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Module: **Preludes to the Industrial Revolution**

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Module: Vb. Preludes to the Industrial Revolution

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5b.1 Introduction

During the second half of the 18th century and first half of the 19th century British industry underwent great changes- changes so remarkable in character and so extensive that the term Industrial Revolution has been applied to them. The introduction of the term 'Industrial Revolution' is often attributed to **Arnold Toynbee** (1884). However, it seems to have been used by a French writer, Blanqui, as early as 1837, and, later by Jevons, Engles, and Karl Marx. The Industrial Revolution was a change in industrial method, from hand-work to work done by

machines driven by power, and in industrial organization, from work at home to work at factories. Under these new conditions industry aimed at production on a large scale for markets which often extended beyond the limits of the nation.

The study of pre-industrial history of England reveals that in comparison to her, France was much more advanced economically. France was the leading industrial competitor of Great Britain. Yet, the Industrial Revolution occurred first in England. Various reasons have been assigned for the priority of Great Britain in modern industrial development, and there can be no doubt that it was the product of many factors. The first Industrial Revolution was in fact not one but a galaxy of revolutions in traditional system of economic activity. Each springing in part from an independent set of causes, and each interacting with the others to produce cumulative effects, the causes of which, it is very difficult to disentangle. The four associated revolutions which preceded Industrial Revolution are the Demographic Revolution, the Agricultural Revolution, the Commercial Revolution and the Transport Revolution. Linked to this economic precondition are the political and social conditions of England and technological advancements which created congenial atmosphere for the first Industrial Revolution.

5b.2 The Political and Social Conditions in Great Britain

The political condition of Britain in the period preceding the Industrial Revolution was in general conducive to the industrialization in Britain. Her parliamentary system of government had become stable and there was no political upheaval to disturb her peace. The government did not put unreasonable restrictions in the manufacture of things in a particular way. After 1688 the constitution of this country was established on principles which did not meet with acceptance on the Continent until the 19th century. The wise policy of Walpole (British Prime Minister) brought great prosperity to the nation, so that financial stability accompanied the political settlement. Great Britain, was indeed, involved in most of the great wars of the 18th century, but they were fought out on the continent, or at sea, or in Asia or America, and the freedom of this country from invasion contributed to industrial development. In contrast, the French Revolution and Napoleonic wars impeded the French industrialization. Moreover, French laws were hostile to the growth of industries, while lack of political and cultural unity in Germany and Italy may be accounted for their industrial backwardness.

The social condition of England too was favourable for industrialization there. Since the 13th century, Britain witnessed gradual breakdown of medieval social structure and rise of a new society. During the Tudor period an entrepreneurial class grew up, and by the end of the 17th century the feudalistic system almost disappeared. The Englishmen enjoyed personal freedom. The British aristocracy was adaptable to the change. On the other hand France, and indeed the rest of Europe, had a feudal structure of society lacking personal freedom, which impeded the growth of industry. The French aristocracy had nothing but contempt for the profession which required labour and did not welcome any innovation and therefore, entrepreneurial class did not grow up. Though serfdom was practically extinct in France before the French Revolution, it

lingered on in various countries of Europe till well into the 19th century. As a result it was not legally possible for the masses of working people to move into the towns in order to provide labour for factories, engineering works, mines, and docks. In all countries the abolition of serfdom was an essential preliminary to real industrial progress.

5b.3 The Agricultural Revolution

The agricultural revolution had overtaken England long before the industrial revolution leading to capitalist farming. Its chief characteristics were- a) Farming in large scale consolidated units in place of the medieval open fields in discontinuous strips by peasants. (b) Extension of arable land and the adoption of intensive livestock husbandry. (c) Transformation of the village community of self-subsistent peasant into a community of agricultural labourers whose basic standard of living came to depend more on the condition of national and international markets than on the state of weather. (d) Large increase in agricultural productivity. These characteristics, in Britain, developed gradually over a long period of time and were marked by regional variations. These changes were made possible by three interrelated developments- a) the adoption of new techniques of production which involved abandonment of older forms of crop rotation involving frequent fallow periods, in favour of legume rotation and field-grass husbandry; cultivation of new crops like potatoes, corn and sugar beet; use of new farm machines like seed drill (Jethro Tull), new iron ploughs, mechanical reapers and threshers (Cyrus McCormick, 1834), (b) enclosure movement which resulted in large scale agricultural farms where scientific farming was introduced and eliminated small peasants, and (c) changes in entrepreneurial attitudes towards agriculture.

Let us now look into the ways by which the agricultural revolution contributed to the effectiveness of the first industrial revolution. The agrarian revolution contributed to the process of industrialization in four main ways- a) by feeding the growing population and particularly the populations of the industrial centres, (b) by inflating the purchasing power for the products of British industry, (c) by providing a substantial part of the capital required to finance industrialization and to keep it going even through a major war, and (d) by releasing its surplus labour for employment in industry.

5b.4 The Demographic Revolution

Associated with the industrial revolution in time, and in a complex relationship of cause and effect, was a demographic revolution, the mechanics of which are still not fully understood. It is estimated that the nation in 1700 numbered five and half a million and that by 1750 it had increased to six million. The census of 1801 revealed a population of nine million. This was doubled by 1851 and again doubled by 1901. Before the Industrial Revolution most of the people lived in counties of the south and east. The industrial changes resulted in crowding of people in

the coal and iron regions of the north, of South Wales and certain parts of Midland. Scholars are not unanimous whether it was decline in the death rate or rise in the birth rate that caused the increase in population after about 1740. According to **Phyllis Deane**, there was a sharp reduction in the death rate dating from the decade or so before 1750, due almost certainly to decrease in the incidence of epidemics, and an increase in the birth rate in the period after 1750, owing partly at least to the secondary effects of the earlier reduction in infant mortality.

