarians." According to Engels, "The consequences of industrialisation were, on the one hand, a rapid fall in price of all manufactured commodities, prosperity of commerce and manufacture, the conquest of nearly all unprotected foreign markets, the sudden multiplication of capital and national wealth; on the other hand, a still more rapid multiplication of the proletariat, the destruction of all property-holding and of all security of employment of the working class, demoralisation, political excitement etc."

Engels book was the first one ever written with the idea of workers' deteriorating health and environmental conditions as a consequence of rapid and unplanned industrialisation and urbanization. In his book the cause of the ill-health of factory workers had been attributed to the violation of factory rule and sanitation rules. According to Engels, "When society places hundreds of proletarians in such a position that they inevitably meet a too early and an unnatural death, one which is quite as much a death by violence as they by the sword or bullet; when it deprives thousands of the necessities of life, places them under conditions in which they cannot live - forces them, through the strong arm of the law, to remain, in such conditions

54. ibid., p. 43.
55. ibid., p. 45.
until that death ensures which is the inevitable consequence - knows that these thousands of victims must perish and yet permits these conditions to remain, its deed is murder just as surely as the deed of the single individual; disguised, malicious murder, murder against which none can defend himself, which does not seem what it is, because no man sees the murderer, because the death of the victim seems a natural one, since the offence is more one of omission than of commission. This is characterized as social murder".

D.R. Wallace's book "The Romance of Jute" was published twice, once in 1909 and then again, in a revised and updated form, in 1928. The differences between the two editions are indicative of the change of mood in Calcutta jute circles. The first edition ended on an optimistic note: it envisaged a future that "would appear to be good ............... for the Calcutta mills." But its optimism was cautious. The 'scandals' of the nineteenth century were still there like unhealed scars: so the 'dedication' of the book carried a reminder of the "early seventies of the last century" when "jute mill management" deserved the "trenchant and businesslike criticism", they received from their friends from time to time. By the time Wallace came to

56. ibid., pp. 120-121.


58. ibid., p. 262.
write the second edition he was close to retiring. The memories of the "early seventies" had faded. Wallace had seen the Calcutta industry pass through a phenomenal book during the First World War. The importance of trench warfare in the war created a huge demand for sandbags and the fall of India's export trade gave the industry an almost captive supply of raw jute.

Wallace wrote the second edition of his book when the industry was still gathering the fruits of the harvest it had reaped during the war. By 1925 the Calcutta mills consumed more than five times as much jute as the Dundee industry and "the reserve funds of the mill in almost every case" exceeded their capital.

Wallace looked at the profit figures for the industry for 1913 to 1923 and remarked with unconcealed glee, "what a wonderful decade it has been!"

The reworked text of the second edition of Wallace's book was full of the prevailing mood of confidence. "For all time" to come, it seemed to Wallace in 1927-28, the mills should be in a position to weather ...... the fluctuating dangers of the market." - so long as they flowed the IJMA's policies of restricting production to meet

59. ibid., p. 98.
60. ibid., p. 98 (2nd ed.).
61. ibid., p. 109 (2nd ed.).
62. ibid., p. 94 (2nd ed.).
the demand. These policies, Wallace reckoned, were, "a factor for good to the trade." The revised "dedication" of the book in this late edition no longer carried any references to the uncertainties of the last century. Instead, so strong was Wallace's optimism now that he broke into poetry:

The writer who'll be West, before
Some future scribe takes up the score.
Yet still, What'er the Ebb may bring
The tang of Bengal jute shall cling.

At the bottom of Wallace's complacency, there was a deeply entrenched economic outlook that counterposed the cheapness of products and price-manipulation practices (like short-time working arrangements) to scientific and technological progress. According to Wallace, "suitable substitutes for jute can be grown at a price in several parts of the world, all of which have hitherto proved a commercial failure owing to high cost of labour and the difficulty of extracting the fibre." The lesson, therefore, was that the prices of our manufactures had to be kept low so as not to encourage the manufacture of substitutes."

The impact of this survival strategy of the industry had its marks on the conditions of workers. Since it affected the working conditions, violation of Factory Act

63. ibid., p. 48 - 49 (2nd ed.).
64. ibid., p. 2 (2nd ed.)
65. ibid., pp. 244 - 279 (2nd ed.)
and lowering of wage and other fringe benefits; the health of the workers were affected indirectly.

