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Science and Society

IMMEDIATELY after the formation of a "New Division" by the British Association for the Advancement of Science, whose ostensible object is to institute enquiries into the social relations of science, events on a stupendous scale occurred in central Europe whose impact on international affairs was such as to rock the whole fabric of civilization to its very foundation. The ardent supporters of the "New Division" maintained a solid silence which must have earned for science the obligation of politicians for not embarrassing their delicate and difficult negotiations. Manifestly the function of creating public opinion either in favour of or in opposition to the conduct of diplomatic relations has become the prerogative of the lay press and of the members of the parliamentary opposition. From the general attitude of the whole body of scientists during the recent crisis, it is to be inferred that they make a sharp distinction between social affairs and political problems and that while the former might constitute a legitimate sphere for their interventions, the latter had best be avoided. We doubt the existence of such a sharp demarcation between the social and political questions

whose paths cross one another and in certain directions become interwoven, and it must be dreadfully pretentious to keep them isolated. We can hardly conceive of any political topic the material of which does not prejudice social interpretation, and what is most obvious is that social progress depends in a large measure upon the political acts and policies of statesmen, while both are sustained by the inventions and discoveries of science. Our inability to determine the future trends of human affairs is mostly due to our lack of faith that the progress of social science must be a solvent of most of the economic maladjustments and because we do not maintain the courage and spirit of adventure, so successfully employed in the realms of science, in the political and administrative fields, we are confronted with widespread social and political disappointments.

We welcome the establishment of a "New Division" as an indication on the part of British scientists of their earnestness to investigate the social institutions and the acts and policies of governments which affect the social conditions of national life. In a leading article published sometime ago,

the editor of *Nature*¹ envisages the evolution of a new type of society in which reason and conviction by an appeal to reason are the indispensable bases for any ordered, successful and permanent social advance. The influence of scientists on the destiny of the world may be friendly and fertilising or may be hostile and destructive according to the use to which their discoveries and inventions are applied. The ultimate question on which the fate of the future trend of civilization will depend is the responsibility which scientists are prepared to accept in controlling and directing their gifts and to disentangle the economic maladjustments which give rise to grave disturbances in the domestic and international relationships. Society has willingly permitted those technical improvements which have promoted its material prosperity without previous planning and without provision against maladjustments and naturally disturbances arising from lack of control and direction, must fall heavily on those classes which are economically backward. Scientists accept the laws of cause and effect in their fields of enquiry and partly because of certain social complexes and partly because of their general unwillingness, they hesitate to apply their objective mode of investigation to the organisation of society. This hesitancy on the part of intellectuals must account in a large measure for their thinking irrationally when they have to deal with society as a whole. The lay mind is puzzled over the gaps existing between the technical advance and the social system, the unequal distribution of economic burden and distress in the midst of abundance. Some of the paradoxes of modern life may be removed by exploring the sociological laws of cause and effect on lines similar to the natural science.

The field for such enquiry is practically unlimited in India, and the need for formation of a department of scientific investigation is necessary and urgent. The social organisation of India has a religious background

and the possibility therefore, of influencing its conduct is limited by traditional authorities, which happily are breaking down. The constructive outlook for remodelling the social relations of a population differing in almost every detail of its tissue, has long remained beyond the grasp of public leaders and it never formed an integral part of the programme of national progress. The opportunity for scientists in India for supplying this dreadful deficiency in national planning is mature and attractively inviting. The social forces due to an immobile population with an upward tendency, prevention of its migration, unemployment, poverty and illiteracy are as disruptive in India as in any other part of the empire. The task of converting these forces into constructive channels must involve a deeper insight into human nature, which has to be studied both from the philosophical and scientific standpoints; and especially when life seems to be under a heavy travail, a sympathetic concept of its impulses, thoughts and reactions should be an invaluable guide for recognising its social, economic and political trends. We doubt whether after all even scientists and psychologists have discovered the technique or the weapon which they would willingly place in the hands of legislators for reorganising the state and its people.

It seems to us that the Indian Science Congress which enjoys a high prestige in the country should convene a conference of scientists in India for inaugurating a department with the ostensible object of exploring the possibilities of extending scientific methods to the study of social problems. Science has too long been divorced from society, because of the idea that the province of science is matter, and the human sciences like biology, sociology and economics had not acquired the status and importance of the physical sciences. The consequence has led to a dreadful state of affairs where the physical and the moral are indistinguishably mixed up in the social conditions. It becomes increasingly clear how hopeless it is to disentangle them and

¹ *Nature*, April 30, 1938, 141, No. 3574,

establish new trends in society whose development has been permitted to grow ever more confused and chaotic. The new age of liberalism which has emerged from that of traditionalism must obviously create dynamic changes in the whole social framework, but the impulse of expansion is restricted to special groups which discovered the inadequacy of the traditional mode of moulding character and mind. The changes have now overtaken the masses without being prepared to profit by their results. This unbalance in the social structure must account for all its ills. Have the scientists any technique or formula for their solution? While the social legislator should possess a clear and far-sighted vision of the kind of society he would bring into being, the social scientist should have knowledge to control and direct its tendencies. Science ought to be able to offer answers to questions which governments might ask for their solution and unless a symbiotic relationship is established between social sciences and statecraft, society must drift perhaps on a down-hill course. The infusion of a scientific temper

into governance might remove the fanaticism and arrogance of injudicious zealots, "transforming the blaze of passionate propaganda into a cool grotto where people would humbly investigate economic facts and social conditions—which would render the politician sufficiently uncertain about his own conclusions to respect the honest convictions of those with whom he differs".

If the scientific men in India should realise their responsibilities in the task of recognising society, the Indian Science Congress should step across the frontiers of specialists' studies by arranging at its annual sessions symposia on social, economic and ethical problems investigated by the proposed committee. The Congress is most favourably endowed for bringing to bear upon society the broadening and stimulating effects of science, and its realization that the immediate purpose of science is the ordered progress of society, ought to lead to a revision of the Congress programme of functions so as to bring it into intimate touch with the social thoughts and reactions of the body politic.

Water Pollution Research

By Gilbert J. Fowler, D.Sc., F.I.C.

AN important article on this subject appeared in *Current Science* for July 1938, in which it was urged that a Water Pollution Research Board might well be established in India and numerous directions were pointed out in which the activities of such a Board could be exercised. No better example of the characteristic teamwork necessary for the successful carrying through of the kind of investigation which such a Board might be called upon to undertake could be found than in the remarkable Report recently issued by the Water Pollution Research Board of London on the Estuary of the River Mersey. To the academic research worker, who is confined most of his time to the narrow limits of his laboratory and is accustomed to the use of instruments of precision which enable him to exercise fairly complete control over the changes which he is endeavouring to examine, the kind of work involved in an investigation such as is set out in this Report must often be unfamiliar,

The terms of reference to the Research Department were comparatively short and simple, *viz.*, to investigate "the effect of the discharge of crude sewage into the Estuary of the River Mersey on the amount and hardness of the deposit in the Estuary". Sewage from a population of about 1.4 million people is discharged mostly untreated into the Estuary and the possible effect of this discharge on the conservancy of the Estuary has been the cause for many years of controversy among the local interests concerned. The investigation required to obtain a conclusive answer to the terms of reference was, however, of a very varied and far-reaching nature.

The problem was, in fact, to observe the effect of a daily volume of some 1,000 million gallons of fresh water, 30 or 40 million gallons of which are crude sewage, discharged into the Estuary. The conditions of discharge will vary according to the change of tide and are naturally dependent also upon changes in weather conditions