PROFESSOR ALBERT EINSTEIN—THE INTERNATIONALIST

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IT is most natural and appropriate that the United Nations Educational, Scientific and Cultural Organization should pay a tribute to Albert Einstein on the occasion of his seventieth birthday. Indeed, for the whole of humanity Einstein's name stands pre-eminently for that search to extend our knowledge and deepen our understanding which is not only the spirit and object of science, but which forms the very foundation of all human civilization.

Through Albert Einstein's work the horizon of mankind has been immeasurably widened, at the same time as our world picture has attained a unity and harmony never dreamed of before. The background for such achievement is created by preceding generations of the world-wide community of scientists and its full consequences will only be revealed to coming generations.

Man's endeavours to orient himself in his existence beyond the immediate necessities of life may be traced back to the widely spread birth-places of our civilization like Mesopotamia, Egypt, India and China and, above all, to the small free communities in Greece, where arts and science rose to a height unsurpassed for long ages. During the Renaissance, when all aspects of human culture again flourished, most intense and fruitful contacts between scientific endeavours all over Europe took place, as we are reminded by the names of Copernicus, Tycho Brahe, Kepler, Galileo, Descartes, Pascal and Huygens, men of many countries whose achievements created the basis of the edifice of which Newton's genius is the pinnacle.

New Insight

The great advance of natural philosophy at that time, which came to exert a deep influence on all human thinking, consisted above all in the attainment of a rational description of mechanical phenomena based on well-defined principles. It must, however, not be forgotten that the idea of absolute space and time formed an inherent part of the basis of Newton's work and that also his well-known concept of universal gravitation constitutes an element so far not further explainable.

It was just at these points that Einstein initiated quite a new development which, in an unforeseen manner, has deepened and rounded our views and given us new insight and power of comprehension.

The way leading to this turning point was paved by the development during the nineteenth century, of our knowledge of the electromagnetic phenomena which has brought such a great increase in human facilities and created the modern means of world wide communication.

This development was furthered by an ever more active international co-operation, the extent of which is recalled by such names of many nations as Volta, Oersted, Faraday, Maxwell, Hertz, Lorentz and Michelson. Gradually, however, the growth of knowledge in this new field disclosed more and more clearly the difficulties and paradoxes inherent in absolute space-time description.

A quite new outlook was here opened by the genius of Einstein, who changed the whole approach to the problems by exploring the very foundation for the description of our experience. Thus, Einstein taught us that the concept of simultaneity of events occurring at different places was inherently *relative*, in the sense that two such events which to one observer appear simultaneous, may seem to follow each other in time from the standpoint of another observer.

This recognition of the extent to which the account of phenomena depends essentially on the motion of the observer proved, in the hands of Einstein, a most powerful means of tracing general physical laws valid for all observers.

In the following years, Einstein even succeeded in attaining a view-point wide enough to embrace the gravitational phenomena, by extending his considerations to the comparison of the effects experienced by observers with accelerated movement relatively to each other. Out of Einstein's novel approach to the use of space and time concepts grew gradually a wholly new attitude towards cosmological problems, which has given most fertile inspiration for the exploration of the structure of the universe.

Although simplicity and beauty are the principal marks of Einstein's fundamental ideas, the detailed treatment of complex problems often demands the use of abstract mathematical methods like non-Euclidean geometry. As often before, it has here been most fortunate that such tools were ready as the fruit of the work of older mathematicians.

The names of Gauss, Lobachevsky, Bolyai, Riemann, Ricci and Minkowski here again remind us of the fertility of international co-operation in all fields of science. And the same may be said of Einstein's other outstanding work.

For example, his explanation of the irregular motion of small bodies in liquids, based on the ideas of Maxwell, Boltzmann, Smoluchowski and Gibbs, made it possible for Jean Perrin accurately to count the atoms of which substances are built.

We find ourselves to-day in a new epoch in physical science, in which experimental discoveries and theoretical methods have led to a rapidity and fecundity of progress made possible only by international co-operation of an unprecedented activity and extent.

It is not possible in this occasion to disentangle the contributions of individual workers, but mention must be made of the guidance, at almost every step, which Einstein has given us by his Relativity theory and by his analysis of elementary quantum phenomena.

Altogether, this short exposition of Einstein's scientific achievements aims at giving an impression of the extent to which his originality of outlook has made him an innovator in science. At the same time, I have attempted to remind you that all scientific endeavours are parts of a great common human enterprise.

The gifts of Einstein to humanity are in no way confined to the sphere of science. Indeed, his recognition of hitherto unheeded assumptions in even our most elementary and accustomed concepts means to all people a new encouragement in tracing and combating the deep-rooted prejudices and complacencies inherent in every national culture.

With his human and noble personality, characterized equally by wisdom and humour, Einstein himself has through all his life, and not least in these latter years, worked for the promotion of international understanding. On his seventieth birthday evidence of the veneration and gratitude our whole generation owes to him will reach Einstein from many sides, and we all want to express the wish that the hopes for which he has lived and worked may be fulfilled to the benefit of all mankind.

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INDIAN SOCIETY OF AGRICULTURAL STATISTICS

A NEW organisation, the Indian Society of Agricultural Statistics, has been formed. The Society is devoted to the 'Study of and research on, Statistics and applications thereof to Agriculture, Animal Husbandry and Agricultural Economics'. The Society is open to all persons and institutions interested in Statistics and its application. Membership fee per annum is Rs. 18/ in India and Rs. 20/ outside.

The first Journal of the Society published in Jan. 1948 contains many useful contributions, technical and non-technical, with brief summaries in Hindi language. The Minister for Food and Agriculture and the Minister for Finance, Government of India, have in their addresses expressed great anxiety of the Government of India to improve the statistical organisation in India. Dr. Sukhatme's article on crop-surveys should convince the Governments about the utility of modern statistical methods in crop-estimation work. The fact that the duty of collection and interpretation of data should be entrusted to the technically trained is obvious from the several articles appearing in the Journal.

Contributions on the statistical theory by Messrs. R. D. Narain, Panse and Bokil and Kishen show that this Journal is in no way inferior from the technical point of view to the best of the American and British Journals. The Editors of the Journal, Dr. P. V. Sukhatme and Dr. V. G. Panse, deserve to be congratulated.

We sincerely welcome the Journal and join the Editors in appealing to Government, Universities, Research Institutes and the public to extend their fullest co-operation and generous support.