jection of all these genera by Hart.

A number of illustrations show pollen grains of angiosperms that are irrelevant to a book concerned with Permian palynology. There are errors such as absence of authority and date, incorrect dates, and misspelled taxa; for instance, *Paraspora* should be *Parasporites*, *Hamiaepollenites* should be *Hamiapollenites*, and *Dulhuntyspora* should be *Dulhuntyispora*. Further, seven figures representing seven genera of monosaccate taxa are extracted from numerical sequence and appear on page 213. The generic names of subsequent species are not in the explanation of these figures, merely the first letter abbreviation of the genus, which could be confusing to anyone not already familiar with Permian spores and pollen grains.

This book provides an important bibliography of Russian literature and descriptions in English of taxa proposed by Russian palynologists. This information is of value to the specialist in Permian palynology. The degree to which the proposed nomenclatural changes are accepted must be based on their conformity with the rules of botanical nomenclature and will have to await the test of time.

ROBERT M. KOSANKE
U.S. Geological Survey,
Denver, Colorado

Liquid Ammonia

Anorganische und allgemeine Chemie in flüssigem Ammoniak. Vol. 1, part 1, of *Chemie in nichtwässrigen ionisierenden Lösungsmitteln.* JOCHEN JANDER. Vieweg, Braunschweig; Interscience (Wiley), New York, 1966. 585 pp., illus. $27.50.

Many of my contemporaries will be reminded by Jochen Jander's encyclopedic presentation of *Chemistry in Anhydrous Liquid Ammonia*—part of the (Gerhard) Jander-Spandau-Addison monograph series on Chemistry in Nonaqueous Solvents—of the outstanding scientific contributions made by three great American chemists, E. C. Franklin, C. A. Kraus, and H. P. Cady. The principle of research by analogy, tempered and modified by experiment, employed by these pioneers in establishing the chemistry of a "world" in which ammonia replaces water most certainly stimulated a tremendous amount of experimental and theoretical activity for many years.

There was a time in the '20's and early '30's when the followers of Franklin, Kraus, and Cady constituted a veritable "school" of liquid ammonia chemists. They liked to experiment with liquid ammonia as a solvent, much as the present nuclear magnetic resonance, electron spin resonance, infrared, chromatographic, polarographic, and what-not specialists attempt to use their instrumental devices to solve all manner of chemical problems. This group drew new disciples into its ranks. Many of them extended their research activities to explore chemical and physicochemical phenomena in other nonaqueous solvents. A school of nonaqueous solvent chemists developed in the '40's and early '50's. Yet today there are relatively few who devote themselves to the study of nonaqueous solvents per se. We have reached a stage where we can reasonably predict which of a number of nonaqueous solvents one might use to advantage in carrying out specific chemical reactions. Liquid ammonia has become a widely used reaction medium.

Some of our "modern" younger chemists will look down their sophisticated scientific noses at Jander's adherence to the "solvent system concept," a conceptual picture first promulgated by Franklin; but for systematizing the chemistry of nitrogen compounds in their relationship to ammonia as a parent substance and for elucidating the behavior of substances dissolved in liquid ammonia, it has withstood the onslaught of time. Furthermore, it places the emphasis on good, sound, experimentally demonstrable, *useful* chemistry.

Errors are bound to creep into a compilation which attempts to cover the entire literature of inorganic liquid ammonia chemistry, but these are minor. Jander uses a year/number reference system in his bibliographical citations which does not conform with the two previously published monographs in the series. English versions of the editor's and author's prefaces are included. That of the author's preface is at best a poor literal translation and in some places does not even convey the real meaning of the author's German *Vorwort*.

This monograph, the companion monograph (volume 1, part 2, in the series) by Herchel Smith on *Organic Reactions in Liquid Ammonia* (in English), and volume 4, *Chemistry in the Lower Fatty Acids and Derivatives*, are the only volumes to have appeared thus far. We can only hope that the remaining monographs projected for the ambitious eight-volume compilation, initiated by the present author's father in 1956, will appear more promptly.

L. F. AUDRIETH
Department of Chemistry and Chemical Engineering, University of Illinois, Urbana

New Books

Abstract Algebra. Chih-Hah Sah. Academic Press, New York, 1966. 358 pp. Illus. $9.75. Academic Press Textbooks in Mathematics Series.

Advances in Alicyclic Chemistry. vol. 1. Harold Hart and G. J. Karabastsos, Eds. Academic Press, New York, 1966. 405 pp. Illus. $16.50. Five papers.

Advances in Applied Microbiology. vol. 8. Wayne W. Umbreit, Ed. Academic Press, New York, 1966. 395 pp. Illus. $14. Ten papers.

Advances in Atomic and Molecular Physics. vol. 2. D. R. Bates and Immanuel Estermann, Eds. Academic Press, New York, 1966. 496 pp. Illus. $16.50. Seven papers.

Advances in Chemical Engineering. vol. 6. Thomas B. Drew, John W. Hoopes, Jr., Theodore Vermeulen, and Giles R. Cokelet, Eds. Academic Press, New York, 1966. 469 pp. Illus. $17.50. Five papers.

Advances in Communication Systems: Theory and Applications. vol. 2. A. V. Balakrishnan, Ed. Academic Press, New York, 1966. 342 pp. Illus. $13.50. Seven papers.

Advances in Computers. vol. 7. Franz L. Alt and Morris Rubinoff, Eds. Academic Press, New York, 1966. 319 pp. Illus. $14. Six papers.

Advances in Inorganic Chemistry and Radiochemistry. vol. 9. H. J. Emeléus and A. G. Sharpe, Eds. Academic Press, New York, 1966. 400 pp. Illus. $15.50. Six papers.

Advances in Oral Biology. vol. 2. Peter H. Staple, Ed. Academic Press, New York, 1966. 237 pp. Illus. $12. Six papers.

Alchemy, Medicine, Religion in the China of A.D. 320: The Nei P'ien of Ko Hung (Pao-p'u tzu). Translated from the Chinese by James R. Ware. M.I.T. Press, Cambridge, Mass., 1966. 404 pp. $15.

Algebraic Linguistics: Analytical Models. Solomon Marcus. Academic Press, New York, 1967. 266 pp. Illus. $12.

Applied Ore Microscopy: Theory and Technique. Hugo Freund, Ed. Translated from the German by Carlo G. I. Friedlaender and George Aletan, Macmillan, New York, 1966. 648 pp. Illus. $37.50. Eight papers extracted from *Handbuch der Mikroskopie in der Technik* (1954 and 1960).

Archeological Chemistry. A symposium (Atlantic City, N.J.), September 1962. Sponsored by the Division of History of Chemistry, American Chemical Society.

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