

Theory of Wing Sections

Including a Summary of Airfoil Data. By Ira H. Abbott and Albert E. von Doenhoff. (McGraw-Hill Publications in Aeronautical Science.) Pp. viii+693. (London: McGraw-Hill Publishing Co., Ltd., 1949.) 127s. 6d.

THIS is a systematic and comprehensive summary of a great mass of data relating to the properties of a large number of wing-sections designed by the NACA. The book really falls into two parts. The first three hundred pages give a rapid summary of aerodynamic theory, the main emphasis being on incompressible flow and on wings of infinite aspect ratio. There is an introductory account of the effects of viscosity and of the effects of compressibility at subsonic speeds. A valuable chapter is concerned with flaps, slots and other high-lift devices. The remaining four hundred pages present data relating to a large number of NACA aerofoils, in tabular and graphical form. First of all, the tables are given for the geometrical form of the aerofoils concerned, together with the velocity distribution over their surface; then there is the usual information on section lift coefficients and moment coefficients, and on section drag coefficients for various angles of attack. The graphs indicate the Reynolds number at which the observations were made, together with information about the roughness of the surface. All the information in the four appendixes which form the second half of the book relates to low-speed measurements, but some account of wing-section characteristics at subsonic speed is given in Chapter 9.

There is no doubt that this book will form a standard reference book for aeronautical engineers, as it contains within the covers of one volume a great mass of information which can only be found with difficulty elsewhere.

The Dynamical Character of Adsorption

By J. H. de Boer. Pp. xv+239. (Oxford: Clarendon Press; London: Oxford University Press, 1953.) 30s. net.

THE time is passing when it is practicable to bring all aspects of sorption, chemical and physical, into the compass of one or two volumes. Rather the future may bring monographs dealing with special fields. This tendency has already shown itself, for example, in the monograph by the late J. K. Roberts, or in various chapters in the several volumes of "Advances in Catalysis". "The Dynamical Character of Adsorption" continues this tendency, in that it deals in particular with kinetic aspects: evaporation and condensation; surface migration; and possible two-dimensional equations of state and their significance in isotherm formulations. The author writes very clearly and in an interesting manner on monolayer sorption, throughout emphasizing molecular mechanisms and their consequences. As an example, one may refer to Dr. de Boer's demonstration that the five isotherm types in the classification of Brunauer may be obtained without considering anything other than monolayer sorption. As a rule, some of these isotherm types are considered to demonstrate multilayer formation. This result emphasizes that experimental data must increasingly be subjected to analysis in terms of free energy, heat and entropy of sorption as well as in other ways. Dr. de Boer says less on the subjects of multilayer sorption and capillary condensation than he does on monolayer sorption. The book has little to say on

the detailed thermodynamics or statistical mechanics of adsorption, nor does it deal with various attempts to treat the complexities of multilayer sorption by modifications of potential theory. The treatment is nevertheless mainly from the point of view of theory, and the exposition is lucid and interesting. One may without reservation recommend Dr. de Boer's book to physical chemists whose special field is surface chemistry, while at the same time one feels it should attract the attention of other chemists as a direct, systematic and not too complex application of the kinetic theory to surfaces.

R. M. BARRER

The Physical Chemistry of Surface Films

By Prof. William D. Harkins. Pp. xvi+413. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1952.) 80s. net.

THIS volume is almost exclusively a record of the contributions made to the subject by the author. Of the five chapters by Harkins, three have been expanded from articles which he had previously published in Jerome Alexander's "Colloid Chemistry"; but it is made clear in the introduction that but for the availability of these articles it is unlikely that Harkins could have completed the present book before his death in March 1951.

While the book provides an impressive picture of the many and varied contributions which Harkins made to our knowledge of the behaviour of surface films and deals in an interesting way with both the theoretical and practical aspects of the subject, it is often slightly misleading in that credit is not always given to other workers in the same field. Similarly, a list of some two hundred and seventy publications by Harkins includes roughly one-quarter of that number of papers on subjects other than surface chemistry. This, of course, serves to emphasize the breadth of Harkins's interests; but in the opinion of the reviewer it is a little unfortunate that contributions to other fields, such as nuclear chemistry, are not listed separately or omitted from a book bearing the title "Surface Films".

In spite of these comments, this is a stimulating record and should prove of interest to the worker on problems in surface chemistry.

JAMES BELL

Finding Nests

By Bruce Campbell. Pp. 256+24 plates. (London and Glasgow: Wm. Collins, Sons and Co., Ltd., 1953.) 12s. 6d. net.

WITH not only his own notes but those of his father and of the late Arthur Whitaker to draw upon, Bruce Campbell has compiled an excellent book on the breeding habits of British birds, with special reference to discovering their nests. The novice will here find a goodly store of information that should be helpful to him in his field-work, and, what is more, information of complete reliability, whether it concerns the willow warbler in some bushy habitat of the English Midlands or the whimbrel on a Shetland moor. The birds are dealt with species by species, concise remarks being made under the headings of "Distribution", "Season", "Habitat", "Nesting Site", "Nest", "Eggs" and "Methods". The paragraph on "Methods" deals with methods of finding the nest, all based on experience. This volume should make an ideal present for a bird-minded boy, sending him bird-nesting not with intent to take eggs but to try to increase our store of ornithological knowledge.

FRANCES PITT