

IMPACT OF THE EIGHTEENTH AND NINETEENTH CENTURY
EUROPEAN SCIENCE AND TECHNOLOGY ON THE LIFE
AND THOUGHT OF THE PEOPLE OF BENGAL

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Europe saw the dawn of modern science in the 16th and 17th centuries. Since then its triumph marched on penetrating almost every aspect of human life and thought of the people of both the West and the East.¹

The scientific advancement and technological development of the last three centuries ushered in a new era in the history of man. Among them the 17th century ranks as the greatest creative period in the history of sciences. Although the succeeding two centuries were not as illustrious as the previous one, however, they were the great formative period of modern times representing a liberal phase of human development in which man had at last found the true way to prosperity and unlimited progress. These centuries also experienced the establishment of science as an indispensable feature of a new industrial civilization. The methods of experimental sciences elaborated in the 17th century revolution were extended over the whole range of human experience during these two centuries and at the same time their application were to keep pace with and infuse the great transformation of the means of productions which we term as the Industrial Revolution.²

The scope of European science and technology and particularly the fruits of Britain's Industrial Revolution were so widened and their appeal was so universal and impending that those could no longer be contained in the countries of their origin. They began to diffuse slowly but steadily to the new lands both in the East and the West. The Indian sub-continent came in touch with the European science and technology through this process of diffusion.

DIFFUSION OF WESTERN SCIENCE AND TECHNOLOGY

The three great European trading companies namely, The East India Company, The United East India Company of Netherlands and The French East India Company and the people who came with them, the missionaries, naturalists, medical men, engineers and other technical men were greatly responsible for introducing western science in India. Their inquisitiveness to understand and make use of the natural

environment and particularly, the administrative policies of The East India Company and later on the British Government of India gave great impetus to diffusion of western science and technology in this country. This diffusion took place in three different phases³.

In the first phase, the Europeans for commercial or political reasons came in direct contact with the new land and became deeply involved in the study of latter's flora and fauna, minerals and other areas in which they had experienced systematic new knowledge earlier in their respective cultural context.

In the second phase, the scientific organizations and institutions as established by the Company and the British rulers widened the scope of scientific studies in the country. Further, these provided scope for education and training of the young Indian enquirers.

In the third phase, the scientific climate thus created in the earlier two phases acted as stimulus and attracted the Indian intellectuals who came forward, established some scientific institutions and conducted researches with great zeal. In this phase the foundation of modern science in India was laid.

PROGRESS IN SCIENCE AND TECHNOLOGY

A considerable progress in science and technology was made in India during the 18th and 19th centuries primarily due to the initiative of the European enquirers, the prominent group being the Britishers. Gradually, the Indians began to participate in scientific enquiries and technological activities.

Advancement in Science

Botanical science initially drew the attention of the European explorers. Malabar and Madras coast were their main centre of enquiry. However, gradually towards the end of the 18th century the enthusiasm for botanical research had spread in Bengal.⁴ The establishment of Royal Botanical Garden in 1787 at Sibpur, on the west bank of Hooghly, was the fruition of European naturalists' enquiry spirit. The Royal Botanical Garden since its inception and the All India Botanical Association during the whole of the 19th century pursued work in this area of study. The results of these studies were proved to be immensely valuable.⁵

The European needed accurate geographical knowledge of the country for strengthening their possession in a foreign territory like India. European travellers, missionaries and French geographers had already started survey work. But credit goes to the Britishers who started scientific survey in Bengal. Extensive survey work in Bengal began after the battle of Plassey. The first notable survey was started on the coast of Chittagong by Plaisted in 1761. About the same time Hugh Cammeran

surveyed the 'New Lands' of the 24-Parganas. James Rennell, also conducted survey of the Ganges river in 1764 with a view to finding waterways for up-country traffic from Calcutta. The first map of Hindustan was prepared by Rennell in 1783. The other presidencies also followed the trend of survey in Bengal.⁶

The survey work assumed a new dimension in the 19th century and carried out in a truly scientific manner using better instruments. Meteorology also drew the attention of the European sea men, astronomers, medical officers, engineers and even administrators. However, in the 19th century only systematic meteorological recordings were possible.⁷

Geology assumed importance as a very useful branch of science in Britain. This immediately provided stimuli to geological activities in the sub-continent. With the establishment of the Geological Survey of India remarkable progress in geological exploration in the country was possible towards the end of the 19th century.⁸

