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Unit-I

Social functions of Science and Technology

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SOCIAL FUNCTIONS OF SCIENCE AND TECHNOLOGY

- Is science and technology are unconnected to society?
- Who is a scientist and who is an engineer or technologist? Why they maintain visible distance from the supposedly non-scientific society? Is non-scientific society incapable of understanding science?
- What is science for? Is it purely for unravelling the truth? If it so, what is the impact of discovery of the truth of the existing world and what is the impact of the scienfic inventions on society?

JOHN DESMOND BERNAL (JD BERNAL, 1901-1971)

- Scientist turned historian of science and philosopher of science-
- He was famous crystallographer laid the foundation for molecular biology
- Young soldiers were returning from the First World War, and a strong sense of disillusion prevailed. Bernal spent countless hours discussing politics and much more besides, thereby earning himself the nickname ‘Sage’.
- In the 1930s, Bernal became committed to marxism. How a man with such a marvellous analytical mind could come to terms with dialectical materialism is still a subject of discussion
- Bernal's epiphany took place at a meeting on the history of science in London in 1931.
- The prospect of nuclear war horrified Bernal, particularly as one of his last acts before leaving government service at the end of the war had been to estimate the cost of destroying the Soviet Union — and of the Soviet Union destroying Britain.
- Along with Frédéric Joliot-Curie he founded the World Peace Council, which became a vehicle for Soviet propaganda but which might in the end have fulfilled its mission by exercising a restraining influence on Nikita Khrushchev during the Cuban missile crisis.

- Sciene is integral part of material and economic life and ideas which inspires it
- Science puts into our hands the, means of satisfying our material needs and also the ideas which will enable us to understand, to co-ordinate, and to satisfy our needs in the social sphere.
- Science is a reasonable hope in the unexplored possibilities of the future, an inspiration which is slowly but surely becoming the dominant driving force of modern thought and action.
- Up till now human life has only undergone three major changes: the foundation of society and of civilization both of which occurred before the dawn of recorded history, and that scientific transformation of society which is now taking place and for which we have as yet no name.

- The first revolution was the foundation of society by which man became different from the animals and found, through the new habit of transmission of experience from generation to generation, a means of advance altogether faster and more sure than the haphazard evolutionary struggle.
- The second revolution was the discovery of civilization, based on agriculture, and bringing with it a manifold development of specialized techniques, but above all, the social forms of the city and trade.
- The discovery of civilization was a local event. It had acquired nearly all its essential features by the sixth millennium B.C. but only at its centre, somewhere between Mesopotamia and India.

- up to the Renaissance and the beginning of our own times, any substantial change in the quality of civilization.
- Renaissance (14 t0 17th century), scienific revolutions of 16th century
- By 18th century, application of science, inventions have opened up greater possibility which would have large impact on future than agricultural civilisation
- Liberation of human thought (from arbitrary restrictions of religion) and capitalist enterprise (new mode of production with the death of feudalism) were seen as integral part of what was called *PROGRESS*.
- *capitalism gave practical value to science but it later became controlling force of science and its development*.

- Science implies a unified and co-ordinated and, above all, conscious control of the whole of social life; it abolishes, or provides the possibility of abolishing, the dependence of man on the material world.
- we are in the middle of one of the major transition periods of human history. Our most immediate problem is to ensure that the transition is accomplished as rapidly as possible with the minimum of material, human, and cultural destruction.
- Belonging to an age of transition we are primarily concerned with its tasks, and here science is but one factor in a complex of economic and political forces

- Importance of sciecne largerly depends on the conciouness of this importance and consciouenss of its purpose and such consciouesness will become majore force of social change
- Because of the powers which it holds in reserve, it can ultimately dominate the other forces.
- But science unaware of its social significance becomes a helpless tool in the hands of forces driving it away from the directions of social advance, and, in the process, destroying its very essence, the spirit of free inquiry.
- To make science conscious of itself and its powers it must be seen in the light of the problems of the present and of a realizable future. It is in relation to these that we have to determine the immediate functions of science

- Science fought against material evils like-diseases, starvation, slavery and war.
- These were once accepted as part of nature and actions of malevolent gods but now they continue because we tied ot out of date political and econonic system (capitalism)
- Science has provided solutions to all these diseases but it is the manipulation of sciecne by the political and economic forces which allow them to continue
- WAR,in a period of plenty for all, is a shere folly and cruetly
- The greater part of disease in the world to-day is due directly or indirectly to lack of food and good living conditions.
- The greater part of disease in the world to-day is due directly or indirectly to lack of food and good living conditions.
- Their existence proves that sicence is not applied properly or controlled or manipulated.

- It is plainly not enough to remove as much of present evil as lies in our power. We must look to producing new good things, better, more active and harmonious ways of living, individually and socially.
- So far science has hardly touched these fields.
- It is the function of science to study man as much as nature, to discover the significance and direction of social movements and social needs.
- Science, through its capacity for looking ahead and comprehending at the same time many aspects of a problem, should be able to determine far more clearly which are the real and which the fantastic elements of personal and social desires

- Science brings power and liberation, just as much by showing the falsity and impossibility of certain human aims,
- In so far as science becomes the conscious guiding force of material civilization it must increasingly permeate all other spheres of culture.
- highly developed science stands almost isolated from the traditional literary culture, is altogether anomalous and cannot last.
- No culture can stand indefinitely apart from the dominating practical ideas of the time, without degenerating into pedantic futility.
- It need not be imagined, however, that the assimilation of science and culture is likely to take place without very serious modifications in the structure of science itself.
- The enlargement of science to cover this defect is needed for its extension to social problems, and will be more so the more science becomes assimilated with general culture

- The dryness and austerity of science, which had led to its widespread rejection by those of literary culture must be removed before science can fully take its place as a common framework of life and thought.
- *The stages of scientific* advance have marked a progress from the large and simple to the small and complex.
- ***The first stage of science***, that of the description and ordering of the available universe, is already essentially completed.
- ***The second stage***, the understanding the mechanics of this universe, is on its way to completion, for already we can see in principle the general scheme of this explanation.
- There remain unknown, and indeed in part necessarily unknowable, possibilities beyond this, though we can already glimpse a little of this future development.

- humanity in the near future destroy that elaborate co-operative effort, which distinguishes civilization from the previous purely biological existence of man
- Already the chief difficulties both in the theory and practice of science lie in the problems that human society has created for itself in economics, sociology, and psychology.
- If we are to master and direct our world we must learn how to cope with not only the orderly but also with the novel aspects of the universe even when that novelty is of our own making.