

BOOK REVIEWS

STUDIES OF CELADONITE AND GLAUCONITE. By Margaret D. Foster. U. S. Geological Survey Professional Paper 614-F, Washington D. C., 1969, 17 pages, \$0.40.

The author bases her discussion of these minerals on two assumptions: implicitly, that structural water is equivalent to 2 OH per formula unit, so that the formula is correct if H_2O+ is ignored and cations are calculated to 90; and, explicitly, that the number of octahedral cations does not exceed 2.02, excess Mg being assigned to inter-layer sites. Consideration is given to 45 published analyses which made sense on this basis; a few others do not, and are assumed to relate to contaminated material. The predominant success of the assumptions carries considerable conviction. The author shows convincingly that celadonite and glauconite differ in tetrahedral Al and octahedral Mg contents, but not in Fe^{3+} content. Considerable doubt is thrown on earlier suggestions of correlations of Fe content with K content and of composition with geologic age.

The central section of the paper is much more open to criticism. If the specimens are divided into those with low and high layer charges, comparison of numbers of Fe^{2+} and Fe^{3+} in each group gives some support to the suggestion that the low charge group may result from oxidation of Fe^{2+} after formation. However, the apparently closely reasoned discussion of Figures 2-5 adds nothing to this conclusion. The complicated parameters used conceal the fact that departures from the straight lines in Figures 2 and 5, and the differences between Figures 3 and 4, are merely alternative expressions of the (small) departures of the numbers of octahedral cations from the value 2, and they have no other significance. There is therefore a danger that the casual reader will think the conclusion on oxidation to be much more rigorously established than it is. Nevertheless, the paper is an important contribution to the discussion of these minerals.

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CRYSTALLIZATION FROM SOLUTION. BY EVGENII V. KHAMSKII. Translated by Albin Tybulewicz. Consultants Bureau, New York, 1969, 106 pages, \$22.50.

This is a very disappointing short treatment. For a start the title is misleading: it should have been prefaced by "Theory of", since there is no discussion of crystallization techniques. In the words of the author's Preface: ". . . A complete description of large-scale crystallization from solution requires consideration of the problem of supersaturated solution, the nucleation and growth of crystals, the kinetics of large scale crystallization, and the coprecipitation of impurities and their influence on the physical properties of the crystalline substances and on the habit of crystals". All these topics except for the impurity effects are treated in reasonable detail, the main accent however being on topics relevant to large-scale crystallization: the only impurity influenced properties more than just mentioned in passing are caking and hygroscopicity.

The cost of \$22.50 for 96 pages of text seems unreasonably high for a paper-covered volume. The original Russian version appeared in 1968, but even so references are well covered only through 1964, with a few 1965 entries. This monograph may be most valuable for the extensive coverage of Russian work, to which about one-half of the 402 references listed pertain. There is no index.

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THE MINERALOGY OF PENNSYLVANIA 1922-1965. BY ARTHUR MONTGOMERY.
The Academy of Natural Science of Philadelphia, 1969, 104 pages, \$5.00.

Subtitled "Supplementing and Updating Gordon's 'The Mineralogy of Pennsylvania (1922)'" , this volume compiles new data on Pennsylvania minerals; it is neither a comprehensive mineralogy of Pennsylvania nor a guide book to mineral collecting localities in the Commonwealth.

The material is arranged in five unequal parts. Two pages constituting Part 1 are devoted to aims and contents. Part 2 (3 pages) presents and explains a list of all 237 verified mineral species found in Pennsylvania through December, 1965. The descriptive mineralogy of 49 species discovered or newly recorded since 1922 forms Part 3 (58 pages). Minerals are arranged by chemical class and subdivided into families, groups, series, and species. The descriptions of each mineral include composition, crystallography, properties, identification by simpler and more definitive means, and occurrence with information on discovery and locality, geologic environment, mineral association, and paragenesis. Part 4 (31 pages), "New data on earlier recorded minerals", includes short descriptions of minerals of historical interest, minerals of geochemical interest, and zeolites and related secondary minerals. The index (Part 5) is in two sections, one listing Pennsylvania mineral names and the second Pennsylvania mineral localities.

While the volume may accomplish its expressed primary aim "to advance both scientifically and educationally the mineralogy of Pennsylvania", its supplementary nature and its emphasis on the more exotic minerals recommends itself principally as a reference work.

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