No medical research was conducted up to the middle of the 19th century. In the second half of the century researches on fever, leprosy, malaria, cholera and dysentery etc. were undertaken.⁹

Engineering works assumed importance in the latter half of the 19th century. This was necessary for extensive canal work, dam system and construction of bridges. Able men made innovative contribution in this field. But no such comparable efforts had been undertaken to study agriculture and veterinary sciences. This was greatly responsible for agricultural backwardness of the country.¹⁰

New Direction in Scientific Development

The end of the 19th century witnessed a new trend in scientific enquiry in Bengal. This was possible due to the creation of a scientific climate in the country, particularly in Bengal. Subbarayappa truly observes, "The sustained work of the scientific service organizations on the one hand and growth of scientific education on the other, despite their inherent deficiencies and rather limited spheres of activity, did not fail to stimulate the Indian intellectuals, who received scientific training to engage themselves in scientific investigations on their own. As a result, the last quarter of the nineteenth century witnessed some Indians who came forward either to establish scientific institutions or to conduct scientific researches with great zeal and devotion."¹¹

Advancement in Technology

The inventions which revolutionized industries in Great Britain also found their way in India. Those made headway were railway, steam engine, telegraph, machinery, instruments and other related inventions. The importation of these technological inventions in purely agricultural setting along with the large scale supply of cheaper manufactured goods from Great Britain almost revolutionized the traditional life and economy of the country. This phenomenon continued for about a century. By the end

of the 19th century these inventions gradually became integral part of India's economy and played an outstanding role in heralding the modern India.

IMPACT OF SCIENCE AND TECHNOLOGY

Some major discoveries of sciences in Europe were revolutionary in nature. They immediately affected man's mind, shook the very foundation of his life long beliefs, dogmatic faiths and preconceived notions. Newton's discovery of laws of nature, for example, disclosed to man new idea about his place in the universe, his power to conquer the nature and make use of it for the good of mankind, almost revolutionized man's mind. Man now imbued with this new power and image started to conquer the mysteries of nature and use those for the material progress and also improve his quality of living. The man of the West thus utilized science and technology for his comfort, progress of the society and gave a new shape to his civilization. But western science and technology did not influence the people of India or Bengal in similar way.

Firstly, it was an irony of our fate that the Industrial Revolution of Britain, and not science in the initial stage, revolutionized the traditional economic life of the people of Bengal. Industrial Revolution in this country appeared in the form of Commercial Revolution.

Secondly, the earlier scientific investigations of this country were completely different from those of Europe. Mathematics, Physics, Chemistry and Astronomy were the dominant theme of scientific investigation in Europe, whereas, the European investigators in India were rather interested in the study of its nature, climate, soil, flora and fauna mainly for exploiting those for their own purpose.

Finally, it was in the latter part of the 19th century only that the western scientific ideas began to bring a revolutionary change in man's mind. This revolution in man's mind gave birth to a series of progressive and liberal thoughts and movements having far reaching consequences in the life of the people of this sub-continent.

IMPACT OF INDUSTRIAL REVOLUTION

The Industrial Revolution in England coincides with large scale production of manufactured goods which the country could not consume. Britain, therefore, diverted its attention to the backward countries of the East and India became a market for selling their goods. Thence onward, the outpour of unlimited quantity of cheaper goods of Britain's mills and factories was a regular phenomenon in the markets of Bengal. These profoundly influenced socio-economic and cultural life in Bengal.

Change in Structure of Trade and Commerce

From the world's principal producer and exporter of cotton fabrics in the 19th

century, India was reduced in a short period of seventy years to the position of one of the largest consumers of foreign manufactures. Cotton textiles came to form the major items of imports, instead of the largest items of export that they were in the 18th century. Between 1815 and 1835, the exports of India's cottons to Britain fell from nearly 13 million yards to a little over 0.3 million yards. Meanwhile, there was a decline of exports to other countries as well.¹²

Not only did Bengal lose foreign markets for its manufactures but its domestic markets were inundated with foreign imports. Competition with foreign goods destroyed the local industry, deprived the artisans of his income and narrowed down the avenues of employment for the labourers. On the other hand, the exports which consisted of raw cotton and silk, foodgrains and indigo and jute denuded the country of her agricultural supplies, raised the prices of raw materials and laid the foundation of future agricultural shortage and famines which hold the country in their grip over the next one hundred years. Thus the Industrial Revolution which set its foot in this country as Commercial Revolution was an instrument for exploitation of the resources of the country and her economic enslavement.¹³

