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The Calder Plan.

THIS is essentially an age of social reconstruction and it must naturally abound in social speculations. The unprecedent progress of physical sciences and the application of the scientific discoveries and inventions to the industrial processes induced a general confidence in the public mind that the line of human development was definitely set in the direction of reason. The faith of the old generation that the betterment of man depended upon his technical advance was frustrated because society as a whole was not organised to receive the benefits of their mechanical progress. Hopes are entertained that, if the social problems are handled in a scientific way, the disharmonies of the world may be assuaged, and a better order of social affairs may be established. For over a decade Sir Richard Gregory and others have been emphasising on the recognition of a change of scientific interest from the physical and biological to the sociological, and as a result of this campaign, the British Association for the Advancement of Science in 1932 was led by Professor Miles Walker to pass a resolution offering its services in the solution of the economic and social problems. This eminently friendly attitude of science towards social environment has now become an article of public faith among scientists, who realise the importance of the relationship between science and society, considered historically in all its continually changing aspects.

The American Association for the Advancement of Science, at its recent session held in Indianapolis, passed a resolution based on the principles of what is called "The Calder Plan". This Plan insists upon a "declaration of the independence of Science"—a *Magna Charta* of Science. The principal features of this Plan are set forth by Richie Calder himself in an illuminating article published in a recent issue of the *Science Forum*.[1] The fundamental idea underlying this Plan is that Science should enjoy absolute freedom in the organisation of research and in the exchange of ideas,—"a free trade in brains," being the badge of the scientific tribe. The implication of scientific discoveries and inventions is that they should

[1] *The Science Forum*, June 1938, 3, 7–11.

be harnessed for the common good of mankind, and for the purpose of prosecuting scientific researches, scientific workers should be left untrammelled to pursue their studies in an atmosphere of peace. It is a portentous fallacy that scientific knowledge could be treated as an exclusive national asset, its blessings are universal. These facts must form the general creed of scientists who ought to own allegiance to no other doctrine.

The British Association for the Advancement of Science which has been keenly alive to the consequences of the impact of Science on a greatly exasperated world, has been considering for a long time the necessity of shifting its alignment to meet the demands of the changing conditions in the social and economic systems. At the Blackpool session and at subsequent meetings the Association recognised the need of bringing into existence an organisation for enquiring in an objective spirit the social relations of science. In view of the common ideals animating the spirit and outlook of the two Associations, Calder proposes in the first instance the formation of "an English-speaking Consortium" which should ultimately develop into a democratic World Association, devoted to the consideration and solution of "international social problems, with the safeguarding of the interests and independence of scientists". The membership of this somewhat fat Association is to be thrown open to all scientists subscribing to the *Magna Charta* of the scientific democracy, who, accepting the responsibility of their position, should act as a link between the specialist in their own particular branch of knowledge, and those who are responsible for government, so that the world of scientific discoveries might do the greatest good to mankind. It is doubtful, however, whether the scientists in the totalitarian states will recognise, the democratic principles of science, and whether the proposed organisation will include the Nazi and Fascist scientific men.

On account of the rather unwieldy dimensions of this Association which naturally would be unable to attend to the routine day-to-day work, Calder has devised an auxiliary organisation which would receive knowledge, initiate enquiries and researches and which would co-operate with the other social and political institutions of the world. This auxiliary body is to act as the "brain-trust" for the World Association and on the analogy of the technical committees of the League of Nations, this subsidiary trustee "would be adviser of all nations, but as an association, subject to none". Calder's idea of a "Science League of Nations" which is only another name of his World Association has been summarised by the *New York Times* in these words: "Mr. Calder has not exaggerated. To save science, his World Association is needed, an organisation which shall indicate how the objective attitude of the laboratory may be applied in governing a people, in breaking down prejudices, in preventing war, in solving problems that mean progress, not in one country alone, but the world over." The labours of Calder are devoted to "bring to a tortured world, perplexed and frustrated by the ineffectiveness, by the animosities, prejudices and chauvinism of the world's statesmen, the objectivity, the disinterested enquiries and the laboratory thoroughness of science and you may give the world peace and rationalism; help to dispense as well as to provide the bounty of science, and achieve economic security and the fullness and fruitfulness of the Age of Plenty for the peoples of all nations".

