preferred orientation for joints when sealing dam foundations against leakage is involved.

Should engineering geologists be inclined to consider the authors stingy in their development of the heavier subjects such as soil mechanics, subsurface explorations, and dams and reservoirs, they are reminded that the purpose of the book as expressed in the preface is that it should meet the needs of engineering students primarily, and that "an even greater need for a book acquainting geologists employed in engineering work" continues. With the impressive array of geologists who are qualified to contribute a treatise on engineering geology, it is to be hoped that such a contribution will appear at an early date as a supplement to Schultz and Cleaves' good work.

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Mathematics for the Chemist. Mathematical analysis for chemists, physicists, and chemical engineers. G. J. Kynch. Academic Press, New York; Butterworths, London, 1955. vii + 356 pp. Illus. $4.80.

The author states a threefold purpose for the book: to meet the needs of students taking Honours Courses in English universities; to provide a textbook on the applications of mathematics to chemical problems; and to serve as a reference book of mathematical information.

The subject matter covered includes approximate solution of equations; sequences and limits; differentiation; rational, circular, exponential, logarithmic, and hyperbolic functions; elementary analytic geometry; integration; series; complex numbers; differential equations; determinants; vectors; partial differential equations. Illustrative material in the text and numerous problems at the end of each chapter are largely from the field of chemistry. It is regrettable that the author found it necessary, because of space considerations, to omit chapters on numerical integration and on probability and error theory.

With such a wide range of subject matter to cover, the book could hardly be considered as a primary source of information. However, it should serve excellently as a textbook for a refresher course in mathematical techniques, for which purpose it is highly recommended. It should be especially valuable as a handy reference book for chemists, chemical engineers, physicists, and others who apply mathematics to physicochemical problems.

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Transform Calculus with an Introduction to Complex Variables. E. J. Scott. Harper, New York, 1955. ix + 330 pp. Illus. $7.50.

This book is written strictly for the engineer, physicist, and chemist. Its purpose is to show how problems are solved by the use of transforms. Although a fair amount of theory is included, it is there only because it is necessary for expounding the technique. The preface explains that the book is an outgrowth of lectures given at the University of Illinois to advanced undergraduates, mostly from the fields of engineering, physics, and chemistry.

The first chapter of 46 pages, including five pages of problems, is devoted to complex variables, with limits and analyticity, the Cauchy theorem, Taylor and Laurent series, singularities, residues, and contour integration. The next two chapters (34 pages) discuss the Laplace transform and its inverse. The succeeding eight chapters consider, in turn, ordinary differential equations, partial differential equations, integral equations and some special functions, partial differential equations again, and finite transforms. In appendixes are given a list of references and tables of operations, of Laplace transforms, of finite sine transforms, and of finite cosine transforms. Finally there is a short index of just over a page.

The exposition rests primarily upon the discussion of special problems: deflection of beams, motion of a particle, small oscillations, vibrations, networks, heat flow, radiation, diffusion, and others. There is a brief discussion of stability in the chapter on matrix algebra. Each chapter is followed by three or four pages of problems for solution.

Mention might be made of an unfortunate phraseology on page 256, second paragraph. The first sentence reads: "Now the series in the bracket is *divergent* for all values of x, since by the Cauchy ratio test . . ."; the italics are Scott's and the dots signify an assertion. Presumably the following is meant: "Since . . . therefore by the Cauchy ratio test the series in the bracket is *divergent.*" On page 51, second line before the end of the section, there appears to be a superfluous "and."

On the whole the book seems well suited to its purpose. A considerable amount of material is presented in a readily comprehensible manner. Thus the engineering student who is interested in gaining facility with a particular tool can get some experience in using it, some feeling for the variety of possible transforms, and some appreciation for the principles upon which the method is based.

However, it appears to me at least that the utility of this particular tool is decidedly on the wane. This makes no judgment of the importance of operator theory as a branch of mathematics, which is, in any case, not the concern of the book. But with the increasing use of high-speed computing machinery, and the use is increasing at a phenomenal rate, the notion of what constitutes a "solution" to a problem is undergoing a radical change. To be able to express a function, say the solution of a differential equation, in terms of tabulated functions, even elementary functions, is not *ipso facto* advantageous. If numbers are required it may be much easier to apply standard numerical procedures to the differential equation itself than to attempt to evaluate the "closed form" expression for the solution. And if one is interested in the qualitative properties of the solution, then again one may be better off to go back to the differential equation and apply principles of the qualitative theory of differential equations. In either case the attempt to apply transform theory or any other device for obtaining the solution in some kind of closed form may turn out to be wasted effort even when it is formally successful.

One may object that not every physicist or engineer will have a UNIVAC or 701 at his fingertips, and this is certainly true. But many do and many more will have, or if not one of these, then a 650 or other more modest, but still fairly adequate, computing equipment. There is an ILLIAC at Scott's own university.

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Medical Uses of Cortisone. Including hydrocortisone and corticotropin. Francis D. W. Lukens, Ed. Blakiston–McGraw-Hill, New York, 1954. xiii + 534 pp. Illus. $7.50.

"Five years have passed since the anti-inflammatory effect of cortisone was announced and since this hormone was made available to physicians. During this period extensive investigations have been made of the action and uses of cortisone, hydrocortisone, and corticotropin. . . . Accordingly, the judgment of a group of physicians with wide experience in the use of adrenal hormone therapy has been assembled in one volume. The authors not only cite the ample literature in their several fields, but present their own conclusions as to the place of these hormones in various diseases."

The 15 chapters, representing the work of 29 contributors, are "Physiology of the adrenal cortex," "Pharmacologic aspects of adrenocortical hormones in man, and their effects in adrenal insufficiency," "Rheumatoid arthritis and