Marx truly said, "The handloom and the spinning wheel, producing their regular myraids of spinners and weavers, were the pivots of the structure of the society. It was the British intruder who broke up the Indian handloom and destroyed the spinning wheel. English began with depriving the Indian cottons from the European market, it then introduced twist into Hindustan and in the end inundated the very mother country of cotton with cottons. From 1818 to 1836 the export of twist from Great Britain to India rose in the proportion of 1 to 5,200. In 1824 the export of British muslins to India hardly amounted to 1,000,000 yards, while in 1837 it surpassed 64,000,000 yards. But at the same time the population of Dacca decreased from 150,000 inhabitants to 20,000. This decline of Indian towns celebrated for their fabrics was by no means the worst consequence. British steam and science uprooted, over the whole surface of Hindustan, the union between agriculture and manufacturing industry."¹⁴

Another distinguishing effect of the Commercial Revolution was that the predominantly weaver class, with the disappearance of weaving industry, became a class of cultivators only. The weavers crowded in the village and took shelter in cultivation. This had serious impact on land resource which ultimately created the problem of unemployment and landless peasants.¹⁵

B. G. Gokhale also similarly reacted over change in occupational pattern of artisans due to the trade policy of the Company. He observed that the progress of early industrialization in England also imposed upon the English rural folk conditions of decay and degeneration, although this period was short. But eventually, the expanding industries gave employment of the displaced rural people and brought them a high standard of living; whereas in this country, the expansion of industries

was of most rudimentary kind and such industries as were developed could give employment only to a very small number of population. The destruction of indigenous industries as a result of competition from cheap mass produced goods threw the displaced artisans back on to the village. If there was some extension of land cultivation, it was not of such order as to provide a means of livelihood to the millions of people dependent upon agriculture.

Slow Growth of Indigenous Industries

Another consequence of Industrial Revolution was that India proved a profitable field of investment by the British capital. The vested interested foreign entrepreneurial class closely controlled the industrial growth of the country. They were not sympathetic to the national, political and economic aspiration of the people. This was greatly responsible for retarded industrial growth in Bengal.

Urbanization

The industrial and technological activities in the country in the 18th and 19th centuries encouraged the growth of new towns and cities. But the rate of growth of cities and towns and of urbanization was extremely slow. It was found that from 1872 to 1921 the rate of urbanization in India rose from 8·72 per cent of the total population to 10·2 per cent only.¹⁶ In spite of little growth, its effect on life was no less insignificant. The establishment of the railways and the introduction of the economy of cash crop brought the villages into contact with cities. On the other hand, the new towns and cities lived upon the villages without rendering any appreciable assistance to them. The gap between the towns and the country tended to widen and the barriers separating the two were not only economic but social and cultural as well.¹⁷

Further, the age old socio-economic bases of life experienced rapid changes in the new urban atmosphere. In the changed circumstances of the day the old rule of hereditary occupations could not be followed and the strictly occupational basis of the caste system was shaken. Though all aspects of caste system could not be abolished but the urban environment made one significant contribution by opening the doors of the West to the youths of the country through the new education system mainly located in the new towns and cities.

Disintegration of Village Life

The village life in this country was characterized by self-sufficiency and isolation, relative absence of money and patterns of thoughts and behaviour regulated by immemorial traditions and customs.¹⁸

In Sir Charles Metcalfe's famous minute, the picture of traditional village life was truly depicted. He wrote, "The village communities are little Republics, having nearly everything that they want within themselves, and almost independent of any foreign relations, they seem to last where nothing else lasts." He further added, "The union of the village communities, each one forming a separate little state in itself,

I conceive, contributed more than any other to the preservation of the people of India through all revolutions and changes which they have suffered, and it is in a high degree conducive to their happiness and to the enjoyment of a great portion of freedom and independence.”¹⁹

But this traditional village in Bengal began to disintegrate more remarkably in the latter half of the 19th century. Many co-related factors are responsible for decadence of old village life. Among these, the pressure of population on agriculture goods, the growth of cash crops and competition of machine made goods imposed a heavy strain on the rural organization. Speedy transport system, too, shattered the isolation of the village.

The disintegration of the old village life also affected the traditional social institutions and attitudes and values of the people. The bonds that held the rural society together were weakened. The joint family system and the panchayets received a shattering blows. Co-operation was replaced by competition. The collective life of the village gave way to individualism.