These sentiments are admirable and the proposed World Association is heroic. Both are great ideals which, we fear, are still laid up in Heaven.

The British Association has proposed a less ambitious scheme, based on the series of articles in *Nature* on the "rapidly growing awakenness of the importance of those complex problems confronting our community, due primarily to the astonishing rate of advance of scientific knowledge during the last generation" and with the object of obtaining representative opinions upon the subject of social repercussions of science, a symposium was recently organised. In the supplement to *Nature*[2] is published a series of letters contributed by about forty leading scientists and publicists whose comments emphasise the necessity of going deeper into the social relations of science and indicate in general outline the principal activities to be undertaken and the methods of achieving the underlying objects. It is obvious that as the sciences become specialised, they tend to develop a spirit of

[2] *Nature*, April 23, 1938, 141, 3573, 723–42.

exclusiveness and pretentious airs are disastrous to sciences as they must be to society, whose problems are created by science. With a view, therefore, to bring about a closer relationship between scientific and social workers, the British Association is proposing to establish a new organisation, a Society for the Study of the Social Relations of Science. At the forthcoming meeting of the British Association at Cambridge, the proposal for the formation of a society of this nature is expected to be discussed, and we envisage that a definte scheme will be put forward for organising the scientific workers into a ccmprehensive body who would devise a mechanism for the application cf scientific knowledge in promoting social well-being and betterment. Time is not far off for India to establish international affinities with these movements which, we hope, will point the way for a better and a happier world state.

The Fisheries of India.

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IT is now thirty years since the late Sir K. G. Gupta submitted to the Government of Bengal his report on the fisheries of the province. In this report he asked for a systematic survey of each district under expert supervision and on definite lines " and the results are sure to be valuable and far-reaching ".

Sir K. G. Gupta's report may be read with advantage even to-day, since he draws attention to many problems affecting the fisheries of the province which still require investigation and elucidation. In 1915 the first Madras Fishery Bulletin was published by Sir F. A. Nicholson. It dealt with papers from 1899 relating chiefly to the development of the Madras Fisheries Bureau. In 1937 Dr. Sundara Raj published the administration report for the year 1935–36. Between those two dates the Madras Fisheries Bureau has published a long list of papers and reports dealing with the fisheries of that province.

In 1910 Mr. Kiran Chandra De published at Shillong, a valuable and interesting report on the fisheries of Eastern Bengal and Assam, and there are other provincial reports which it is not essential to specify more exactly.

Now while these various reports are very interesting and some are extremely valuable, there is one obvious defect and that is the lack of co-ordination due to the fact that the fisheries are controlled by the Provincial and not the Central Government.

On the first of July, 1916, the Zoological Survey of India was inaugurated so that it came of age last July, when its twenty-first birthday was attained. Apart from maintaining the zoological collections of the Indian Empire in the Indian Museum at Calcutta, one of the chief tasks of the Survey was to obtain the fullest possible information about the systematic and geographical zoology of the Indian Empire and to place this information at the disposal of inquirers.

Outside scientific circles it is not widely known that the Secretary of State for India in Council publishes volumes dealing with the Fauna of British India including Ceylon and Burma. If we look up the volumes dealing with fish we find that they were published as long ago as 1889, the author being the late Francis Day ; who also published reports on the Fresh-water Fish and Fisheries of India and Burma (1873), and the Sea Fisheries.

It is interesting to note that a second edition of the volumes on Fish in the Fauna of India is in the course of preparation by Rai Bahadur Dr. Sunder Lal Hora. This edition, which will have to be entirely rewritten to be effective, will extend to at least five volumes. It will be seen, therefore, that there are several independent bodies interested in the Fish and Fisheries of India, namely the Zoological Survey of India, the Provincial Governments and the Secretary of State. Now, although much information has already been obtained as a reference to the above-mentioned reports will show, it is obvious that very much more remains to be done and that there is urgent need for further investigations and particularly for co-ordination.

How can this best be secured ?

Nearly every civilised country in Europe, America and Africa with important fishery interests has a central fishery bureau or department either directly working as a