

Gas Dynamics of Cosmic Clouds

A Symposium held at Cambridge, England, July 6-11, 1953. Edited by H. C. van de Hulst and J. M. Burgers. (International Union of Theoretical and Applied Mechanics and International Astronomical Union. I.A.U. Symposium Series—No. 2.) Pp. xii+247+12 plates. (Amsterdam: North-Holland Publishing Company; New York: Interscience Publishers, Inc., 1955.) 19 Dutch florins; 38s.

THE forty-four chapters in this book are mainly amended texts of papers and edited versions of discussions which took place at a symposium in Cambridge two years ago, and they were up to date in the summer of 1954. The meeting was the second of its kind, the first having been held in Paris in 1949. The report of the 1949 meeting, published under the title "Problems of Cosmical Aerodynamics" (Dayton, Ohio: Central Air Documents Office, 1951), gave the impression that the dynamics of cosmic clouds was a well-understood subject and that, for example, one needed only conventional turbulence theory, correctly applied, to explain the spiral structure of our galaxy and the motion of interstellar material.

The present report is quite different. There are many problems left after all. To take a few: Has our galaxy got spiral or circular arms and can present methods of observation ever tell us unambiguously? Do interstellar clouds sometimes condense to form new bright stars? If so, what happens to their angular momentum? Does uneven heating by these stars cause the irregular motion of the gas clouds? Do the clouds really move at Mach five, or even ten? What kind of theory applies to this type of turbulence?

The aerodynamicists at the symposium tried to help with reports of theoretical and practical studies, but contact was not really made: the phenomena to be explained are still a little too complex. However, the book makes stimulating reading and contains some very fine pictures. Even the reports of the discussions are worth looking at, for that is where many of the best remarks were made.

F. D. KAHN

Papírová Chromatografie

Edited by Dr. I. M. Hais and Dr. K. Macek. Pp. 720+10 plates. (Praha: Nakladatelství Československé Akademie Věd, 1954.) Cena brož, 136 Kčs.; vaz, 142 Kčs.

AS this book is written in the Czech language and is evidently intended mainly for workers in Czechoslovakia, any detailed comments would not be of interest to most readers of these columns; but it may be pointed out that the book provides Czech workers with a guide to all aspects of paper chromatography that is as useful as any which has been published outside that country. Among many valuable features are the detailed discussions of the applications of paper chromatography in structural studies of proteins and polysaccharides and of the applications of polarographic methods in quantitative work, topics which have not always received the attention they deserve in the books on chromatography.

The bibliography contains well over four thousand references and covers the literature up to 1953. As the title of each reference is given in full in its original language, this bibliography is of universal value and is probably the best source for Czech, Hungarian and

Russian references. Another feature of general interest is the systematic list of a large number of reagents for detecting substances on chromatograms and of buffer systems used in paper electrophoresis. These directions can be fairly well followed even without a knowledge of Czech. It is to be hoped that copies of this treatise will be made available at least to the larger science libraries in countries outside Czechoslovakia.

R. CONSDEN

Elementary Introduction to Molecular Spectra

By Børge Bak. Pp. x+126. (Amsterdam: North-Holland Publishing Company; New York: Interscience Publishers, Inc., 1954.) 9 Dutch florins; 18s.

A BOOK on molecular spectra as concise as this one deserves serious consideration. Excellent monographs which treat in detail of various aspects of the subject exist, and their number is added to year by year, but there remains a real need for a balanced introductory book to give the range and feel of the subject. The author has been bold enough to attempt this in the limit of 125 pages.

The result is not entirely satisfactory. Experimental matters are dismissed so superficially that the reader will scarcely form any useful idea of what the techniques are like, and he is never made to come to grips with a spectrum, so that the problems of analysis must remain unreal. There is a discussion (pp. 24-58) of the theoretical basis of the subject which occupies a disproportionately large space, but which will yet be of small help to a beginner. The emphasis, too, will not meet with acceptance everywhere; this is laid on the measurement of wavelength, and there is little talk of intensities. Justice is scarcely done to the vast body of work on quantitative ultra-violet absorption spectroscopy.

The book was prompted by a sound idea, and there is some good stuff in it—good enough, indeed, to make one hopeful that a revised edition will approximate more closely to what is wanted. The price is high: the language sometimes distinctly odd.

R. F. BARROW

Introduction to Theoretical Mechanics

By Prof. Robert A. Becker. (International Series in Pure and Applied Physics.) Pp. xiii+420. (London: McGraw-Hill Publishing Company, Ltd., 1954.) 57s. 6d.

THIS book provides a straightforward and extremely competent introduction to the subject of theoretical mechanics. It may be said roughly to cover the three years of an honours physics degree-course in Britain; it starts with a chapter mainly devoted to vector analysis, and leads, through the usual topics in mechanics, to subjects such as accelerated reference systems, motion of a rigid body in three dimensions, generalized co-ordinates and vibrating systems.

It is definitely a work for physicists. The physics of each problem is clearly stated, and the mathematics introduced is shown to be the most suitable for the purpose concerned; there is no mathematics for mathematicians' sake. The practical nature of the book is emphasized by the provision of problems at the end of each chapter; these are carefully chosen to provide all grades of difficulty so that both the average and the good student can test their abilities on them. Altogether, the book can be recommended as a reliable, workmanlike and carefully presented introduction to theoretical mechanics.