



SATURDAY, JANUARY 16, 1932.

CONTENTS.

	PAGE
Knowledge and Social Service. By T. LI. H.	73
An Odyssey of Science. By Prof. Arthur Smithells, C.M.G., F.R.S.	74
Medical Bacteriology. By Prof. J. M. Beattie	77
Mineral Treasures in South Africa. By C. G. C.	78
Short Reviews	79
Electron Optics. By Prof. G. P. Thomson, F.R.S.	81
Dental Caries and Diet	83
Obituary :	
Major-General Sir David Bruce, K.C.B., F.R.S. By D. W. T. and W. J. T.; Dr. C. M. Wenyon, C.M.G., C.B.E., F.R.S.	84
News and Views	88
Letters to the Editor :	
Velocities of the Spiral Nebulæ.—Prof. W. D. MacMillan	93
Oxygen and Everest.—Sir Leonard Hill, F.R.S.; Dr. Raymond Greene	93
L-Discontinuities in X-Ray Absorption.—E. Olsson	94
Atomic Moments of some Metals.—Prof. Pierre Weiss	95
Diamagnetism of Liquid Mixtures.—Dr. James F. Spencer and C. G. Trew	95
Oysters in Law.—Prof. J. H. Orton	96
Geological Sequence of Coombe Deposits at Greenhithe, Kent.—J. P. T. Burchell	96
Structure and Development of Temperature Inversions in the Atmosphere.—Dr. Sobhag Mal, S. Basu and B. N. Desai	97
Thermal Chlorination of Methane.—Dr. J. Mason	97
Preparation of Sulphuric Acid free from Nitric Acid.—Dr. W. R. G. Atkins, O.B.E., F.R.S.	98
National Needs.—Louis Anderson Fenn	98
Discovery of <i>Eurytemora thompsoni</i> at Lancing.—Robert Gurney	98
Research Items	99
Astronomical Topics	101
Prize Awards of the Paris Academy of Sciences	102
Measuring Atmospheric Pollution. By E. G. Bilham	103
Importation of Scientific Specimens and Apparatus into Great Britain	104
University and Educational Intelligence	105
Calendar of Geographical Exploration	105
Societies and Academies	106
Forthcoming Events	107
Official Publications Received	108

Editorial and Publishing Offices :

MACMILLAN & CO., LTD.,

ST. MARTIN'S STREET, LONDON, W.C.2.

Editorial communications should be addressed to the Editor.

Advertisements and business letters to the Publishers.

Telephone Number : GERRARD 8830.

Telegraphic Address : PHUSIS, WESTRAND, LONDON.

No. 3246, VOL. 129]

Knowledge and Social Service.

IT may appear otiose to compare the South African War with the Great War. But one curious difference *saute aux yeux*. At the conclusion of the South African War, there was fierce denunciation of our Army, of our aristocracy, of our neglect of science. The attempt was even made to reform the War Office! Prof. H. E. Armstrong, now a Nestor both among men of science and among educationists, was outspoken on the neglect of science in our schools. To him was largely due the creation of the Educational Science Section of the British Association in 1901, at the first meeting of which he urged the scientific treatment of education in all its branches, and the introduction of scientific conceptions into every sphere. He is, however, still far from satisfied with the scope and method of scientific teaching in our schools, and our columns from time to time afford evidence that he has not reached the end of his long, long trail winding towards a perfectly organised nation.

Norman Lockyer, exemplar of that race of pioneers who "debouch upon a newer, mightier world", founded the British Science Guild in 1905 with the object of promoting the application of scientific methods and results to social problems and public affairs. He urged with success upon the Government the need for more liberal support of university education and scientific research. Haldane, with prevision of the life-and-death struggle facing the nation, worked out a scheme for the development of technological study and research at South Kensington, significantly called the London Charlottenburg scheme. The University of London, under the brilliant guidance of Sir Arthur Rucker, endeavoured to set its house in order. The University of Birmingham, our first civic university, founded in 1900, was the prototype of a powerful group of modern universities. The Government, ceasing to dally with the question of educational reform in its broader aspects, accepted with a single gesture Robert Lowe's advice to "educate your masters" and Matthew Arnold's advice to "organise your secondary education".