The only study on the socio-economic conditions of jute mill workers was carried on by K.P. Chattopadhyay. In this study, various social customs and the family structures of the jute worker were the primary subject. As Dr. Chattopadhyay belonged to the Department of Anthropology of Calcutta University, the study was mainly anthropological in nature. In this study, the researcher divided his sample according to linguistic (e.g. Bengali, Hindustani, Oriya, Tamil etc.) and religions groups (e.g. Hindu, Muslim etc.). Due to this faulty sampling, the study lost its importance and relevance to some extent. Actually, dividing a group of workers into heterogeneous groups based on their linguistic and religions identity had been a common practice among the researchers - both oriental and occidental.

Apart from these studies, various articles had been written on specific topics related to jute mill workers. In 1976, D. Chakraborty wrote about the first social worker who worked among the jute workers at the beginning of this century. Sasipada Banerjee was a social reformer working in the jute mill area of Baranagar near Calcutta, where, as a spread effect, in a labouring milieu, the social reform


were in Calcutta started at the same period. The paper also examines his role as a labour-welfare worker, and the relevance of his work to the contemporary society in Bengal.

Sasipada was greatly influenced by British culture and his form of workforce improvement came in the form of moral and educational reforms with the aid of the British. The mill owners helped him to build schools. Sasipada, while fighting vice like drunkenness, provided a solution to the concrete problem of labour discipline to the mill owners and thus their interests met. Sasipada did not recognise the "working class"s as such, but as a mass of poor, uneducated people. According to Sasipada, the 19th century Bengal could not generate social mobility among the lower classes. The underdeveloped economy precluded these possibilities. A very slow growth of factory and heavy industries meant a slow diffusion of skills. Besides, the jute mills specifically went in for mainly unskilled and semi-skilled labour at very cheap wages. The absence of a societal need for any fast spread of technical skills also meant that a literate working class was not really needed.

R. Das Gupta (1976), discussed the migration pattern of the workers in the jute mills, their place of origin and social status prior to migration. This study probed the source of migration in terms of religious, social and

occupational groups. It also tried to ascertain if certain social groups or economic strata showed a greater propensity to migrate to the factories. The findings of this study showed that upper caste people were less inclined than the lower castes to move out of villages for entering the labour force in the factories. A great proportion of the factory workforce came from untouchables, tribals and low caste groups - including Muslims, from craftsmen who had been disposed of their means and their equipments, from agriculture labourers who had not even a strip of land of their own and from uprooted peoples of all kinds. Thus the bottom of the industrial hierarchy was formed mainly by those at the lowest rung of the traditional social order.

D. Chakraborty (1981) studied the nature of communal riots, that took place among labourers of the jute mills in the 1980's. According to Chakraborty, at that time the structure of the labour market was such that the ties of language, religion and kinship - ties that are especially strong in precapitalist cultures - had a practical and economic utility to the worker in his struggle for survival in the face of poverty and insecurity. According to

Chakraborty, Hindus and Muslims were not divided into watertight compartments. Even though workers belonged to a culture that underplayed any idea of the individuality of the person, their notion of a "community" based on the loyalties of religion, language, habitat, kinship and the like could only be ambiguous. This was because a "community" defined by such loyalties was necessarily a self-contradictory entity. People sharing the same religion, for example, could be divided by language or habitat. This both lessened and aggravated the danger of the outbreak of any particular type of "communal" conflict. For though in some cases a religious unity could be formed that cut across the language or ethnic barrier, this barrier itself could in other cases stop a religious conflict from spreading.

