In the first section on geology and mineralogy, there is a competent review paper on natural zeolite occurrences by J. R. Boles, a good review of application of zeolite mineralogy to petroleum exploration by A. Iijima, and several papers providing descriptions of natural zeolite occurrences in Alaska, Japan, Czechoslovakia, Yugoslavia, Bulgaria, Italy, and Turkey.

In the second section, devoted to synthesis and stability, there is a lengthy review of thermochemistry of various natural zeolites by E. E. Senderov in which the author concludes that most natural zeolites are thermodynamically metastable relative to quartz and feldspars. This review is followed by several papers describing synthesis-reaction experiments to produce various zeolites from natural starting materials.

In the third section, which is devoted to crystal chemistry and physical properties, there is a disappointingly brief review of structural classification of zeolites by W. M. Meier followed by an interesting and potentially very useful and widely cited review and synthesis of ordering of tetrahedral cations in natural zeolite structures by G. Gottardi and A. Alberti. This is followed by several papers reporting studies using a variety of spectroscopic methods to determine cation ordering, vibrational dynamics, dehydration, and cation-exchange phenomena in several natural zeolites. No new crystallographic data were reported.

In the section titled Applications in General, the reader is treated to an eclectic, illustrated review of commercial and some noncommercial applications of natural zeolites in the U.S. and western Europe by Fred Mumpton, a review of corresponding applications in East-block countries by G. V. Tsitsishvili, and a review of the same in Japan by H. Minato.

The Ion-Exchange section contains mostly papers describing specific studies of ion-exchange experiments in clinoptilolite and ferrierite. The section devoted to Water Purification also contains papers describing specific application experiments and pilot-plant operations using natural zeolites, mostly clinoptilolite, for treatment of sewage and other waste waters for removal of ammonia and other cations.

The section on Adsorption has papers describing studies of the effect of various exchangeable cations on dehydration and adsorption of various volatile molecules in some natural zeolites. The section on Catalysis has papers describing industrial catalysts developed from natural zeolites, particularly mordenite and clinoptilolite. In the section devoted to Agricultural Applications, there are several papers describing the role of zeolites in soil formation, as well as several describing applications to wheat, hogs, and cattle. The Miscellaneous section contains papers describing zeolite applications to solar-energy storage, solar refrigeration, and cement chemistry. The final paper concerns possible carcinogenic effects of erionite, mordenite, and synthetic zeolites.

On the whole, the volume is a valuable resource on natural zeolites. To this reviewer, the most valuable papers containing data or syntheses that are not readily available elsewhere are those by Gottardi and Alberti, Senderov, Bish, Boles, and Iijima.

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ERRATUM

Thermodynamic studies of zeolites: Heulandite by G. K. Johnson, H. E. Flotow, P. A. G. O'Hare, and W. S. Wise (v. 70, p. 1065-1071). In Table 5, $\Delta H$ for Reaction 11 should be $-(1096.16 \pm 0.15)$ kJ/mol. As a result, $\Delta H^\circ$ and $\Delta G^\circ$ of heulandite at 298.15 K should be $-(10594.6 \pm 10.2)$ and $-(9779.1 \pm 10.2)$ kJ/mol, respectively, and each entry for $\Delta H^\circ(T)$ and $\Delta G^\circ(T)$ in Table 7 should be more negative by 103.5 kJ/mol.