a topic whose inherent possibilities are too frequently overlooked. It remains as a particularly pleasant memory of the flight!

The sixth and last chapter, with its discussions of plane collineations and correlations, quadratic transformations, linear and tetrahedral complexes of lines, and space collineations, brings the book to a close. This chapter is rather sketchy, perhaps by necessity, but it does round out the whole very nicely.

In general, then, the book is not for the beginner. It is a resumé of a portion of the field of projective geometry, intended for a reader who has had some previous acquaintance with the details. The approach, one might say, is in the manner of Reye, and there is little of the concern for logical detail usually so evident in the postulational developments of the present day. However, although some may raise objection on the ground that it is not in the modern fashion, it does present quantity in a small package and does it well.

B. C. PATTERSON

Quantentheorie. By Clemens Schaefer. (Einführung in die theoretische Physik, vol. 3, part 2.) Berlin and Leipzig, de Gruyter, 1937. 7+510 pp.

With this account of quantum theory, Schaefer's colossal "Introduction" is concluded; in its more than three thousand pages present and future generations of students will find a good, solid, uninspired presentation of the foundations on which rest the structure of modern physics and its astronomical, chemical, and technological applications. In approaching this concluding part, one must view it as a unit in the broader undertaking, rather than as an up-to-date treatment of quantum mechanics for its own sake; otherwise, it would be difficult to justify the selection of topics and the relative space assigned them.

The first five chapters, almost one-half the book, are devoted to an historical account of the development of quantum theory during the first quarter of the century; as such, depicting as it does the struggle upward from the difficulties of the old radiation theory, through Planck's quantum postulate and the Bohr theory of the atom to the semi-empirical Hund theory of spectroscopy, it is excellent. But from the logical, and perhaps from the pedagogical, standpoint this approach suffers from certain more or less serious disadvantages; thus, the theory of atomic and molecular spectra is left, for the most part, at the stage at which it was stranded almost a decade and a half ago, with only the assurance that things will really turn out all right in terms of the newer, much more satisfactory, theory.

This newer development is, appropriately enough, given mainly in terms of the de Broglie-Schrödinger formulation; after an introductory Chapter 6 on the particle-wave dilemma and its resolution with the aid of the wave theory of matter, almost a hundred pages are devoted to the solution of the more elementary problems, such as the harmonic oscillator and the hydrogen atom with and without external fields, and to an elementary consideration of helium and the hydrogen molecule. The statistical interpretation of wave mechanics, illustrated by the uncertainty principle and the theory of radio-active decay, is treated next, but without touching upon the deeper question of the meaning of observation in quantum mechanics. This is followed by a penultimate Chapter 9 on radiation, leading up to but not including the Dirac theory of radiation and the important developments based thereon. The book closes with a very readable chapter on Dirac's relativistic theory of the electron.

Judged from the standpoint of the present, Schaefer's text seems quite inadequate; it includes, in the main, only those successes enjoyed by the new mechanics in the first five years of its existence. Almost no space is given to the more mature