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BOOK REVIEWS

Eighth Conference on Clay Mineralogy and Petrology in Teplice, edited by J. Konta. Published by the Univerzita Karlova, Praha, 1981. 332 pp., 17 × 24 cm., Kčs 50.

This well-produced volume contains 39 of the papers presented at the eighth triennial clay conference organized under the chairmanship of Professor Jiri Konta, and held in Teplice, Czechoslovakia October 9–11, 1979. There are 31 papers in very good English, 4 in German, and 4 in Russian; Konta's opening address only is in the Czech language even though 27 of the papers originate from Czechoslovak institutions. A wide range of topics of variable quality is presented with enough "goodies" to interest most clay investigators. I have the feeling that most authors have been limited to about 7–8 pages of text which has restricted the detailed presentation of results and discussion. Abstracts are furnished only in the language of the individual papers (see a later suggestion). If I had to award a first prize it would go to F. Lippmann for a 20-page review of "Stability Diagrams Involving Clay Minerals." In the category "also highly recommended," I would place the contribution by Wiewiora *et al.*, that discusses the nomenclature and identification of celadonites and glauconites because of its bearing on recent considerations of these minerals, and the papers by Miklos and Weiss on "The Systematic Identification of Polytypes of Kaolinite, Micas, Vermiculite and Chlorite." A paper by Gregor *et al.*, presented in German, deals with the so-called "Fireclay Mineral." Acid-extraction measurements show that Al and Fe are extracted at about the same rate and therefore are considered to be statistically distributed in the octahedral sheets. Analytical data are interpreted as showing 4.13 Si and 3.83 (Al + Fe) per unit cell which the authors suggest might be correlated with interstratifications of 2:1 layers (as discussed by Thiry *et al.*). A paper by Galan summarizes information, mainly geological, on the sepiolite and palygorskite occurrences in Spain, with an extensive bibliography to Spanish publications. Altogether there are a dozen (or more) papers discussing the geology and properties of different clay deposits.

The quality of paper and binding and the reproduction of micrographs are excellent. For non-Soviet block readers, this volume and its predecessors are valuable in opening a window on some of the work in this part of the world. Professor Konta is to be congratulated on continuing these conference reports over many years, and I hope they will continue for many more. Their value would be increased by having English abstracts to Russian-language papers, and English and Russian captions to figures and tables.

G. W. BRINDLEY

Zeta Potential in Colloid Science—Theory and Application, by R. J. Hunter. Academic Press, London, New York. 1981. xii + 378 pp., Cloth, $84.00 (£35.00, U.K. only).

This book is the second in a series of monographs, edited by R. H. Ottewil and R. L. Rowell, following a volume on "Dispersion Forces" by J. Mahanty and B. W. Ninham. These monographs are written at a research level and are also intended for the average graduate student in chemistry or physics. Hunter's book is a very useful, critical survey of both classical and modern electrical double-layer theory, with particular emphasis on electrokinetics and the zeta potential. The latter provides quantitative access to double layer properties and has been frequently applied in analyzing colloidal stability problems. However, for a while there was much reservation about the significance of the zeta potential in this area because of the uncertainty about the exact location of the "slipping plane" with respect to the surface in electrokinetic experiments. Recently it has been recognized that the slipping plane most likely coincides with the border between the Stern layer and the diffuse layer, the outer Helmholtz plane, at least in relatively simple systems. Hence, confidence in the zeta potential as an important parameter in colloid stability has been largely restored.

The book contains a thorough treatise of charge and potential distribution at interfaces, the calculation of zeta potential, the measurement of electro-kinetic parameters (the measurement of surface conductance could have been paid more attention), the electroviscous effects, the influence of simple inorganic ions and of more complex adsorbates, and the applications of zeta potential. With the latter are meant applications to colloid stability and related phenomena, rather than technological applications of which only flotation is discussed in some detail. Practical problems such as double layer effects in soils and in flow through porous formations of interest to the petroleum industry are outside the scope of the book. Clays are mentioned only briefly in some sections, and some of the comments concerning them do not look appropriate: in many situations, clay particles carry double layers of opposite sign at faces and edges of the crystal plates, hence their electrophoretic behavior is complicated and not amenable to a straightforward quantitative interpretation.

Several helpful appendices are included with this volume on such matters as vector calculus, electrical units, and the Gibbs adsorption isotherm. An appendix on viscous flow contains some incorrect definitions (e.g., thixotropy and rheopexy), and unfortunately, there is no author index. In spite of such minor shortcomings, *Zeta Potential in Colloid Science* is a very valuable book.

H. VAN OLPHEN