IMPACT OF TECHNOLOGICAL INVENTIONS

The quick transportation system was hastened by the infrastructure of roads, railways, posts, and telegraphs laid down in the country. Critics protested that these roads and railways were not where people wanted them, but where British military and commercial needs dictated. Whatever may the motive of the British rulers in putting quick transportation system but their effects were very great. The improved means of communication was of immense value in sending relief to the victim area with shortest possible time. It transformed the famine problem and made the famine code a working proposition. Trade was revolutionized by making possible production for a market and opening up of the interior to large scale operation. Plantation and factory industries were made possible because coal could be supplied for power at the point of production, and the finished goods then be distributed.

The railways also contributed much towards development of two industries, cotton and jute, specially in Bengal through carrying coal for the new machine. Even, Karl Marx, one of the great critics of British policy in India was very much optimistic about the far reaching consequences of this new transport system on the life of the people of this sub-continent. He wrote, “I know that the British millocracy intend to endow India with railways with the exclusive view of extracting at diminished expenses the cotton and other raw materials for their manufactures. (But) the railway system, will become in India truly the forerunner of modern industry. Modern industry, resulting from the railway system, will dissolve the hereditary divisions of labour, upon which rest the Indian castes, those decisive impediments to Indian progress and Indian power.”²⁰

His prediction was ultimately found to be true. The railways hastened the

transition from handicraft to mechanical industry by transforming the transport situation, loosened the rigidities of the caste structure and providing a basic physical unity in the sub-continent never before attained. All these contributed to making an Indian nation. These were essential preliminary to an industrialized India.²¹

IMPACT ON THOUGHT

Revolution in science in the western world spontaneously brought epoch making change in man's mind in the initial stage. But in Bengal the impact was different. Here it was technological inventions that first brought sudden change in the material life. Instead of bringing comforts to people they completely shattered the economy of the country. Only in the second half of the 19th century the western scientific attitudes, ideas and thoughts began to stir the mind of the people. The story how traditionalism and conservatism of the eastern mind was revolutionized by the scientific thoughts and ideas of Europe is indeed an exciting and a challenging chapter in the history of this sub-continent. As such, only those aspects of thoughts and ideas of the people of Bengal deeply affected by western science and playing a great role in shaping the new spirit in Bengal in the latter half of the 19th century are being treated in this sub-section.

New Methods of Enquiry and New Way of Thinking

The methods of scientific enquiry and rational way of thinking were originally limited to the European enquirers and a small section of the people who had come under their direct influence. Gradually, the new methods of enquiry and the new way of thinking spread widely.

In disseminating the spirit and skill of scientific enquiry, among other institutions and organizations, the Asiatic Society played a vital role. Nemai Sadhan Bose rightly said that the foundation of the Asiatic Society was a landmark in the cultural history of the country. It is the organization which for the first time started to investigate the "man and nature" in a scientific manner. Its emphasis on using rational knowledge helped the growth among the investigators of an intelligent understanding of their national culture through scientific research.²²

Awareness of the New Concepts of Natural Rights, Ideals of Liberty, Freedom and Equality

The concept of man's natural rights, the ideals of liberty, freedom and equality were the products of western impact. Towards the end of the 18th century these ideas began to reach the shores of India. Their impact was first felt in Bengal. "Bengal was moved far more powerfully than the other Indian provinces by the new ideals of freedom and equality of the 18th century European illumination, which British brought with them." The educated youths of Bengal through the study of European civilization came to know about man, his place in nature, his powers, natural rights, his relationship with the state and government. These were indeed the outcome of the great scientific

age and found expression in Locke, Voltaire and Rousseau's political philosophy. These new theories made profound influence upon the Bengali intelligentsia. The discriminating policy of the rulers and total denial of basic rights made them bitterly critical about the government. Soon they transformed themselves into an opposition camp against the British rule. Men like Surendra Nath Bannerjee, Manmohan Ghose, Lal Mohan Ghose and Aurobindo turned—nationalist. They formed the nucleus for the newly arising political unrest and it was this section of the society which provided leadership to the formation of the Indian National Congress.²³

Secularization of Thoughts and Institutions

The idea of secularization was another outcome of European scientific thoughts. This new idea popularized the concept that henceforth reason and intellect and not religion, dogmatism or divine authority would control men's social, political and economic institutions. European countries already started to put the concept of secularism, in practice. In this sub-continent too, the British rulers tried to apply the spirit of secularism in the context of the prevailing situation of the country.

