

these are discussed and illustrated with data taken from the literature. Many times the author points out certain compounds or classes of compounds which have had inadequate study. To the person interested in the solid state this book should prove to be a fruitful source for new problems of study.

The reviewer noticed few errors. One statement with which some may disagree, however, is to the effect that certain metallic hydroxides, upon solution in excess sodium hydroxide, do not form hydroxide complexes but are dispersed in the colloidal state (p. 348).

There are two short reference sections, the first group being to special topics and the second to the literature cited. There is a formula index as well as a subject index. The former is a great aid for the rapid location of the discussions about a particular substance.

The author made no attempt to give the complete data for most of the substances mentioned since most of this material can be found in the *Strukturbericht* and literature cited. This book should prove to be a useful companion text for use in university courses in advanced inorganic chemistry.

E. ST. CLAIR GANTZ

Purdue University, Lafayette, Indiana

A history of the conic sections and quadric surfaces. Julian Lowell Coolidge. Oxford, Engl.: Clarendon Press, 1945. Pp. xi + 214. \$6.00.

The curves known as "conic sections," or "conics," have played a prominent role in the history of mathematics. First studied by the Greeks, they were almost forgotten for 1,400 years. Then interest in them revived, and during the 18th and 19th Centuries they were a focus for the development of the most beautiful chapter in mathematics, the theory of synthetic projective geometry. Toward the end of the last century their popularity declined, since most of their properties had been found and interest was shifting to other topics. Today we are concerned with them mostly from an historical or a pedagogical point of view.

In Prof. Coolidge's book is given a detailed account of the history of the conics from the earliest times to the present. The author's general method is to discuss the contributions of the various writers on these curves, indicating their methods of proof, their important results, and the relationship of their works to the main trend of the subject as a whole. Most of the theorems quoted are proved in detail, usually in the original notation.

The contents of the book can be divided roughly into five parts. First, there is the early Greek period, when the basic properties of conics were established. Then comes the synthetic development, from Desargues and Pascal, through the development of poles and polars and the theory of duality, to the purely projective geometry of Poncelet and Von Staudt. Parallel to this was the analytic treatment. This got off to a slow start, but once the necessary algebraic technique had been introduced, it quickly duplicated the results of the synthetic treatment and then went beyond these into the theory of invariants and linear systems.

The fourth division of the material includes various results which fall outside the main trend outlined above. There are various metric theorems concerning areas, lengths, and curvature, properties of systems of conics in three-space, and mechanical means for describing conics.

The last division is concerned with quadric surfaces. Their history roughly parallels that of the conics, but with a definite time lag. The basic ideas are nearly always evolved first for the conics and then applied to the quadrics. The important exceptions are the theory of the rulings and the differential geometry, neither of which has an analogue in the conics.

The author states that his intention was to give a systematic account of the historical development of the theory of conics and quadrics. This he has done in a clear and entertaining manner. But he has done more. By including actual proofs of the important theorems he has produced a type of textbook that will be of great value to those interested in projective geometry. It is not a textbook that one would recommend to a beginner, but one for a teacher or a student who wants to learn more about the subject than can be readily found in standard texts or references. For example, although a complete account of the theory of linear systems of conics is not presented, enough will be found to indicate the general nature of the subject, and references provide a means of continuing the study. Such a book will clearly be of great value to a teacher of projective geometry who wishes to include some fresh material in his course.

A few typographical and factual errors were noted, but none of them is serious and they detract very little from an otherwise excellent book.

R. J. WALKER

Department of Mathematics, Cornell University

The psychoanalytic theory of neurosis. Otto Fenichel. New York: W. W. Norton, 1945. Pp. xii + 703. \$7.50.

Shortly after the publication of this book—his "opus magnum"—the author died, leaving this important contribution to the field of psychoanalysis. He had undertaken the unusually difficult task of writing a textbook on psychoanalytic theory, a field in which good textbooks are conspicuously lacking because this growing discipline only recently has become ripe for such presentation. Almost all the original fundamental contributions were made by Freud, whose writings contain all the struggles of a creative mind to conquer intellectually a new field, the science of human personality. After having developed a special technique of investigating psychological phenomena, Freud and his early followers accumulated an impressive inventory of solid observations, psychological facts, which hitherto were known intuitively only to the greatest novelists and dramatists. To build a theoretical structure upon this evasive but well-established observational material was the life work of Freud. It is only natural that his attempts at formulating generally valid principles and concepts from this factual substratum, compared with other natural sciences, remained crude