According to Chakraborty, the jute mill worker had never been politically emancipated from religion. Religion, ethnicity, language or other similar loyalties formed the basis of his politics. This was so even at moments of confrontation between labour and capital. Mobilization for strikes was often based on emotional appeals to the ethnic or religious ties of the workers and to their communal sense of honour and shame. In the jute worker's mind itself, the incipient awareness of belonging to a class remained a prisoner of his precapitalist culture; the class identity of the worker could never be distilled out of the precapitalist identities that arose from the relationships he had been born into.
In another article, D. Chakraborty (1983) studied the history of jute mill workers in the context of their living and working conditions. He studied at length the documents available and evaluated both the information given and the information concealed. The technological process, health care facilities, wage system, education and training of the mill-hands etc. had been discussed. According to Chakraborty, the history of the conditions of the jute mill workers of Calcutta on the basis of documents coming from the State and the owners of capital reveals certain gaps. These informations help to study the political economy of the industry and the nature of the "industrial discipline" operating within the mills.

In another article, D. Chakraborty (1983) studied the role of trade union movement in the history of jute mill workers in Calcutta. According to him, the special feature of trade union movement of the jute workers had been the paradox of strong militancy but weak organisation. The organisation was weak, or so the argument has run, because the structural and other features of the workers' conditions


deprived them of any opportunity to acquire an understanding of trade union discipline and functioning. D. Chakraborty analysed various authors' viewpoints regarding the reason of this phenomena and the factors - economic, social and political - to explain this ignorance. The figure of the 'ignorant' workers (even if this 'ignorance' is defined in strictly political terms) has thus been central to all existing explanations of the problems of working class organisation in the jute mills. Factors such as the 'linguistic heterogeneity' of the jute workers (or the absence of a single means of communication among them), their 'linguistic separation', from the Bengali community, the "structural peculiarities" of this labour force, their "amorphous, undefined and generally unskilled nature", their "half-pastoralist, half-proletarian" outlook, as well as the suppression of left-wing trade unions by the States, have all been mentioned with varying degrees of justification to explain why the jute-mill workers never grew out of their "ignorance", political or otherwise.

According to Chakraborty, due to these reasons, the ideal, democratic principle of representation based on "voluntary" and "contractual" relationships was never realised in the trade unions of the jute mill workers, and representatives instead became masters.
S. Mitra (1986) published a pamphlet on the general problems of the industry, though the thrust of the discussion was more on the mechanisation and technological progress than on the conditions of the jute workers.

D. Chakraborty (1989) wrote about the growth of jute mill workers as a class and as a growing force in the trade union movement in a historical perspective. This book was actually the reproduction of his articles described earlier.

P. Ghosh (1990) discussed the extent to which colonialism dominated the million of jute mill workers in Calcutta. It is shown that, the two selves of the mill workers - of the peasant and of the workers - were both situated in contexts where colonialism was the biggest determinant. The peasant in rural Bihar could experience for himself the facit alliance between the State, the planter and the landlord operating in his daily life. When he came to the City, he again could see a different version of the same alliance dominating him. It is in this context that the jute mill workers' communal involvement should be


placed. His community orientation may have been part of his pre-bourgeois self, but this was no unalloyed extra-colonial nativity. On the contrary, it functioned within the colonial framework, and blossomed under its dispensation.

(b) Occupational Health Hazards of Workers in different industries

Various studies are made on this topic, mostly on occupational health conditions in foreign countries. The studies are generally from a medical point of view and try to ignore the socio-economic aspect of disease.

Holland and Reid (1965) surveyed and compared the differing health conditions regarding prevalence of respiratory symptoms and sputum production of post-office employees doing similar jobs in urban and rural areas of United Kingdom.

Zuskin and Valic (1971) studied the difference between the forced expiratory volume in 1 second and the peak expiratory flow rate of 99 non-smoking female workers before and after the shift.


Walker, Archibald and Ahfield (1971) conducted an epidemiological survey to determine the prevalence of bronchitis in men employed at two coking plants of United Kingdom. The investigation suggests that cigarette smoking, and the combination of smoking and pollution of the coke-ovens and previous occupation, are important factors in the aetiology of bronchitis and related ventilatory capacity in men employed in the coke manufacturing industry.

Valic and Zuskin (1971), in order to compare the effect of cotton and jute dust, studied the respiratory symptoms and respiratory functions of 60 cotton and 91 jute non-smoking female workers of similar age distribution, similar length of exposure to dust and airborne dust concentrations.

