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Social Imports of Invention

IN his presidential address to the British Association at Blackpool in 1936, Sir Josiah Stamp, discussing the impact of science upon society, stressed the need for a technique of social adjustment. The soundness of this plea has been emphasized in many subsequent discussions on the relations between science and society and has been confirmed by evidence afforded in such reports as those of the Commissioners for the Special Areas or the surveys of such areas ; for example, that of South Wales conducted by the University College, Cardiff.

Despite growing recognition of the importance of some attempt to devise more systematic means of using technical discoveries and improvements and to foresee their direct and indirect effects, there has as yet appeared in Great Britain, however, no systematic study of the direct or indirect repercussions of the impact of invention upon society. The report on "Technological Trends and their Social Implications" (Washington : U.S. Government Printing Office. 1 dollar) which the United States National Resources Committee published in June of last year is accordingly the more welcome, and in issuing an admirable summary of this six hundred page report, Political and Economic Planning (Broadsheet No. 111) has again earned the thanks of all who are considering the problems which arise from the impact of science upon society.

The report in question was prepared by a special scientific sub-committee and represents a major attempt to forecast the limits of new inventions which may affect living and working conditions in the United States in the next ten to twenty-five years. It indicates some of the problems inevitably involved in the adoption and use of these inventions and emphasizes the importance of national efforts to bring about prompt adjustment to those changing situations with the least possible social suffering and loss, and sketches some of the lines of national policy required.

Much of the matter contained in the report is relevant to European as well as to American conditions, and the lack of attention which the report has received is a further indication of the absence of effective means for the exchange of information and the interpenetration of thought on problems of common concern to the two chief English-speaking democracies. PEP itself is indeed now attempting to improve such contact by exchanging publications with a number of leading American organizations concerned with planning and public affairs. The growing importance of close and effective relations between Great Britain and the United States demands the extension and encouragement of any means to that end.

The possibility of forecasting the impact of technical inventions on society has been widely discussed, and its many pitfalls have been emphasized repeatedly. The present report, however, while not overlooking these difficulties, distinctly emphasizes the practical possibility of such forecasting and of avoiding many of the most obstinate problems with which their indirect effects have confronted Governments. The impact of inventions never comes instantaneously without signals, and on an average is spread over a period of about thirty years. Moreover, there are three distinct aspects of prediction. It may be possible to forecast in which industries and processes invention is most likely to occur on a considerable scale, which industries are most likely to be affected economically by the impact and what repercussions are most likely elsewhere.

For the technician, the first of these aspects is

the most interesting, but for the community, the third and to a lesser extent the second are of more direct and immediate concern. If, however, the work of inventors is to be followed from a broader social and economic point of view, so that opportunities for anticipating and meeting the subsequent repercussions are used, we must have administrators competent to recognize and take account of the scientific and technical factors involved. That this aspect of the impact of invention should be seriously considered is the more important because, as the report indicates, not only is the number of inventions made each year likely to increase rather than to diminish, but also in spite of the difficulty of predicting the effects of specific inventions, it is much easier to forecast the broad social impacts of invention as a whole, since clusters of inventions after all lead to the same social end. For example, the telephone, broadcasting and television all tend to break down individual isolation and privacy, while motor transport, railway electrification, telephones, radio, the cinema and the chain store have all tended to encourage a suburban type of development.

There is, indeed, little information that is new in the present report, but it establishes very clearly the principle that it is a function of Government to watch over and adjust the serious strains and friction which invention may set up in society, while its recommendations for a permanent mechanism for giving effect to this principle deserve study.

In modern industry itself, inventions to-day have four characteristic social tendencies: continuous processes, automatic operation, use of registering devices and use of controlling devices. All of them tend towards the displacement of labour or making a job more mechanical or monotonous, though quite often a few highly skilled or intelligent workers are required as a result in place of many unskilled or manual labourers. Thus, although one result of mechanical invention may be that the more arduous and unpleasant tasks to be performed by manual labour are considerably reduced in number or can be performed by far fewer operators under pleasanter or less exacting conditions, this advantage must be set against the possible effects on displaced workers if no fresh employment is found for them.

Once again, therefore, we are concerned with a net social effect or with the integration of the social consequences of the invention or discovery both direct and indirect. It is precisely such reasons as these which have given a new impetus to social science and research, and to the attempt to plan the utilization of national resources on scientific lines. Moreover, if, as Dr. Ogburn suggests, the lag between invention and its impact on the community makes invention a social barometer, it is the more important that every effort should be made to read that barometer. It is highly probable, for example, that new developments in industry will threaten the existence of a number of skilled occupations, and unless the adoption of fresh methods is carefully adjusted to recruiting policy, and suitable schemes of compensation and retraining for the displaced workers are enforced, much friction will result.

The argument for the extension of scientific planning advanced by this report accordingly rests essentially on human considerations. Scientific planning as suggested here, the application of scientific methods in an ever-widening field of social and economic problems, is not the handling of human affairs in the cold dispassionate sphere of reason and mechanical efficiency with disregard of human emotions and suffering. On the contrary, it seeks to eliminate the selfish direction of industrial undertakings with regard merely to the financial advantage or mechanical efficiency of a single enterprise, and to insist that account shall be taken not merely of the well-being of the employees of the concern itself but also of the welfare of the industry and the nation as a whole.

The report opens up whole fields of research for applied psychology, and if it says little or nothing about that aspect of invention which has perhaps the first claims on the interest of scientific workers, namely, the conditions most conducive to creative thought and fecund research, its concrete proposals in themselves include some special studies of a few inventions likely to be widely used with important social consequence. Among these are the establishment of federal committees on technological unemployment, departmental science committees to investigate and report regularly on the progress and trends of science and invention and their possible social and economic effects, and a review of the whole working of the patent laws, with a view to adaptation to contemporary needs. It is indeed to be hoped that scientific workers and others will be quick to grasp the significance of this report and the challenge it offers to constructive effort no less in Great Britain than in the other English-speaking democracy to which it was primarily addressed.