development of the theory and to many of the theorems are ascribed names. The effectiveness of this is impaired by the absence of a bibliography.

Charles G. Costley, McGill University

Functions of a Complex Variable, by Thomas M. Macrobert (Fifth edition). Macmillan, London, New York, 1962. viii + 425 pages.

Elements of Complex Variables, by Louis L. Pennisi (with the collaboration of Louis I. Gordon and Sim Lasher). Holt, Rinehart and Winston, New York-Chicago-San Francisco-Toronto-London, 1963. vi + 459 pages.

Functions of a Complex Variable, by Gino Moretti, Prentice-Hall, Englewood Cliffs, N. J., 1964. vi + 456 pages.

Theory of functions of a complex variable - one of the glories of the nineteenth century - continues to cling to the traditions and mathematical spirit of that century as far as most text-books are concerned. The books under review reflect this tenacity, which is both admirable and disturbing, in several ways and degrees.

Macrobert's book was first published in 1916 and represents at its best the formulist (as opposed to the formalist) point of view. The book is a minor version of the Whittaker and Watson classic (first published in 1902) "Modern Analysis" - a performance of two analytic virtuosi. Macrobert's book contains basic reference material on standard topics (power series, integration, residues, infinite products) as well as chapters on gamma, elliptic and hyper-geometric functions. Geometric aspects, such as conformal mapping, are absent. Five editions testify to the continuing tradition and taste for such kind of material and presentation.

Pennisi's book is the most up-to-date of the three. It gives a good introductory treatment of complex numbers, sequences, conformal mapping, elementary functions. However, the last century echoes in the "multiple-valued functions" and avoidance of certain topological concepts (index of a closed curve) which makes some chapters less than perfect. [Since the appearance of Dieudonne's Foundations of Modern Analysis there should be no excuses for mistreatment of these notions.] For those who will not consider such flaws fatal, the book will appear as a useful undergraduate text with enough problems, answers and hints for solutions.

The credo behind Moretti's book is summed up by the author's own words in the preface (page v): "Therefore, I naturally regard

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mathematics as a tool for solving physics problems." This statement disarms the reviewer who must admit that the text is a lively written account of fundamental notions, techniques and many applications of complex functions to problems in engineering and science. Besides the usual fare there are "delta-functions", elliptic functions, Fourier series, Laplace and Fourier transformations and a good account of conformal mapping. Many-valued functions are present, too.

Viktors Linis, University of Ottawa

Calculus and Analytic Geometry, by Melcher P. Fobes and Ruth B. Smyth, Vol. 1 and 2 (660 and 450 pages respectively). Prentice-Hall, 1963.

Texts on this topic have converged so strongly that a complete description of a new one is pointless: indications of variations from the norm and of the style should suffice.

The style can best be shown by typical quotations. The chapter on differential equations states: "Perhaps the most useful way for us to introduce the problems posed by differential equations is to see how one comes into being. You have long ago studied the reflector property of the parabola and learned its use. Good!" And later, when a differential equation has been set up: "There is a parallel with algebraic equations here. An equation like $5x^3 + 2x^2 + 7x - 1 = 9$ says that after a number $\underline{x}$ has been operated on by a lot of different processes ... it has been transformed into 9. And you are asked to undo all these operations and produce the original $\underline{x}$".

Good points are the care taken when squaring equations and in dealing with angles from one line to another; an appealing and succinct explanation of what is meant by speed; and care in calculations to a given number of decimal places (not the "use a couple of extra places, round off, and hope for the best" technique). The Riemann integral is treated in its own right, with area as an immediate application (and work as another). However, area is defined by an integral of the form $\int_a^b f(x) \cdot dx$, which is unsound for two reasons: it defines areas only of regions of rather special shapes (leaving the area of a circle, in particular, undefined); and it does not make it clear that the area of a given figure is independent of the coordinate-system which must be set up in order to form the integral.

The indefinite integral $\int f(x) \cdot dx$ is defined to be the set of all antiderivatives of $\underline{f}$. However, the authors immediately lose sight of their definition and treat the indefinite integral not as a set of functions, but as a function, or sometimes as the value of a function.

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