Valic and Zuskin (1972), in order to establish the rank of biological activity of vegetable dusts, 5 groups of non-smoking female workers exposed to similar concentrations of hemp, flax, cotton, sisal and jute airborne dust, respectively, were compared as to the prevalence of


bysinosis, chronic respiratory symptoms, and the change in the expiratory volume.  

In another study, Valic and Zuskin (1973) compared the effect of exposure to high concentrations of mixture of hemp and jute dust and flax dust among workers of the mills.  

Schar, Feeder and Dirken (1973) discussed several methodological principles to find out the empirical relationship between the predictive variables and chronic disease. The predictive variables discussed are time order, time unit, pathology, specificity and behavioural vs somatic data.  

Schar, Reeder and Dirken (1973) discussed some preliminary results from a cooperative international study of socio-cultural and psychosocial factors in relation to cardiovascular health status focussing upon data from the Netherlands.

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Morgan (1973) analysed 3 socio-medical surveys in the Lagos Metropolitan Area (acceptance of a smallpox vaccination programme, use of modern vs traditional medicines, tolerance of epileptics in society) and suggested that recent immigrants are as receptive or more receptive to modern medical practices and beliefs than the long-standing Lagos residents - though immigrants are generally less privileged socio-economically and have more limited access to the medical and educational facilities offered by the urban area.

Shirom, Eden, Silberwasser and Kellermann (1973) studied relationships among job stresses and coronary heart disease risk factors in five occupational categories (managerial and professional workers, clerical workers, craftsmen, factor workers and agricultural workers) among male kibbutz members in Israel.

Christian, Ray, Benyoussef and Tanahashi (1977) discussed the methodological approach while planning health care systems. This paper discussed a model that look


simultaneously at the intersectoral and intrasectoral aspects of the health system. It is a simulation model consisting of a population model, a simplified economic model, some selected social indicators and a health sector model.

House, Wells, Landerman, McMichael and Kaplan (1974) studied occupational stress and health by examining the cross-sectional associations of 12 measures of perceived stress to 5 indicators of self-reported symptoms of ill-health and five medical conditions of a group of blue-collar workers in United States of America.

Otto (1974) studied the distribution of negative and positive life experience among men and women in selected occupations (e.g. teachers, factory, clerical and managerial workers) in an Australian context. This paper examines the relationship between quality of life experience and symptom awareness as well as the relationship between both of these and medical help-seeking. Negative life experience was assumed to exist in case of discrepancies between a person's "need values" (seen as a mixture of cultural values,


psychological need - dispositions and "basic human needs") and their subjectively perceived attainment. Positive life experience was taken to mean high degrees of "need - value" satisfaction.

Sloan, Khakoo, Cluff and Waldman (1979) discussed the growing symptoms of minor transient illnesses that affect the general health and quality of life, since they affect function and behaviour of a person to a large extent.

Davis (1979) studied the research methodology in the field of health care. This theoretical paper propagates the use of a scientific approach in choosing the methodology.

Krupinski (1980) measured the "quality of life" of the North - West Region of Melbourne by objective indicators such as work, income, housing and time spent on specific activities and by the subjective perception of life.

Felker (1982) discussed the political economy of the interactions between Society, the Medical system and women


in a capitalist state, in order to uncover the flow of forces operating in this conflict. Using a historical perspective, a feminist analysis is made of the social order, and a model is presented which demonstrates the articulations between the domains mentioned above, particularly the historical control of women by the medical system as an agent of the State.

Pill and Stott (1982) discussed the conceptualisation of illness causation by individuals, especially working class mothers in United Kingdom.

Vinni (1982) discussed the utilisation of general hospitals in Finland according to gender and occupational groups. According to him the differences in hospital utilisation do not depend only on differences in morbidity but with the availability of services and the illness behaviour of the people - factors which also differ from occupational group to occupational group.

Castillo - Salgado (1984) discussed the two main interpretations of health promotion in the workplace viz;

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the individual-based lifestyle approach and the environmental-social approach. This paper discusses the limitations of the individual-based lifestyle approach which postulates an individualistic and fragmented vision of the process of health in the workplace. In contrast, the environmental-social approach provides a more comprehensive framework of references in which the socio-economic, environmental and political components are integrated in the primary prevention strategies of health promotion in the workplace.

