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CONTENTS

	Page
Welfare and Training of Youth	175
Progress of Geomagnetism. By Sir Edward Appleton, K.C.B., F.R.S.	177
Raw Materials. By Dr. E. H. Tripp	178
Industry and its Hazards	179
Roger Joseph Boscovich. By Prof. H. C. Plummer, F.R.S.	180
Newtonian Attraction. By Prof. L. M. Milne-Thomson	180
Feeding Post-War Europe. By Dr. Geoffrey Bourne	182
Potable Water from Sea-Water. By Dr. A. Parker	184
The Anthropological Approach to the Study of Music. By F. H. Angold	186
Obituaries :	
Prof. James Wilson. By Prof. J. P. Drew	188
Mr. Geoffrey Milne	188
Prof. F. von Müller. By Dr. J. D. Rolleston	188
News and Views	189
Letters to the Editors :	
A New Technique for Mitosis in Tumours.—Dr. P. C. Koller	193
Fluorescent Lipoidal Spectra of Human Tissue.— Dr. H. S. Penn	193
The Second Phase of Rennet Coagulation.—N. J. Berridge	194
Lowland Tropical Podsolis in Uganda.—A. S. Thomas	195
Value of Molybdenum for Lettuce.—Dr. W. E. Brenchley and Dr. K. Warington	196
Sociological Research in Race Relations.—K. L. Little	196
Classification of Rheological Properties	197
Investigations on Lightning in Nigeria	198
Common Indian Grasses. By Dr. B. C. Sharman	199
The Potato in India. By Dr. Franklin Kidd	199

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WELFARE AND TRAINING OF YOUTH

THE notable speech of Mr. R. A. Butler, President of the Board of Education, to a National Defence Public Interest Committee on December 10 is one of the indications which appear from time to time that the essential part of education both now and later has been realized. Mr. Butler claimed that his department is becoming recognized as the great national department of State for the training of the young. He gave the assurance that no further inroads on the teaching profession are contemplated at present, and he hopes the situation will never demand them. He viewed the registration of boys and girls of 16–18 years of age under the new National Service Act as a step towards building the arch from 14 to 18, and local authorities are being asked to do all they can to increase the facilities for training and service for boys and girls of 14–16.

These steps are not intended to take the place of the Fisher plan for continuation schools, but the scheme should accustom young people to the idea that in these early years the path to manhood and womanhood lies through knowledge and, broadly, citizenship. Mr. Butler indeed linked the scheme up with the idea of a new social charter, with its Bill of Duties as the counterpart of the Bill of Rights, which has been voiced in several quarters both in Great Britain and in the United States. From early youth, he said, the young citizen should learn that there must be acknowledged duties to be performed by the individual for the community, which should confer certain rights and privileges in return.

Mr. Butler's speech is the more encouraging to those who believe that the care of the children is the concern of the nation and that the welfare and training of youth are matters of supreme importance at all times because of the comparative neglect of education in the attention which has already been focused upon reconstruction. Despite the general recognition that the education of public opinion must be a prelude to effective action in almost every field, that has been viewed as mainly a matter of preparing opinion for change through some measure of adult education. There has been little indication of the conception of the education of the adolescent as part of a grand design embracing every aspect of life. The Minister of Labour has indeed already spoken in similar terms of the plans being initiated for the training of young people, and there is real promise in the evidence that Mr. Bevin and Mr. Butler are working together. Such co-operation should create the links between technical training and industry and commerce of which Mr. Butler spoke, and which are essential in the interests of both the individual and the nation.

Equally vital is the attention to voluntary training which will accustom young people, as Mr. Butler said, to the idea that in their early years the path to citizenship lies through knowledge, work and service. Inspired leadership should turn the eagerness of the juveniles to play their part in the war effort into channels which will fit them to play an equally or

even more important part in the tasks of reconstruction which lie beyond. It is this vision of the future of education that is pregnant with possibilities in reconstruction, and a notable article in the admirable series on our problems of reconstruction running through the *Round Table*, which is concerned with the future of education, has particular claims on the attention of the scientific worker.