Now, the question arises, how did the demographic revolution facilitate the first Industrial Revolution? It seems probable that without the population growth, the British industrial revolution would have been retarded for lack of labour. It seems likely that without the rising demand and prices which reflected, *inter alia*, the growth of population, there would have been less incentive for British producers to expand and innovate, and hence some of the dynamism which powered the industrial revolution would have been lost.

5b.5 The Commercial Revolution

In 1570 England was a country with one major export, wollen cloth, accounting for some four-fifths of the value of its trade, and that trade was nearly all with places on the North Sea or Atlantic coasts of Europe. By 1770 it had a wide range of manufactured exports (among which wollens were still the foremost) and a big re-export of colonial and Asiatic goods. Its trade not only extended to the farthest corners of Europe, but far beyond to America, Africa, India and China. The effect of the commercial revolution, generally considered to have gained momentum during the late 17th century and first half of the 18th century, was that it lent a special kind of maturity to the English pre-industrial economy. By the second half of the 18th century, Britain already had an effective home-grown network of institutions which could channel surplus capital from regions and activities where it was piling up, to regions and activities where it was needed, and a body of entrepreneurs capable of calculating, and insuring against the risks inherent in operating on a large scale, and also capable of locating new markets and guaranteeing the quality of final goods. The fact that Britain was already the centre of a world-wide network of international trade and of commercial knowhow was a crucial element in the process whereby a small pre-industrial economy with a narrow resource base was able to become the 'workshop of the world'.

5b.6 The Transport Revolution

The industrial development on a large scale would have been impossible if means of transport had not been improved. So long the production of goods was on a small scale, meant for neighbourhood consumptions the river afforded a sufficient highway for their transport to the coast. But large scale production of heavy and bulky goods for wider markets required facilities of cheap transport.

For many centuries the condition of English roads was most unsatisfactory. Improvement in condition of roads was brought about not by the government initiatives, but by private enterprises, the Turnpike Trusts, comprising of a wealthy man or a group of men. These trusts received the right of controlling and maintaining a stretch of land and the right to collect road tolls. The system became very common in the period between 1760 and 1774 when more than four hundred fifty Turnpike Acts were passed by the parliament. The system thus developed helped in providing good main roads to the country. Advancements in the methods of road construction was made towards the close of the 18th century and early 19th century through the initiatives and engineering skills of individuals like John Metcalfe, Thomas Telford and John McAdam. Gradually, in the 19th century with the advent of railways the amount of traffic on the roads declined, the Turnpike trusts too disappeared owing to falling revenues and the responsibility of repairing roads fell on the local authorities.

However, the need for better means of transport of heavy and bulky goods was met in the earlier stages of industrial revolution by the construction of canals which required great engineering skills. The Bridgewater canal built by James Brindley and financed by the Duke of Bridgewater (1759-61) connected Manchester with the Duke's colliery at Worsley. It was in every way successful and considerably brought down the price of coal in Manchester. Brindley's success stimulated the construction of canals in the next forty years including the Birmingham canal, the Herford-Gloucester canal, the Leeds and the Liverpool canal, the Oxford canal. The canals yielded high returns to its share holders, made coal accessible and at low cost to its consumers in the towns, be it for domestic needs or for iron foundries, bakeries, tanneries, sugar-refineries and breweries. In these terms the Canal Age made a massive contribution to the first industrial revolution and was a worthy forerunner of the railway age.

5b.7 Accumulation of Capital

Circumstances in Great Britain favoured the accumulation of capital- a necessity for industrial expansion. The success achieved by great trading companies of Britain had brought wealth to their members, and money was thus available from the profits of foreign trade for investment in industry. Unlike Portugal, Spain and France, Britain diverted her surplus capital to industries and not on luxuries. Moreover, the Bank of England which was started in 1764 provided capital for economic and industrial development at a nominal rate of interest.

5b.8 Innovations in the Economic Field

The process of industrialization which gathered momentum in Britain during the second half of the 18th century involved revolutionary changes in the structure and organization of the economy. In agriculture it was marked by new techniques of crop rotation, use of new farming equipments, and farming in large consolidated units made possible primarily through the enclosure movement. In trade and commerce there were changes in methods of organization, the joint stock companies, reduction in the risk of carrying out trade on a large scale through

insurances, availability of capital at low interest boosted enterprises in commerce. Developments in transport also revealed new entrepreneurial attitudes in the 18th century. The managers of turnpike trusts, for example, realized more readily than the parish councilors the advantage of employing a skilled engineer- even a self-made expert like John Metcalfe- in building cheap durable highways. Similarly, canal builders gave employment to engineers like James Brindley whose innovations opened up new range of economic opportunity to those whose livelihood depended on transporting heavy raw material across country. In manufacturing industry the technical transformation was most evident and most complete in the textile industries, particularly cotton (flying shuttle, spinning jenny, water frame spinning, power loom and most important the steam engine), and in the metal-using industries particularly iron (use of coal instead of charcoal, cast iron by Darby, wrought iron, further innovations by Wilkins) . Eventually these technological changes gave stimulus to investment and innovation in all manufacturing industry.

5b.9 Suggested Readings and References

Phyllis Deane, *The First Industrial Revolution*, Cambridge University Press, Cambridge

George. W. Southgate, *English Economic History*, The Aldine Press, London

Meenaxi Phukan, *Rise of the Modern West*, Trinity, New Delhi

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