Love, Smith, Gurr, Soutar, Scarisbrick and Seaton (1988) discussed an epidemiological study in West Yorkshire wool textile mills to determine relations between respiratory symptoms and environmental hazards in workplace.

Cinkotai, Rigby, Pickering, Seaborn and Faragher (1989) discussed respiratory symptoms of workers employed in Lancashire textile industry. Byssinotic symptoms were related to years worked in the cotton industry, exposure to dust, quality of cotton used, workroom conditions, ethnic origin and smoking habits.


97 Takam and Nemery (1988) carried on an epidemiological study on the byssinotic symptoms and related factors in a cotton textile factory in Cameroon.

98 Maclaren, Hurley, Collins and Cowie (1988) discussed possible associations between the incidence of progressive massive fibrosis and a range of explanatory variables, both environmental and medical.

99 Osterman, Greaves, Smith, Hammond, Robins and Theriault (1989) studied relations between pulmonary symptoms and exposure to respirable dust and sulphur dioxide.

100 Mask (1989) discussed the conditions of dust exposure, respiratory symptoms, lung functions and response to skin prick tests in a modern British bakery.

101 Leigh and Sheetz (1989) investigated the causation of back pain among full-time United States workers. The main


reasons behind the high incidence of back pain are type of work, low levels of schooling and income, age (50-64) and smoking.

Ehrenberg and Sniezek (1989) tried to improve the standard occupational health questionnaire to collect demographic and occupational history information in addition to information about the presence of a spectrum of work-related conditions. The questionnaire will have a modular structure and will consist of a core questionnaire and series of condition-specific modules.

Klitzman and Stellman (1989) examined the relationship between the physical office environment and the psychological well being of office workers. The results indicate that adverse environmental conditions, especially poor air quality, noise, ergonomic conditions, and lack of privacy affect worker satisfaction and mental health.

Sobral (1989) mapped air pollution levels in Sao Paulo. In three contrasted sample areas, children's respiratory health parameters were collected to assess the roles of poverty and poor housing against those of air

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pollution. Respiratory ill-health is clearly shown to vary with pollution levels. Yach, Mathews and Buch (1990) discussed several methodological difficulties in conducting epidemiological research on urbanisation and health in developing countries, with particular reference to South Africa. These relate to the definition of urban areas and residence thereof, the comparability across areas of exposure and outcome information, the identification of infra-urban variability, selection bias in cross-sectional studies, associating outcomes with specific urban exposures in analytic studies, and determining appropriate interventions and means of evolution.

Tarton and Chalmers (1990) examines the relationship between apartheid and the distress experienced by adult urban-dwelling Africans in South Africa. The effects of apartheid are conceptualised and measured as social and economic disadvantage, and this operational definition is justified by a review of the socio-economic and health aspects of apartheid policies and practices. Distress is conceptualised and measured as exposure to stressors and experiences of ill-health. Analyses indicate that the


effects of apartheid (represented by socio-economic disadvantage) are significantly related to the experience of distress (represented by stress and illness) for black South Africans. Multivariate analyses suggest also that the relationship between disadvantage and distress are more complex than a simple and direct relationship between the variables.

Westin (1990) studied two sardine factories on the West Coast of Norway, of which one closed down. In this paper the follow-up datas regarding six mutually exclusive and inclusive conditions related to employment and health have been analysed on a weeks per person per year basis, permitting the effects of job loss over 10 years to be compared with what could have been expected had the factory not been closed. For those not subjected to old age pension or death, three kinds of long-term adaptation showed a marked differential effect among study subjects and controls: a substantial long-term reduction in mean time spent in job, an increase in consumption of time on disability pension, and an increase in time spent outside the labour force without social security coverage, the latter being mostly confined to women. These follow-up data provide a comprehensive picture of individual long-term adaptation to involuntary job-loss, emphasizing its effects.

on future employment, health, social readjustment and social security benefit consumption.

(c) Occupational Health Hazards of Industrial Workers of India

Very few studies have been undertaken in India regarding the occupational health hazards of industrial workers. Whatever work had been done on this was essentially from an epidemiological/medical point of view and the socio-economic parameters were generally not discussed.

