

## THE IMPACT OF SCIENCE ON SOCIETY\*

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The impact of science on society is so powerful, so pervasive, so complete that it has become common-place for every one to express opinions thereon with zest and assurance - scientist and layman, wealthy and poor, savant and peasant. This is as it should be, for science affects and in fact determines the very texture of our lives. Let us study this impact from two view points and from two levels. We shall refer to the social and economic consequences on the one hand, the psychological and moral aspects on the other at national and international levels. We start with the well-known fact, which is not dulled by repetition, that the world after the discovery of the scientific method during the last four centuries has been transformed more than in the preceding two thousand years. More changes have been wrought in the last four decades than in the preceding four centuries after the birth of science.

Let us concern ourselves with the changes during these four decades. Advances in two fields of human activity have altered human life as never before - first in transport the second in communication. With the invention of the aeroplane, humming skyways of traffic have bound peoples of the world closer together than the railroads and the ocean routes since the days of the renaissance and the industrial revolution. While the locomotive and the automobile have made each country a single economic unit the airplane has made the entire world an integrated economic system. It was in the thirties that the first civil aircraft started flying just before the second world war. Tennyson's dream of 'heavens filled with commerce, argosies of magic sail, pilots of purple twilight and airy navies grappling in the central blue' became a reality. When the war broke out it was air-power that determined ultimately the fate of the combatant nations. Hitler met his doom on the British skies inspite of being the triumphant master of western Europe. Supremacy in the air ultimately determined the victor. The war quickened the great revolution in aviation and at its end, fleets of large-size transports, first with piston engines and then with the turbo-propellers spanned the skies. By 1960 the jet plane was found safe and comfortable and soon thousands of jet aircraft began transporting millions of people across the oceans and continents. This has resulted in a transmigration of peoples, as the world has never before witnessed and the concept of nationality had to undergo a drastic change.

As spectacular was the developments in the field of transmission of messages and information through new means of communication - first the telegraph and the telephon then the radio and the radar

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and later the great electronic revolution in communication through satellites. The development of electronic devices reached such perfection and efficiency during the war that all these facilities were soon available for civilian life. Today messages travel with the speed of light. Was it not just two hundred years ago that the tales of two cities were mutually transmitted through horse-back couriers and mail-coaches between Paris and London?

International commerce has assumed a new significance since technological advancement is universal and its benefits are shared by all. Distances between places do not any longer matter. Inter-relation of currencies and the movement of goods from one part of the world to another have removed the economic frontiers though the political barriers still remain. Europe has now become a single economic community. Within each country parochialism is vanishing as it has already done in the United States. Almost instantaneous phone service, interstate highways and a network of air lanes have united the fifty states of America into one integrated economic and political unit. The scientific developments during the war made it possible to rebuild the ravaged cities and establish normalcy within a few years. Who can now say watching the booming tempo of Berlin's nightlife and the garish gaiety of Tokyo's Ginza that these cities were bombed and blasted during the last world war.

What is more, America itself became economically involved with countries against which it waged a mortal struggle just three decades ago. In 1945 it wiped out Hiroshima and Nagasaki from the face of Japan. Today the affluent American insists on buying Japanese electronic equipment and Japanese cars with brazen preference. Thirty years ago the allied airforce pulverised Stuttgart and Dusseldorf to heaps of rubble. Today English and American tourists pride themselves in possessing German cameras and optical equipment. There was a time when the Western world thought of communism as a morbid repudiation of human values. Today the representatives of the Kremlin are taken in colourful motorcades to be received at the White House at star-spangled banquets. It was not too long ago that America poured billions of dollars to sustain tottering governments in Eastern Asia to contain the menacing spectre of communism. Today the United States invites red China as an equal partner in global commerce.

In the field of physiology and medicine great advances have been made in the conquest of disease and this has increased the possibility of leading healthier lives. But this has not increased the longevity of man. Billions of dollars have been spent in building hospitals, training nurses and doctors, providing drugs and nutrition but this has not increased the span of human life. The problems have become complex because more things are achieved, more changes wrought in our environment in a single lifetime the duration of which has remained unaltered since the dawn of mankind. This anomaly has confused human imagination and

therein lies the major problem of the impact of science on society. The problem has to be traced to the single anomaly that the biological growth goes on at the same rate while the external world is being transmuted at increasingly faster pace. The seven ages of man have the same duration and human pleasures are centred round the same emotions that stirred the human heart since the birth of man. Even the astronauts who walked on the moon and rambled in space still yearned for simple human pleasures - the honeyed-breath of love and the warmth of their children's cheeks.

In spite of scientific triumphs we have not improved the quality of living and perhaps we are in danger of losing that tender art. The fitful fever of life has overtaken us and all the appurtenances of sciences are used to make things move faster, happen faster, disappear faster and create faster - to what end? Has this enriched our lives or has this brought peace and grace into human relations?

On the contrary the rapacity of man, his greed and unconcern for the safety and well-being of his fellowmen still persists. Only the methods change. The piracy on the seas has shifted to the skies. Standing armies are replaced by stock piles of hydrogen bombs. Slavery has been abolished but economic **EXPLOITATION** of the weak by the strong still goes on made more sinister by the weapons of a perverted science.

Many years ago when I was at school my great father used to draw my attention to the contrast between science and politics. He compared the nationalism of politics with the internationalism of science. While the developments in science have made the world economically a single unit, national jealousies still prevail, pernicious prejudices are still preserved. Tempers still run high in the committees and meetings of the United Nations. But we should not blame science or the scientist for these problems; rather we must cultivate a scientific attitude to life. This does not imply that every one should attempt to study and practise science. In fact the old adage is still true - little-knowledge is a dangerous thing. The pursuit of science must be done by those who have a special talent for creative activity. In regards to others, it is the scientific attitude that has to be imbibed rather than scientific information. By a scientific attitude I mean the ~~the~~ method of trial and error; the willingness to accept facts even if they defy apparent intuition; the dynamic urge to move, to adopt, to adapt, to change, to create, in short to use effectively the gifts of imagination and thought. That is the legacy of Copernicus and Galileo, that is the spirit of Newton and Einstein.

We, who are alive today, are grateful to Providence for allowing us to witness the transition to the age of nuclear power and spatial exploration which represents the second renaissance in the history of human civilisation. Man is now invested with the power to make 'this earth a warless world robed in universal harvest pole to pole. Will he make it so, will he follow light and do the right?

Years ago in 1938 when the storm was gathering on the darkening skies of Europe, as a school boy I wrote in an essay that the world will be safe only if the philosophy of the Buddha is implanted on the genius of Einstein. The four decades that have rolled by have confirmed this boyhood faith.