"Bliss was it in that dawn to be alive,
But to be young was very Heaven!"

Contrast the vigour of those pregnant years, especially the earlier years after the South African War, with the temperament of the public since 1918. The Great War summoned the whole nation to arms. Silent and abashed we stand before the Cenotaph, asking whether any sins of

commission or omission on our part have contributed to the loss of our friends, to the cataclysm which has overtaken the world. Armistice Day is celebrated with increasing solemnity year by year. We have the feeling that the childish question, "What did you do, daddy, in the Great War?" is an indictment rather than an ingenuous request for information. We cannot school ourselves to learn the stupendous lessons of the War. Like that adorable dreamer, we cherish lost causes and forsaken beliefs, unpopular names and impossible loyalties. The 'schoolmen' attempt again to spellbind us with their words. The War Office 'carries on'.

That mental attitude has continued ominously for thirteen years. But the shattering events of the last few months have awakened the nation to a more realistic frame of mind. Especially significant, we would suggest, is that university professors have been stimulated to express their opinions more freely, to give a lead to an inarticulate but well-disposed public, reviving a sound tradition established by men like Playfair, Huxley, Norman Lockyer, Roscoe, and other men of science who could be named. Two recent pronouncements of this *genre* deserve special mention.

Prof. Ruggles Gates, professor of botany and plant biology in the University of London, addressing the Educational Science Section of the British Association on "Eugenics in Education", at the recent centenary meeting, said that the elements of our community most capable of producing men of achievement, intellectually, socially, or financially, are failing to reproduce themselves, and are being eliminated "unobtrusively but fatally". Parliament, he declared, is almost wholly lacking in the type of intellect capable of restoring the nation to biological soundness by legislation. "One must conclude that almost every important legislative measure since the War, when our racial and economic resources were so greatly in need of conservation, has been effective rather in hastening racial degeneration by its disregard of the fundamental facts of biological inheritance." Prof. Gates pleaded not for more education but for better education, especially in those biological principles which underlie national progress. Following that would come leadership on questions of population, marriage selection, the production of children, racial crossing, and related matters.

The other pronouncement was even more outspoken and relevant to our immediate difficulties. Prof. John Hilton, the first Montague Burton

professor of industrial relations at the University of Cambridge, referred in his inaugural lecture to the depressed condition of industry. The cost of living has fallen but wages and interest have held; hence unemployment. Industry will have to live on its own fat, which is already very lean, and nobody will feed it with the capital which comes from savings. There is no formula to settle wages in this or that industry, to adjust the claims of worker, investor, and public—only a code of rules which each of the contestants ought to observe. For many years industry has been baffled and spellbound by forces not its own. Take the curse from industry and it will give the world good service.

Whatever adjustments are required to ensure progressive social service should be based upon the best knowledge available. Without, therefore, expressing approval or disapproval of the professorial pronouncements referred to, we welcome their appearance as a sign of new life. "The War and the Russian Revolution", says Bertrand Russell, "have made all timid men conservative, and professors are usually temperamentally timid", and Hogben refers to "the intellectual discouragement which is the heritage of a World War". Timidity and intellectual discouragement have only complicated our problems since the War! How long must a distracted world wait before its wise men shall be able to sound again a note of encouragement?

"For, lo, the winter is past, the rain is over and gone; the flowers appear on the earth; the time of the singing of birds is come, and the voice of the turtle is heard in our land"—*The Song of Solomon*.

T. LL. H.

An Odyssey of Science.

Past Years: an Autobiography. By Sir Oliver Lodge. Pp. 364 + 13 plates. (London: Hodder and Stoughton, Ltd., 1931.) 20s. net.

IT can confidently be said that the life-story of no man in the scientific world to-day, is likely to be of greater interest to us than that of Sir Oliver Lodge. There is more than one reason for this, but the one above all others which we would have Sir Oliver realise, is that he has gained a quite peculiar place in the regard of his fellow-countrymen. His eminence in science is known to the multitude, and there is no one who has shown greater gifts in teaching them about the things in science on which they particularly want more light. It may be quite true that it is Sir Oliver's concern with matters