Roy Chowdhury (1990) discussed the health hazards associated with the production process of the electronic industry. The chemicals (e.g. solvents, resin, adhesives, acids, alkalis, mineral dust etc.) usually cause respiratory allergy, skin diseases, eye irritation, visual stress, abortion, back pain etc., when used with improper and inadequate ventilation and lack of industrial hygiene. Various curative and preventive measures were suggested.

Mathur, Kamble, Bhate, Bhatia and Bhandekar (1990) discussed respiratory problems related to tobacco dust and other musculo-skeletal problems of bidi workers. The study collected socio-economic as well as medical data.


Malnutrition, insanitation and job-related hazards were earmarked.

Lele (1990) studied flour mill workers to elicit work related respiratory symptoms and changes in lung function status due to prolonged exposure to flour dust. Apart from this, the study aimed to determine the morbidity pattern prevalent and the environmental hazards present in the flour milling process.

Mathur and Bhalerao (1990) discussed the medico-social problems of the construction workers. The study had been aimed -

(i) to detect occupational diseases as well as work related diseases of the construction workers;

(ii) to study the socio-economic structure and its impact on the diseases;

(iii) to educate the workers in prevention of occupational and work-related diseases; and

(iv) to educate them about the role of nutrition, immunization and proper treatment.

Upadhyay (1990) studied the domestic and workplace environment of cotton mill workers in Bombay. The physical environment and workplace environment were discussed.


Rastogi, Gupta, Husain, Mathur and Srivastava (1990) conducted a study of workers employed in the brassware industries of Moradabad city to investigate the socio-economic status, living and work conditions. The morbidity pattern of these workers had been related to those conditions.

Rajgopal (1990) conducted a study to collect epidemiological data about the health status of workers in coalyard operation and maintenance sections of a thermal power plant.

(d) Health Problems of Jute Mill Workers

Discussions regarding the health problems of jute workers had always been sketchy in nature. The scarcity of studies undertaken on this topic confirms the fact.

Sidhu (1960) studied workers in jute and cotton mills in Kanpur to find out the prevalence of byssinosis among the workers of different mill operations.


Kell (1975) studied the audiometric results and hearing impairments among the female jute weavers. The study was completely epidemiological.

El. Ghawabi (1978) studied the morbidity pattern of various respiratory diseases among a working population exposed to jute and hemp.

(e) Health and Environmental Problems of Jute Mill Workers in Government Report

It is interesting to note that all the Government documents reporting on the health and environmental problems of jute mill workers are from the British period. Those reports can be divided into two groups - the general reports about jute cited in various governmental documents and reports specially made on the problems of various aspects of jute industry.

Among the specially made investigative reports about various problems of the jute industry, the first-ever one was published in 1906. Foley (1906) made a report on the availability pattern of labourers in the jute mills. The availability of data for this report was difficult to get.


J. Nicoll of Indian Jute Mills Association (IJMA) told Foley that "he had experienced some difficulty (in procuring labour) in his three jute mills in 1902, and had therefore caused a census to be made that year, showing the districts from which the hands came; and it was these data that Foley reproduced in his report. Foley also noted that such information was not collected except in times of labour scarcity. The average jute mill manager, who was "usually a kindly Scot from Dundee, "was generally ............unable to say from where his hands come, and if told, the information would convey no meaning to him".

In their concern to create and maintain a steady supply of cheap unskilled labour, the jute mill owners developed a labour market in which a host of "informal" relations and methods came to acquire important economic functions necessary for the running of the industry. For the mill workers, kinship and village connections often provided the network for the flow of information regarding jute mills.

Another interesting information supplied by the Fort Gloster Jute mills manager was quoted by Foley. "The Bilaspuris were introduced by a Christian missionary in 1897, who said there was famine in the Central Provinces, brought 25 christian with their families from Bilaspur. They afterwards went back and brought others, and there is now (August 1905) 500 of them."

119. ibid., Appendix.
120. ibid., Para. 23.
121. ibid., Appendix, p. X.
Foley's survey was conducted with a view point to describe the emigration pattern of jute mill workers historically. "Twenty years ago", Foley wrote in 1905, "all the hands (in jute mills) were Bengalis. These have been gradually replaced by Hindustanis from the United Provinces and Bihar..... so that at present in most of the mills two-thirds of the hands are composed of up-countrymen." It "astonished" Foley to find that large increases in demand for jute-mill labour between 1895-96 and 1903-04 had been easily met in spite of "no recruitment on any systematic method......at all and without any material rise in wages."