Directing attention to the part which science—in the Latin sense of the word and not the narrow meaning to which we usually restrict it—has played in stimulating the educational developments of the last seventy years, the *Round Table* points out that in a world where life is increasingly based on knowledge, the uneducated man is useless or dangerous. He is no less incompetent as a soldier or citizen than as an engineer. The need to train the intelligence of all, in order to live in a civilization where as much intelligence as possible is required, sufficiently explains the recent development of education and why such development must continue.

Some lines of further development have been indicated in the Hadow and in the Spens Reports, and the creation of a democracy which can enjoy and sustain the new order of society foreshadowed in the Atlantic Charter depends on our implementing such proposals. That democracy cannot be created if education for the vast majority stops at fourteen, or if we fail to give them the right kind of education. The question of the content of education and how it is to be given is the unsolved educational problem of to-day.

In any scheme of national education we must provide, as at present, for two great classes—the few and the many. The composition of the first class will no longer be the same as at present, for it should be recruited from the whole nation, without distinction of birth or wealth, and should consist of those whom the community chooses to be its leaders because of their fitness to lead. The selection of this class will, in fact, be one of the most difficult problems for society, involving as it does one of the gravest dangers to education. Already the competitive examination system is corrupting the disinterestedness which is the essence of all good education and without which liberal education is impossible.

If we can deal with this problem and at the same time remove the grave defect of our newer universities emphasized in two recent books—that they teach rather than educate—we have still to face the larger problem of the higher education of the many. Here everything remains to be done, and no one can suppose that the mere implementing of the provisions of the Fisher Act will provide a solution. At the age of fifteen or sixteen education has only commenced; it has certainly not reached its goal. Education is intended to be used in life, and its meaning and importance cannot be apparent to an adolescent or even to an undergraduate who has seen nothing of life. It is this fact that gives value to part-time education for the adolescent, and to adult education, which gives men and women engaged in the ordinary business of life the opportunity to think about it systematically.

The article in the *Round Table* suggests that the time has come for the lessons learnt during the last forty years through the experience of the Workers' Educational Association to be applied to other sections of the community, as has already been done elsewhere in Europe. While, however, such experiments deserve close study, and notably the Danish People's High School, we must beware of merely copying other systems. Education should be inductive and clinical, based on a study of the 'patients', as well as deductive, and if we are to achieve that essential element in post-war reconstruction, as educated people, we must bring imaginative insight to bear on our problem, creative thought as well as administrative ability and energy. We must plan our educational system not merely to include refresher courses for teachers, medical men, scientific workers and other professional or specialist workers, but also to keep the human mind of the whole people growing and alive, giving them an opportunity of systematic study and a chance to think methodically about life when they have far more to think about than they can have at school or university.

Leaving on one side for the present the question of the part which the university and the secondary school have to play in such a frame-work of education, with its emphasis on education rather than instruction or teaching, there must be considered these three elements which are essential in any education adequate to the needs of to-day. All men need to make a living and the best that conditions permit. All have to live in a society and all need a scale of values, a sense of what is first-rate, in life as a whole, and so far as is possible, in its many provinces. To meet these needs education must provide a vocational, a social and a spiritual element, and it must do this not for a limited class but, in different ways, for every citizen.

Of the vocational element it need only be emphasized here that a society should give its educated members not only specialist knowledge but also some perception of the general conditions and possibilities of modern civilization, and a sense of the importance and uses of the techniques essential to it. It is a knowledge of science in this sense, indeed, that should form part of the education of every citizen and not of the specialist alone, just as it is the wide vision and sense of perspective implied in such a general conception that should correct the narrow specialism which has often warped the development of the scientific worker himself and hindered his participation in the work of the community. To that, indeed, a fuller corrective is the social or political education of which, largely under the pressure of the competitive examination system, he has so often been deprived.

Some training in the art of governing and, still more, of being governed; in independence and in respect for authority; individuality and team-work; self-assertion and self-discipline and self-sacrifice; initiative and subordination: the value of these becomes more apparent with every passing day of war. Their value will be no less when the nation turns once more to the tasks of peace, and they are

an essential part of the education of every citizen, whether he occupies a scientific, technical or administrative position or any other, just as some understanding of general science in the broad sense should make up part of his equipment for living in this modern world. The registration of boys and girls of 16-18 under the National Service Act can serve no more useful purpose than that of implementing this education in citizenship which certain institutions such as the Scout movement and the Youth Groups themselves are already imparting.

