

Proceedings of the Fourth International Congress for Applied Mechanics, Cambridge, England, July 3rd-9th, 1934

Pp. xviii+283. (Cambridge: Printed at the University Press, 1935.)

THIS beautifully produced and illustrated book contains full reports of six general lectures together with short abstracts of more than a hundred sectional papers arranged alphabetically. The abstracts deal mainly with problems in mechanics, elasticity and hydraulics and their applications to elastic fatigue and plastic flow of solids and viscous and turbulent flow of liquids.

The first lecture, by V. Bush, on recent progress in analysing machines, describes an optical instrument for the evaluation of parametric integrals and solvers for simultaneous linear algebraic equations and for ordinary differential equations. The second by A. Caquot, on the definition of the elastic domain in isotropic media and intrinsic curves of apparent and true elastic resistance, after a brief review of the relevant classical concepts, treats of the relation between the magnitude and direction of the stress required to produce a permanent strain in concrete and steel, found experimentally and applied to the determination of the elastic limit. J. P. Hartog in the third lecture considers the vibration problem in engineering, with reference to instabilities caused by friction, phenomena in stretched wires and vibration caused by leakage flow.

The fourth lecture, by Th. v. Kármán, treats of some aspects of the turbulence problem, especially the stability of laminar motion, the transfer of momentum, vorticity and heat in turbulent motion, with practical applications, and atmospheric turbulence. In the fifth lecture E. Schmidt discusses the convection of heat for independent flow as well as for flow due to differences of temperature, in both its experimental and theoretical aspects, and the extension of the theory to problems of diffusion. The sixth lecture, by H. Wagner, deals with the steady gliding of bodies along a water surface and the landing and taking off of hydroplanes.

Science and Education in the U.S.S.R.

By Prof. A. Pinkevich. (The New Soviet Library, 12.) Pp. 176. (London: Victor Gollancz, Ltd., 1935.) 3s. 6d. net.

THE success of the planned economy of the Soviet Government probably depends as much upon education as upon any other single factor. This lucid but admirable account of what has already been done to provide the State with intelligent citizens, industry with competent workmen and efficient technicians and leaders, indicates the extent to which a population 64 per cent illiterate in 1917 is being converted into a nation capable of enjoying the advantages with which modern technology can endow it, as well as producing the technicians required for the execution of its plans. Prof. Pinkevich's survey of the position of scientific work in the U.S.S.R. reveals unparalleled co-ordination of such effort in the service of the national economy.

The Annual Register:

A Review of Public Events at Home and Abroad for the Year 1934. Edited by Dr. M. Epstein. Pp. xii+318+182. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1935.) 30s. net.

THE troubled history of last year with its many political crises and its social changes and economic problems is fully and impartially recorded in this valuable annual volume. About one third of the book is occupied with the history of Great Britain and the British Empire, the latter arranged under the different Dominions and India. Another third deals with the history of foreign countries, among which even the smallest find a place. The activities of the League of Nations are also reviewed. The final third is devoted to a chronicle of notable events, obituary notes, and lengthy surveys of literature, art, drama, music, finance and law, with fifteen pages of a record of scientific achievement which includes mention of notable books. Several public documents are given in full, including the memorandum on disarmament laid before Parliament on January 31, 1934. A full index enhances the value of the book.

Metallurgy: an Elementary Text-Book

By E. L. Rhead. New, revised and enlarged edition. Pp. xiv+382. (London, New York and Toronto: Longmans, Green and Co., Ltd., 1935.) 10s. 6d.

A BOOK which is forty years old can claim to have established itself as useful. In spite of the fact that large additions have been made in many sections, the total length remains less than 400 pages, a sign that the matter has been condensed. In this edition new sections have been added on pyrometry, metallography and foundry work, and additions made in the sections dealing with fuel, electric furnaces, coking plant and other melting and smelting processes.

The revival of interest and prosperity in our iron and steel and metallurgical industries should attract an increasing number of technically trained men into them; indeed without these the revival will not persist.

Unit Processes in Organic Synthesis

P. H. Groggins, Editor-in-Chief. (Chemical Engineering Series.) Pp. xii+689. (New York and London: McGraw-Hill Book Co., Inc., 1935.) 30s. net.

THE chemist in industry is far more interested in the reaction, mechanism and technique of the processes employed than in the countless new carbon compounds which are synthesised; hence a text-book of organic chemical engineering which deals with the unit processes. Those chosen are nitration, reduction, diazotisation, halogenation, sulphonation, amination, oxidation, hydrogenation, alkylation, esterification, hydrolysis, Friedel and Craft's reaction, polymerisation. There is little doubt that this is the way to teach the subject, and that the new method will in time prevail.

The technical production of the book is excellent.