Foley's impressions were confirmed by a 1921 report entitled "The conditions of Employment of Women before and after child-birth in Bengal Industries" by Dr. D.F. Curjel of the Indian Medical Service. This report was focused on the reproductive pattern of women jute workers and their employment pattern. Of the jute mills Curjel visited, none were able to give her any information about the numbers of children born to their female workers. Curjel noted that the Manager of Ballighata Jute Mill "would scarcely discuss" the subject of labour conditions with Curjel. He said "he did

122. ibid., Para. 28.
123. ibid., Para. 18, 21 - 24.
124. West Bengal State Archives, Commerce Department, Commerce Branch, April 1923, B. 77.

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not concern himself with the workers' lives."

Roy Choudhury (1930) studied a number of family budgets to ascertain the standard of living of the poorer classes of labourers employed in the jute mills. From 6 jute mills, 144 representative families have been selected from different "classes" of workers. It is interesting to note that the definition of classes in this study refers primarily to religious groups and secondarily to ethnic or linguistic groups. Classification of this kind seems to be totally unscientific, since the standard of living of jute mill workers are bound to be similar irrespective of the nationalitiy and religion of the workers. The income and expenditure pattern, dietary pattern, housing and indebtedness pattern were studied at length. Though lot of data were collected, there were few concrete conclusions.

Balfour (1932) conducted a survey on women workers in the jute mills, especially about the maternity condition and child care problems. This study had descriptive information about the general health and medical relief, maternity conditions, the condition of workers' children, the condition of veneral diseases and the existence of

125. ibid., p. 82.


welfare centres and creches of the women workers and their children. Based on these conditions, the report made a few suggestions.

The suggestions made are - (i) to construct clinics in certain parts of the mill under medical women; (ii) to arrange for a few hospital beds; (iii) to consider and revise the maternity benefit system; (iv) to construct mill creches; (v) to train dais and put definite guidelines for their work; (vi) to treat antenatal veneral diseases, if any.

This study stresses the fact that social welfare activities should be speeded up in the mill areas, in order to create a better home condition, hygienic surroundings and training in nutrition. In the report it was stated that "the object of an industrial welfare scheme for women should be, in the first place to ameliorate as far as possible the disabilities under which the women and their children suffer on account of work; in the second place to utilise any organisation so formed to secure better hygienic conditions for the mother and infant, with a view to improving the health and standard of work of the labour force." The essence of the study report was to "keep down the cost" since, "in a country like India, where the standard of living and the earning capacity of the workers are low, it is better that the welfare work should be within their power

128. ibid., p. 18.
of understanding and assimilating." This "improvement from within" attitude was the essential flavour of the survey reports conducted under imperialist rule.

Barker (1935) reported on the scientific and technological development of jute. He attributed the lack of variety in output and the coarseness of product to the relatively stagnant technology and vice-versa. Barker found an old outlook behind the reason of this stagnant technology. According to him the entrepreneurs in Calcutta "regarded jute as a cheap edition of a long fibre like flax for manipulative purposes.

The policy of producing low-quality, low-price goods left the industry vulnerable in one important respect - its products suffered badly from a lack of standardization. Because of its neglect of the scientific aspects of its own manufacturing processes, the industry lacked the knowledge of the chemical nature of its raw material and depended for its discrimination of bad jute from good on purely outward characteristics like, "colour, shade, and lustre." The industry's classification of its own goods, therefore,

129. ibid., p. 18.


131. ibid., p. 42.

132. ibid., p. 462.
allowed a "wide margin of tolerance."

Barker found the technological processes so stagnant that he compared it to a gramophone needle, "It runs in a groove and plays a nice tune." The "groove" in Barker's description referred to the lack of diversification of products in the history of the industry and to the crude and rough nature of the product. The industry considered this technology so adequate for its purpose that it placed very little premium on the scientific and technological training of its workers and its superior technical staff. Barker was surprised to discover many large and crucial gaps in the technical knowledge of the Scottish managers and assistants, gaps that they usually filled up with that rather undefined human quality called experience.

