hoped that the gap will be closed, at least partially, in the near future if much effort is not to be wasted in sterile theorizing over false leads. A book like the present one, devoted to fundamental physical ideas, can do much to help train the generation of scientists who will have to close this gap.

The exposition is clear with the emphasis throughout on engineering rather than on space physics. The material covered can be estimated from the list of chapter headings: History and Character of MHD, MHD Approximation, Kinematic Aspect of MHD, Magnetic Force and its Effects, Boundary and External Conditions, Linear MHD, Magnetogasdynamics.

The large number of worked examples and set problems are well chosen to increase understanding. In many cases the discussion reaches to the frontiers of present knowledge and suggests possible lines of research.

For those who wish to understand the fundamental engineering problems of MHD this is an excellent text that can be very warmly recommended.

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With erudition and skill

NONLINEAR PARTIAL DIFFERENTIAL EQUATIONS IN ENGINEERING. By W. F. Ames. 511 pp. Academic Press, New York, 1965. $16.00

by J. Gillis

For nearly three centuries now, analysts have been actively developing techniques for solving linear differential equations, and their combined efforts have indeed led to the creation of fairly well defined procedures for use on such problems. Although difficulties encountered in actual cases are still sometimes enormous, we can say that by and large well posed linear problems are soluble.

Nothing remotely resembling this has taken place for nonlinear systems. Individual cases have been solved but no coherent theory exists. And now there is a danger that attempts in this direction will be discouraged by the philosophy of "Put it on the machine!" That would be deplorable. The reviewer prefers to believe in the ultimate triumph of the human spirit over such perils and in the ability of mathematicians to assimilate machine processes into their thinking to strengthen it rather than replace it.

Meanwhile we have our present problems to solve. The author has collected almost every technique and device ever used for solving nonlinear equations. It is true that these still fall far short of a rational theory comparable with the linear case. Nevertheless many practicing mathematicians will be agreeably surprised to find that a variety of methods do in fact exist—apart from first-order perturbation or computing! For each method we are given an examination of its validity and range of applicability, examples of its use, and an account of the general ideas needed for fitting it to possible applications.

The work falls into three main divisions. The first is devoted to exact solutions by way of transformations, similarity solutions, and the like. The second part is taken up with approximate analytic methods and the last with numerical procedures.

The erudition that has gone into the compilation is matched by the skill of the presentation. Difficulties are neither glossed over nor allowed to obscure main issues. The book is a most valuable addition to mathematical literature and is strongly recommended to all who are concerned with nonlinear problems.

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An outstanding reference book

TABLE OF LAPLACE TRANSFORMS. By G. E. Roberts and H. Kaufman. 367 pp. W. B. Saunders, Philadelphia, 1966. $6.75

by Jacques E. Romain

In comparison to most readily available tables of Laplace transforms, this book features three noteworthy qualities, each of which would suffice to render it commendable: (1) It contains an exceptionally large collection of transform pairs (a good three thousand); (2) the pairs are listed in separate tables for direct transforms and for inverse transforms; (3) in both parts, the functions to be transformed