Parseval's formula, Poissons's summation formula, and the Rayleigh-Plancherel formula. The exercises contain many important results, including Fejér's theorem on summation of Fourier series by arithmetic means. Contrary to the standard practice, the author defines complex-valued functions f and g to be orthogonal if the integral of fg (instead of $f\bar{g}$) is 0. The discussion of Bessel's inequality and Parseval's formula, however, is solely for real-valued functions.

As in the first two volumes, in the third also we find a large and valuable collection of exercises. They occupy more than one fifth of the space in the book. Teachers of analysis will find a perusal of them rewarding.

The book as a whole is an admirable exposition of the fundamentals of calculus in a thoroughgoing way at a reasonably elementary level. The author does not hesitate to take time and space for unusually thorough discussion of matters which are often glossed over in elementary texts and ignored in more advanced works.

It is too bad that the book is so expensive. The cost of the three volumes is 184.10 Swiss francs, or about $43.00 at the current rate of exchange. This is formidable to the point of putting the book completely out of reach of most European students. As I was told in one German university town, a student can live for a month on less than it takes to buy the three volumes of this book.

ANGUS E. TAYLOR

The elements of probability theory and some of its applications. By Harald Cramér. New York, Wiley, 1955. 281 pp. $7.00.

This book may properly be called the junior students' *Mathematical methods of statistics*, which has won the author wide recognition. It fills a need for an introductory text for a class whose main interest is statistics. More than half (roughly from Chapter 8 on) of the material belongs to conventional statistics rather than conventional probability; in fact the latter part of the book is a small compendium on sampling and testing. Statisticians will, however, find this part rather old-fashioned: the Neyman-Pearson theory is barely touched upon while Wald's sequential analysis and decision theory are only mentioned. It would seem that the elements of such modern theories have interesting probability content and are no less amenable to an elementary discussion than some of the topics chosen here. As a probability text for the general mathematics student the book will be found somewhat lacking in attractions, although quite adequate and very respectable. It goes as far as the Bernoulli and De Moivre theorems and a statement of the central limit theorem and some of its ramifications. From there on it is the χ^2, t and F distributions and correlation and regression in more than one dimension. The (moment) generating function is introduced but its use is not exploited. Whatever material is covered is, however, handled expertly and neatly and there are some instructive examples offering a few glimpses into more advanced topics (e.g. §6.5, §7.5). Students of sciences whose main interest in probability is not the handling of data will find the applications in this book biased, as recognized in the preface. For example, the simplest gambling or random walk problems (which invariably appeal to the novice and are growing in theoretical and practical importance) are illustrated by only one or two examples (§4.3). Admittedly at this junior level it is impossible to present many interesting results of probability (Feller in his well-known book has nevertheless succeeded in doing a lot of this with only slightly more advanced techniques); it may be argued whether some of the descriptive statistics cannot be sacrificed to make room for other topics. Another arguable point is the frequency definition of probability entailing a merely operative definition of random variable. It may be mentioned that even in his larger book the author tried to smooth the way for the reader by offering an axiomatic definition of random variable, which has been criticized both here and abroad. (In his 1937 Cambridge tract he took an impeccable and austere approach.) The realities of an elementary textbook may be different, but even if we should agree that the frequency definition is the only one which can be put over at this level, there is still the question whether education should follow the way of least resistance.

The book is written in lucid style and with uniform care. A specially good feature is the inclusion of abundant and varied exercises with solutions, which should add a great deal to the usefulness of the book as a text.

K. L. Chung

Analytische Geometrie. By Gunter Pickert. (Mathematik und ihre Anwendungen in Physik und Technik, series A, vol. 24.) Leipzig, Geest and Portig, 1953. 10+397 pp. 26 DM.

A welcome innovation in this textbook is its division into three parts: I. Affine geometry, II. Euclidean geometry, III. Projective geometry. In Part I, real affine geometry of n dimensions is derived from six axioms concerning the primitive concepts *point* and *vector*. But the development is mainly algebraic. There are several chapters on linear equations, matrices and determinants. In Part II, the Euclidean metric is introduced by means of four further axioms concern-