Les fonctions généralisees ou distributions, by M. Bouix. Masson, Paris, 1964. ix + 223 pages.

Directed to the needs of physicists, this book deserves the attention not only of the latter but of anyone interested in applications of modern mathematics. It is now well-known that a mathematically sound basis exists for handling entities such as the Dirac delta function and other singularities. There still remains room for the publication of good expositions, as the present one, for the dissemination of this information.

The concept of distribution is first introduced using the notion of "fundamental sequences" as developed by Mikusinski. (A more detailed treatment can be found in the little pamphlet by Mikusinski and Sikorski, "Théorie élèmentaire des distributions", Gauthier-Villars, Paris, 1964.) This is followed by the definition in terms of functionals, à la Schwartz, and the two approaches are compared. Distributions are then defined for several variables and a complex variable. The last three chapters, on applications to differential equations, include a discussion of Green's functions, the Laplace, Poisson and Helmholtz equations, and Maxwell's electromagnetic equations.

The topics of convolution and Fourier transforms are not covered. For these, the interested reader may be referred to the text by Zemanian, "Distribution Theory and Transform Analysis", McGraw-Hill, 1965.

H. Kaufman, McGill University

Problèmes d'Algèbre générale, par A. Bigard, M. Crestey and J. Grappy. Dunod, Paris, 1967. viii + 226 pages.

A fascinating set of problems, complete with solutions, on such topics as ordered structures, groups, semigroups, rings, ideals, fields and algebraic equations, the book is intended to illustrate the theory set down in "Leçons d'algèbre moderne" by P. Dubreil and M.-L. Dubreil-Jacotin. Although frequent reference is made to these "Leçons", the problems can be understood and used in studies based on other texts.

The selection of problems is good; they range in difficulty from the routine to the highly challenging.

F.A. Sherk, University of Toronto

Differential und Integralrechnung I, by Hans Grauert and Ingo Lieb. Heidelberger Taschenbücher Nr. 26, Springer-Verlag Berlin-Heidelberg-New York, 1967. x + 200 pages.

This is a textbook for a first semester course in calculus of one variable at German universities. It is based on lectures given by the first of the authors at Göttingen University. Since the book gives a rather advanced treatment of the subject and often differs from standard texts, a description of the content may be justified.

The first chapter contains a short introduction to the elementary algebra of sets and a description of the real number system R as a complete ordered field. This provides a good basis for a rigorous development of the theory, and the lengthy construction of the real numbers from rationals is avoided. In the next chapters the fundamental topological properties of R are studied and applied to the theory of sequences and series of constants. After the introduction of the general concepts of a real function, semi-continuity, and continuity, sequences of functions and power series are treated. Differentiable functions are defined by the following property (let f be defined on an interval I): f is called differentiable at $x_o \in I$, if there exists a function g on I such that g is continuous at x_o, and $f(x) = f(x_o) + (x - x_o) g(x)$ on I. Besides the fact that this definition extends to the most general situations, it leads to very simple proofs of the elementary rules of differentiation. The elementary transcedental functions are introduced by their power series in connection with the theory of Taylor series. By means of step functions the Lebesgue integral is defined and studied in the last chapter, which includes also the usual theorems about Riemann integration.

The book is easy to read and contains numerous examples, but no exercises. The authors have announced the publication of two further volumes on Calculus of several variables, differential equations, and integration theory.

Benno Artmann, McMaster University

About vectors, by Banesh Hoffman. Prentice-Hall, 1966.

The preface states boldly that the book is written as much to disturb and annoy as to instruct. Whether it disturbs or annoys the reader depends on the reader; it fails to instruct only in that it is not a text-book in the normal sense of the word, and the exercises are unusually indefinite. Samples:-

[On definition]

> Under what circumstances would an elephant qualify
> as a man according to [Plato's] definition?

[On scalars]

> Is the magnitude of a position vector a scalar?
> [This is not a question to be answered with a simple yes or
> no. It has facets. Think it through.]

The author remarks in the preface that to describe the book in detail would "blunt its intended effect". The same applies to a review,