The papers generated at the session on "Engineering and Research Applications" are as follows:

Digital Simulation of Active Air Defense Systems—R. P. RICH,

Statistical Calculations in Product-Development Research—E. B. GASSER,

Progress in Computer Application to Electrical Machine and System Design—E. L. HARDER,

How Lazy Can You Get?—A. L. SAMUEL,

The Solution of Certain Problems Occurring in the Study of Fluid Flow—L. U. ALBERS,

A Dual-Use Digital Computer for Dynamic System Analysis—E. H. CLAMONS & R. D. ADAMS,

The Status of Automatic Programming for Scientific Problems—R. W. BEMER, Panel Discussion.

THOMAS H. SOUTHARD

University of California
Los Angeles, California

35[S].—VAL J. ASHBY & HENRY C. CATRON, *Tables of Nuclear Reaction Q Values*, UCRL-5419, Lawrence Radiation Laboratory, University of California, Livermore, California, 1959, 330 p., 28 cm. Price $5.00. Available from the Office of Technical Services, Department of Commerce, Washington 25, D. C.

Tables of nuclear reaction Q values have been calculated from nuclide masses, when possible, for those 42 reactions involving γ, n, p, d, t, He^3, or He^4 as either incident or product particle for about 650 target nuclides. Approximately 8000 Q values are tabulated.

AUTHORS' SUMMARY

36[S, T].—JAMES MILLER, JOHN M. GERHAUSER & F. A. MATSEN, *Quantum Chemistry Integrals and Tables*, University of Texas Press, Austin, Texas, 1959, 1224 p., 26 cm. Price $15.00.

One of the major difficulties in making quantum-mechanical calculations of the properties of atoms and molecules is the evaluation of the large number of difficult integrals which appear. This volume contains tables for the evaluation of the one- and two-center $1s$, $2s$, and $2p_\sigma$ integrals involved in energy and dipole moment calculations. No $2p\pi$ integrals are included. The tables are based on the usual Slater-type atomic orbitals. Molecular integrals are not tabulated directly, but rather auxiliary functions (A, B, G, and W in the usual Kotani notation). Some computation is therefore still necessary to arrive at a desired molecular integral, but it is within the reach of a desk calculator.

The tables were computed on an IBM 650 and reproduced by a photo-offset process to avoid introduction of errors. They appear quite clear and legible. The short textual parts of the book contain formulas as well as recommended interpolation procedures and their expected accuracy—a most welcome feature. Over 90 per cent of the pages are devoted to the difficult W functions.

The present tables naturally invite comparison with previous tables of molecular integrals, particularly those by Kotani, Amemiya, Ishiguro, and Kimura

[1], and by Preuss [2]. These both contain a wider variety of functions over a somewhat greater range of arguments but they are much briefer. Interpolation is consequently often a major difficulty in these tables, whereas interpolation is relatively easy in the present tables. This can be illustrated roughly by a comparison of the numbers of pages: 230 in Kotani, 305 in Preuss (2 vols.), and 1224 in the volume under review.

A number of research groups interested in quantum chemistry have access to their own high-speed computers, and the present tables will probably not be used much by them except to check out new codes, but a large number of workers whose computational aids are limited, for the most part, to desk calculators will be very happy to see this book. The authors and publisher are to be commended for their efforts in making these tables available.

EDWARD A. MASON

University of Maryland
College Park, Maryland

1. M. KOTANI, A. AMEMIYA, E. ISHIGURO & T. KIMURA, *Table of Molecular Integrals*, Maruzen Co., Ltd., Tokyo, 1955.
2. H. PREUSS, *Integraltafeln zur Quantenchemie*, Springer-Verlag, Berlin, vol. I, 1956, vol. II, 1957.

37[X].—L. IVAN EPSTEIN, *Nomography*, Interscience Publishers, Inc., New York, 1958, x + 134 p., 24 cm. Price $4.50.

The contents are: Ch. I, Determinants; Ch. II, Nomograms; Ch. III, Projective Transformations; Ch. IV, Matrix Multiplication; Ch. V, More Than Three Variables; Ch. VI, Empirical Nomography; Ch. VII, Kellogg's Method; Ch. VIII, Nonprojective Transformations; Bibliography and Index.

According to the preface, Chs. I, II, III, V, and VI form an elementary text, for which only a knowledge of the elements of analytical geometry is required. Omission of Ch. IV, it is said, will not cause a loss of continuity. For Chs. VII and VIII, a knowledge of calculus is expected. The book attempts, according to the author, to fulfill a need for a book which "combines the discussion and methods of construction with a thorough presentation of the underlying theory", as well as to "make the presentation mathematically rigorous insofar as this could be done on a relatively elementary level".

The book has much to recommend it. The figures are good and the prose in most instances is lucid. The idea of presenting the notion of projective transformations from the "geometrical" point of view first seems to have merit, and useful descriptive terms such as shear and stretch assist in this endeavor. The entire approach to the subject is from the "determinant" point of view, which is desirable. Furthermore, the necessary properties of determinants and matrices are included (Chs. I and IV) for the benefit of the reader unfamiliar with them. In addition, the author does not hesitate to make the natural extension of using the word nomograph as a verb.

On the other hand, there are errors in the book. These are mathematical, pedagogical, grammatical or typographical.

Among the mathematical errors may be mentioned the definition of linearly related functions (p. 93), and some of its consequences. The statement of Theorem