determinations should make this an important contribution to the library of oil and fat chemists.

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Interfacial Phenomena. By J. T. DAVIES, Professor of Chemical Engineering and Director of the Department, University of Birmingham, and E. K. RIDEAL, Former Professor of Colloid Science, University of Cambridge. Academic Press Inc., 111 Fifth Ave., New York 3, N. Y. 1961. xiii + 474 pp. 16 × 23.5 cm. Price, $14.00.

The interfaces treated in this book are those involving at least one liquid and particularly those involving water and aqueous solutions. The gas-solid interfaces which have been the subject of many monographs are purposely excluded. Within these limits an almost overwhelming variety of aspects and problems is explored in a series of chapters devoted successively to physics of interfaces, electrostatic phenomena, electrokinetics, adsorption, properties of monolayers, reactions at surfaces, and diffusion through interfaces. A last chapter occupying almost a quarter of the book deals with disperse systems, including foams, detergency, flotation, crystal growth, adhesion, friction and similar applications.

The authors' detailed considerations range widely from fundamentals of surface potentials and of double layer structure through experimental techniques for obtaining fully wetted or really clean surfaces to engineering problems of mass and heat transfer or of the effective application of insecticide sprays. This richness of contents is achieved within a rather compact volume by presenting throughout the authors' own point of view, with a minimum of discussion of other opinions or other approaches and with little distinction between what is well established and what is today's best guess. The authors clearly take the responsibility for their views—this is never a presentation of what somebody else has to say on the subject but of what they feel is the proper approach and treatment. Since they have contributed much to our understanding of interfaces, their presentation is not only authoritarian but also generally authoritative and enlightening. However, their style remains the same and the reader gets no warning when they are in regions where angels might fear to tread.

The treatment is concise but clear and combines skillfully theoretical principles and experimental evidence supported by almost a thousand references. It is only in the chapter on reactions at interfaces that the argument is so condensed that it seems almost to be a guide through the references. The rest of the book is, however, developed logically and consistently with a minimum of mathematical involvement and with emphasis on the facts and their physical interpretation. It can be read profitably by any chemist interested in surface chemistry. It will give much stimulation and food for thought to those more familiar with the subject while others will get a clear and coherent introduction to the field and will probably discover later anyhow that nature may sometimes be more complicated or even different. Those interested in specific aspects only will find it a good guide to specialized literature provided that they can locate the subject of their interest. It is really unfortunate that the very incomplete index will be of little help in this or in retrieving any specific point after a first reading. There are few other places, however, where so many topics are so well discussed. This reviewer was particularly impressed by the treatment of spontaneous emulsification, of surface potentials and by the constant awareness of the reciprocal effect between subsurface convection currents and local surface pressures.

Interfacial phenomena emerge from this book as the important frontier of knowledge vigorously explored on the basis of sound principles, which it is. The best evidence for this lies probably in the fact that about half the references cited are from the last decade and that the latest year included, 1960, provides by itself as many as the whole pre-1920 era.

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Physical Chemistry. Volume IX. Photochemistry of Air Pollution. By PHILIP A. LEIGHTON, Department of Chemistry, Stanford University, Stanford, California. Academic Press Inc., 111 Fifth Avenue, New York 3, N. Y. 1961. ix + 300 pp. 16 × 23.5 cm. Price, $11.00.

The author has drawn upon his vast experience in the areas of photochemistry and air pollution to write an authoritative and readable book. This is an excellent example of the practical use of quantitative research results to explain an extremely complex "natural" system, the irradiated auto-exhaust polluted atmosphere. The book for the first time makes available to the researcher many facts and discussions of the author and others first published in the now rather inaccessible Reports of the Air Pollution Foundation. It is a thoroughly gratifying experience for the reader to follow Professor Leighton's quantitative approach to this complex problem. The book should be of great value not only to researchers in the air pollution area, but to those interested in photochemistry and free radical reactions. The near ultraviolet photochemistry of O_2, O_3, NO_2, SO_2, HNO_3, alkyl nitrates, HNO_2, alkyl nitrites, nitro compounds, aldehydes, ketones, peroxides, acyl and peroxyacyl nitrites and nitrates, are all reviewed critically. The intricate thermal interactions of oxygen atoms, organic free radicals, ozone, oxides of nitrogen, hydrocarbons and sulfur dioxide in polluted air are thoroughly discussed and evaluated.

As with any book of this type there are points with which fellow scientists will quarrel. For example, the author concludes that in the photolysis of CH_2O both at 3130 and 2537 Å. the primary formation of H_2 and CO by intramolecular rearrangement is unimportant; photolysis of CD_2O and CH_2O mixtures at 3130 Å. suggests otherwise (R. Klein and L. J. Schoen, *J. Chem. Phys.*, 24, 1094 (1956)).

The optimism of the author in his conclusion does not reflect the many uncertainties of his earlier discussions, "Although much remains to be disclosed concerning the details of this immensely complicated process, there is no longer any doubt but that removal of the oxides of nitrogen and the olefins from polluted air, by proper control of their sources, will eliminate this unwelcome by-product of present day civilization." The removal of the oxides of nitrogen and the olefins from polluted air should improve the present Los Angeles situation, but unless the partially oxidized products of hydrocarbon combustion (*e.g.*, CH_2O, peroxides, etc.) are removed as well, a new type of polluted atmosphere of unknown properties will be created. Even if we discard completely the now offensive internal combustion engines, new sources of atmospheric pollution will appear; it is only through the continued evaluation and control of our many different urban atmospheres that we can keep up with the problems of air pollution.

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