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 concerning length and orthogonality. These yield a definition for the inner (or scalar) product $\mathfrak{x}\mathfrak{y}$ of two vectors $\mathfrak{x}$ and $\mathfrak{y}$. (American readers may at first be confused by the author's use of a dot when a vector is multiplied by a scalar but *not* when two vectors are multiplied together!) The other topics in this part include congruent transformations, complex geometry, and quadrics. In Part III, projective n-space is derived from affine $(n+1)$-space by identifying the points of the former with the classes of parallel vectors in the latter. After discussing cross-ratio, collineations and correlations, polarities, and the projective theory of quadrics, the author shows how the affine and metrical geometries can be derived from projective geometry. It is unfortunate that he failed to take full advantage of his division of the book into three parts. Content (i.e., area, volume, etc.) is considered in Part II, and barycentric coordinates in Part III, whereas both these subjects properly belong to affine geometry. The text and the 76 figures are clear and accurate. The book ends with a short bibliography, a full index, and a useful list of symbols.

H. S. M. Coxeter

Rational fluid mechanics, 1687–1765. By C. Truesdell. Editor's introduction to vol. II 12 of Euler's works. Offprint from Leonhardi Euleri Commentationes Mechanicae ad Theoriam corporum fluidorum pertinentes (Euleri Opera Omnia, Series II, vol. 12.) Zürich, Füssli, 1954. 125 pp.

The volumes of the great Euler edition have in recent years been provided with excellent introductions, which help to clarify the astonishing achievements of this eighteenth century mathematician. Professor Truesdell has written one of these introductions; it is the preface to the first volume of Euler's contributions to the theory of fluid motion, and an interesting piece of work it is. We find in his essay not only an extensive account of Euler's main papers on hydrodynamics, but also a report on the achievements of those authors who, from Archimedes on, prepared the way to Euler's theory. We thus have in this introduction an accurate and comprehensive account of an important field of early science, a field never before so carefully investigated; a valuable contribution to the history of science in general and to the appreciation of Euler's hydrodynamical work in particular.

We owe to Euler what we may call "classical" hydrodynamics, the theory underlying the science of our present textbooks, which he established so thoroughly that all authors before him can safely be classified as "prehistoric." However, in contrast to Euler's mechanics