Deshpande (1944) investigated the questions of wages and earnings, employment and housing and social condition in a general fashion, with a view to provide adequate materials on which to plan a policy of social security for labour. It is a part of the ad hoc report carried on all industrial and semi-industrial labour covered by the Royal Commission of Labour.

For enquiry, 26 jute mills in and around Calcutta, 2 in South India at Nellimaria and Chittavalash in Vizagapatam

133. ibid., p. 38.
134. ibid., p. 42.
district, Madra Presidency and one in Kanpur were surveyed. The managements of these factories were asked to send replies to the ad hoc questionnaire, and the officers of the Committee checked up the information by visits to the mills, the workers dwellings, centres of welfare work, etc.

Organisation of the Study

The study is organised in nine chapters, each chapter having various sub-headings. The objective of this type of chapterisation is to divide the study into various topics and to discuss a specific aspect of the workers' life and its problems in totality. The reason was not to compartmentalize the workers' problems but to find the inherent cause-and-effect relationship between them.

The first chapter is, as usual, introductory in nature. The problem has been identified in general and the objectives of the study pinpointed. The next step is to frame the research questions in particular. The ideological framework that is most applicable to this specific type of problem is identified next, along with the hypothetical model of the jute mill workers' health hazard. The study area has been identified next. The data base and problems regarding availability of data has been discussed. The sample pattern and methodology has been discussed next. The survey schedule is discussed in detail and the statistical and cartographic methods discussed. The available printed literature on various aspects of the problems of jute mill workers are discussed and evaluated in
the literature survey. This literature survey is grouped under a few headings. They are: (a) Historical review of the condition of jute mill workers; (b) Occupational health hazards of workers in different industries; (c) Occupational health hazards of industrial workers of India; (d) Health problems of jute mill workers; and (e) Health and environmental problems of jute mill workers in Government reports.

The historical process of the development of jute industry in Bengal is discussed in the second chapter. The whole historical process is divided into various time periods, which are synonymous to various phases of the industry. The development process is divided into a few phases. They are: (a) The early history of jute industry (till 1885); (b) from 1855 to 1885; (c) Development from 1868 to 1914; (d) The first World War and Jute industry; (e) The inter-War period; (f) Jute industry during the Second World War; (g) Impact of the Partition.

In third chapter, the demographic structure of the jute workers according to religion, caste and community is discussed. The family structure i.e. different family sizes and family types and the socio-economic criteria for their distribution is analysed. Occupational pattern, educational pattern and income pattern of the workers' households of both mills are analysed next. The migration pattern of the workers is discussed in the next few pages in detail. The specific features discussed are - place of origin, type of migration, occupational structure before migration and
reasons behind migration.

In the fourth chapter the home environment of both the jute mill workers is discussed in terms of house types, housing facilities and housing density. The property acquirement of the workers, the possessions, the expenditure and indebtedness pattern are analysed. The different components of home environment are thus discussed in this chapter.

The fifth chapter deals with the working conditions of the jute mill workers in both Meghna and Birla Jute Mill. The health hazard in the work area is perceived to comprise of two components - environmental hazards in and around the workplace and organisational hazards. Lack of working and resting facilities in the mills and the lack of precautionary measures against various types of stresses and accidents are discussed in this chapter. The discrepancies in wage system, working hours, social security and strikes in both mills are analysed.

The sixth chapter deals with the fertility pattern of the workers' households in terms of health and well-being. The pattern of age at marriage, fertility, live births and child mortality are discussed.

In the seventh chapter the morbidity pattern of the workers and the members of their households are discussed. To assess the health condition of the workers' households the morbidity pattern in the past is analyzed as well as the present pattern. The specific diseases of the workers are also discussed.
The health behaviour of the workers' households of both mills are discussed comparatively in the eighth chapter. The inoculation and Family Planning pattern, addiction pattern and health care pattern are analysed. The type of doctor consulted, the type of medicine consumed and the medical pluralism of the workers' households are discussed.

The ninth chapter includes the summing up of the study, conclusion and recommendations.