If we must discover new ways or forms for extending social education it is important that we should utilize to the full existing agencies and the foundations already laid. The *Round Table* article emphasizes the value of the public, or as it should be termed the residential, school, in training in the principles and practice of living in a community. This opportunity must not be thrown away, but the residential school, coming under the ultimate, though not necessarily direct, control of the Board of Education, should be open to every class in the community, and the right to entry should be based on merit, assessed not merely in terms of intellectual ability but also of character and personality. The further opportunities afforded by the growth of school camps, the development of the Youth Movement and of any form of national service or conscription which may persist after the War must also be seized for this education in citizenship and to promote mutual understanding between the different classes of society and thus to strengthen the national unity.

The third element is the most neglected and at the same time the most important and most difficult branch of education. Upon this, which for want of a better word may be termed spiritual education, the quality of our civilization, its standards, its sense of values depend. Without it we shall lack the driving force to carry through any adequate programme of reconstruction, national or international, which will make it endure. Knowledge or science, indispensable as they are in the framing of wise and impartial measures, are not enough. They cannot supply that habitual vision of greatness which, in Prof. Whitehead's phrase, is essential for moral education. They will not supply the driving force, the right standards, values and ideals without which no enduring social order can be built.

Difficult as this task must be, we must not be content with any system of education which does not give men both the chance of seeing the vision of greatness and of practising the virtues. New sources of that vision of greatness may need to be, and indeed are being, discovered. They can, indeed, be found in the quest of truth and the highest traditions of science, as in other fields of human activity, the Greek and Latin classics and in the Christian ideal and tradition. It must never be forgotten that science, economics and sociology can do no more than provide the framework of our society and satisfy its material needs. It is the vision and sense of values that spiritual education imparts that hold society together, supply its driving force and preserve against corruption. No pre-occupation,

therefore, can excuse failure to place the spiritual element first in our system and to ensure that the vision of greatness from whatever sources it springs is available to all and not merely to the privileged few. The discussion on Science and the World Mind at the Conference on Science and World Order demonstrated that men of science are already thinking deeply about these problems, and they will be grateful for the evidence that Mr. Butler no less than his predecessor at the Board of Education is giving such close attention to the fundamental problem in all reconstruction—that of developing citizens, young or old, who can first reconstruct themselves.

PROGRESS OF GEOMAGNETISM

Geomagnetism

By Prof. Sydney Chapman and Prof. Julius Bartels. (International Series of Monographs on Physics.) Vol. 1: Geomagnetic and Related Phenomena. Pp. xxviii+542. Vol. 2: Analysis of the Data, and Physical Theories. Pp. x+543-1050. (Oxford: Clarendon Press; London: Oxford University Press, 1940.) 63s. net.

"THE earth itself is a great magnet." So wrote Dr. William Gilbert, fellow of St. John's College, Cambridge, nearly three and a half centuries ago. The detailed geographical determination of the nature of that magnetism, and the attempts to identify its origin, have since attracted much effort and friendly international co-operation. But, substantially, Gilbert's challenging statement still remains something of a mystery. For while much is now known of the origin of the small, but significant, periodic components of the earth's magnetic field, the genesis of the much greater quasi-permanent components continues unexplained.

The fundamental problem of the earth's main field is not rendered easier by the fact that that field is slowly changing. It is true that it does not change much in a human life-time, but, within astronomical and geological scales of time, the variation must be considered very rapid indeed. The direction of the magnetic north in England has, for example, changed by about 30° since Gilbert's time, while there are certain places on the earth's surface where the intensity of the magnetic field has altered by about 10 per cent during the last half-century. As a result of the early analyses of Gauss and Schmidt, it was established that the greater part of the earth's external magnetic field is due to causes operating beneath its surface. In fact, the earth behaves very much like a uniformly magnetized sphere with its magnetic axis making an angle of 11½° with the geographical axis of rotation. But the average intensity of magnetization has to be regarded as very much greater than that of the ordinary crustal rocks so far examined. To account for this is the central problem of geomagnetism.

Fortunately it is only the problem of the semi-permanent magnetism of the earth which proves so intractable. The transient changes of magnetism, which are to be noted during a period of time measured in hours, are not so unaccountable. They are known to be due to causes operating outside the earth's surface, as was also shown by the Gauss-Schuster analysis. They are superposed on the slow secular