there is to be any condition whatever (such as continuity, etc.) connecting values in the interior with values on the boundary. The solutions are formal; for example, on page 39 we find the assertion that a function v defined by an infinite series $v=\sum A_n v_n$ (the A's being undetermined arbitrary constants and the v's being functions of r and t) satisfies a differential equation and the condition $\lim_{t\to\infty} v(r, t)=0$ "since this is true of every term."

Chapter III (16 pages) discusses briefly Bessel functions of order 0 when the argument is pure imaginary, and gives applications to problems in alternating currents. Chapters IV and V (30 pages) give definite integrals and asymptotic expansions involving Bessel functions of order 0. Chapter VI (35 pages) gives fundamental properties of Bessel functions of real orders, and finally Chapter VII (13 pages) gives applications of them.

The book contains about 150 exercises and problems, many of which consist of several parts and most of which require proofs of identities involving series or integrals. The emphasis in the book is on formulas and identities rather than on rigorous methods of obtaining them. The reviewer feels that the book would be made more useful if numbers of displayed formulas were placed before rather than after the formulas, and the space after the formulas were used to specify the ranges of the parameters for which the formulas hold. The choice of notations and printing is good except for an annoying similarity of two microscopically different Y's which denote different Bessel functions. Finally, the reviewer must report (for the attention of authors and publishers) that the binding of his copy of the book cracked badly in spite of a careful attempt to open the book without tearing it apart.

R. P. AGNEW

Advanced Analytic Geometry. By A. D. Campbell. New York, Wiley; London, Chapman and Hall, 1938. 10+310 pp.

Professor Campbell envisages a student who had a rudimentary course in plane analytic geometry in which oblique axes have not been mentioned. The algebraic equipment of the student may exceed somewhat the usual course in College Algebra of our American schools, say, in the matter of determinants, but he cannot be relied upon to be familiar with Sylvester's method of elimination (p. 93). His knowledge of derivatives hardly goes beyond the definition of the term.

This student Professor Campbell undertakes to "introduce to the analytic side of projective geometry." The author realizes that he will have to confront his student with a vast number of new ideas, both analytical and geometrical, and that the student may have difficulties in assimilating new concepts coming in such rapid succession. To meet the situation the author deliberately sets out to remove from the path of the learner every obstacle that can possibly be removed. He begins by picking out a considerable number of topics which are usually dealt with, or made use of, in analytic projective geometry, but which can be treated independently of that subject. He puts this material in the front part of the book, to form preliminaries, or an introduction, to the subject proper. Thus he discusses affine geometry, linear transformations, groups, anharmonic ratio, families of conics, etc. Then he develops each topic gradually, with plenty of examples, without sudden jumps, and with constant regard to the mathematical equipment of the learner. By the time this part of the task is done, the author has not only completed about half of his book, but has produced something that constitutes a rounded whole in itself, and well worth the while of anyone who would drop the subject right there.