Firstly, in administration, the British government pursued either a policy of dividing the masses into neatly balanced religious communities or offered unvarying neutrality in religious sphere.

Secondly, the law that the British rulers introduced in the country with the exception of certain aspects was secular in character.

Thirdly, the system of education set up by the British rulers was secular in theory and in practice. The establishment of the new presidency universities had no relationship with the ancient university of Nalanda or Muslim Madrasahs.

The progressive groups of the newly educated class, particularly the radical 'Young Bengal' were deeply impressed by secularism and tried to explain problems and issues of the society and government from secularistic view point. But it was unfortunate that the new idea could only touch the heart of a section of the educated community. It ultimately did not prove to be a dominant feature in the life and thought of the people of this country. Neither the people of Bengal nor of India could derive the ultimate benefit of this scientific concept.

Sense of Unity

Unstable government, intrigues, conspiracies, revolts and assassination became so common during the 18th and the 19th century that people took little interest in the problems of the country and the governmental changes. The disunity among the people along with lack of political consciousness greatly aided the foundation of British rule in India. But thanks to the British government who for their own administrative conveniences, urge for economic penetration and consideration for political defense improved the means of transport and communication. However, the indirect consequences of modern communication system were far more significant than the direct

ones. B. L. Grover and R. R. Sethi were right when they said that, "A network of roads and railways linked the bigger towns and the country with the world market. The setting up of an efficient posts and telegraph system and accompanying developments gave the whole country the appearance of a unity and fostered the spirit of one-mindedness."²⁴

Moreover, the rapid and modern means of communication with increasing travelling facilities provided an increased social contact between the people of different provinces and gave a new meaning to the words, 'India' and 'Indian'. How European technological inventions gave impetus to the growth of nationalism in the country, was truly reflected in Lala Lajpat Rai's observation that the methods of the English Government in India, their education system, their press, their laws, their courts, their railways, their telegraphs, their post offices, their steamers, had as much to do with it as the native love for the country.²⁵

The press, too, particularly the vernacular ones played no insignificant role in fostering patriotism and developing nationalism among the people. This provided the new western educated class a sort of continuation school as well as windows on the affairs of the country and the world at large. With the coming of radical political controversy in the eighties the press strengthened their hold on the new public and their secondary cultural influences, too, increased proportionately.

Further, the press were used as a forum for disseminating ideas and thoughts and a platform for ventilating against unjust and tyrannous policy of the government. Later on it played a decisive role in formulating a strong public opinion opposed to British imperialistic policy. In awakening nationalism and fostering a sense of unity in the minds of Bengalis the press undoubtedly played a vital role.

THE NEW SPIRIT IN BENGAL

Western rational thinking and spirit of scientific enquiry as diffused through different media in this sub-continent imperceptively brought profound changes in the mind of the educated class of Bengal. Among them a liberal section of the educated class—the 'Young Bengal' was highly impressed by the western rationalism and liberal ideas and thoughts. The group represented a fraction of the total population of Bengal and confined within the city of Calcutta. But the role they played in spreading the western doctrine of rationalism, natural rights, equality, liberty and freedom in Bengal cannot be or should not be underrated.²⁶

These educated youths with mind unshackled by prejudices were fervent patriots from first to the last. With a deep and abiding love for the country, they eagerly re-discovered the past glory of the country. At the same time, they were not narrow nationalists. They drank deep into the fountains of western culture, admired the Industrial Revolution as well as the French Revolution and tried to take concrete lessons from the American War of Independence.²⁷

In the forties' of the 19th century the Young Bengal became closely connected with the political consciousness in the country. But, since then it ceased to be as a movement. However, their contribution in liberalizing human thoughts and institutions is of great significance. They ushered in an 'ultra-radical movement in Bengal which like a mighty storm lashed the society with violence causing much good and perhaps some discomfort and distress'. But their main contribution towards the thinking of Bengal of the time were encouragement of free thinking and discussion, secularism and idealism which were undoubtedly the impact of western scientific thoughts.²⁸

The Brahma Samaj founded by Raja Rammohun Roy was another reform movement of modern type which was also influenced by the western ideas. The Renaissance in Bengal owed much of its success to this Brahma reform movement. Besides this many other social reform movements originated in Bengal and in other parts of India towards the second half of the 19th century. The ideas which inspired the creator of these movements were drawn from western rationalism, humanism and scientific attitude to life.

These ideas gradually fostered a sense of political consciousness and national feeling among the educated class in Bengal. The culmination of this new awakening was found in the post-mutiny period which saw the remarkable and rapid growth of political consciousness and assertion of national sentiment and beginning of sustained political activities in Bengal. In the seventies the national consciousness became wide spread and broad based. These happy changes were affected by the press which were used as a forum for communicating political ideas and-isms to the common men.

Bengal not only remained contented with itself, it gave inspiration to the people of other parts of India for developing national consciousness and political agitation throughout the whole India. The national consciousness of Bengal finally saw its fruition in the formation of Indian National Congress in 1885.

The closing years of the 19th century saw a remarkable growth of political consciousness, assertion of national sentiment and beginning of national political agitation in Bengal. The heightening of such developments were due to several co-related factors. But among them rationalism and other fruits of the age of science in Europe made a profound influence.

CONCLUDING REMARKS

The analysis of the impact of European science and technology shows that at the first onslaught Britain's Industrial Revolution directly and tremendously affected the economic life of the people of Bengal without rendering any substantial material benefit to the people or in improving the quality of life of the masses. But the indirect influences of European science and technology on the minds of the people were far more deep and penetrating than their direct influences. They influenced their religion,

philosophy and politics. The western concept of man's nature, his place in the world as disclosed by the European scientists and then interpreted by the philosophers in relationship to man's society, his rights, his freedom and liberty revolutionized the minds of the people of Bengal in the 19th century. These new ideas became more dominant in the mind of the youths of Bengal towards the end of the 19th century and they had to wait for few more decades to put these ideas in action. In the perspective of this new awakening in Bengal the following famous saying of Carl Becker, though made in the context of Europe in the 18th century still seems to be appropriate to the later 19th and early 20th century situation of Bengal. "The Revolution was accomplished in the men's minds before they made it in the work of their hands."

REFERENCES

- ¹Smith, Allen, G.R., *Science and Society—The Sixteenth and Seventeenth Centuries*, Thames and Hudson Ltd., London, p. 7, 1972.
- ²Bernal, J.D., *Science in History*, Vol. 2, C.A. Watts & Co. Ltd., London, p. 503, 1969.
- ³Bose, D.M. (ed.), *A Concise History of Science in India*, Indian National Science Academy, New Delhi, pp. 488-89, 1971.
- ⁴_____ p. 491.
- ⁵_____ p. 492.
- ⁶_____ p. 493.
- ⁷_____ p. 494.
- ⁸_____ p. 522, 524.
- ⁹_____ p. 538.
- ¹⁰_____ p. 538.
- ¹¹_____ p. 556.
- ¹²Tara Chand, *History of Freedom Movement in India*, Vol. 1, Ministry of Information and Broadcasting, Govt. of India, New Delhi, p. 327, 1970.
- ¹³Panikkar, K.M., *Asia and Western Dominance*, George Allen and Unwin Ltd., London, p. 315, 1967.
- ¹⁴Grover, B.L. and Sethi, R.R. *A New Look on Modern History of India from 1707 to the Present Day*, S. Chand & Company, New Delhi, p. 533, 1977.
- ¹⁵Bose, Nemai Sadhan, *The Indian Awakening and Bengal*, Firma K.L. Mukhopadhyay, Calcutta, p. 6, 1969.
- ¹⁶_____ p. 225.
- ¹⁷_____ p. 315.
- ¹⁸_____ p. 215.
- ¹⁹Tara Chand, "History", pp. 302-3.
- ²⁰Chamberlain, M.E., *Britain and India: The Interaction of Two People*, David and Charles, Newton Abbot, p. 121, 1974.
- ²¹Hyam, Ronald, *Britain's Imperial Century 1815-1914. A Study of Empire and Expansion*, B.T. Batsford, London, p. 266, 1976.
- ²²Bose, "Indian Awakening", pp. 15-16.
- ²³Grover and Sethi, "A New Look", pp. 349-50.
- ²⁴_____ p. 352.
- ²⁵Bose, "Indian Awakening", p. 200.
- ²⁶Chattopadhyay, Gautam, (ed.), *Awakening in Bengal*, Progressive Publishers, Calcutta, p. xii, 1965, Also see Bose, "Indian Awakening", p. 205.
- ²⁷_____ pp. xi and xii.
- ²⁸Bose, "Indian Awakening", pp. 79-80.