62[C, D].—H. SCHUBERT, R. HAUSSNER & J. ERLEBACH, *Vierstellige Tafeln und Gegentafeln für logarithmisches und trigonometrisches Rechnen in zwei Farben zusammengestellt*, (Sammlung Göschen, Band 81) Walter de Gruyter & Co., Berlin, 1960, 156 p., 15 cm. Price DM 3.60.

This book, consisting largely of four-place tables, represents a revision by Joachim Erlebach of previous editions (dating back to 1913) by Robert Haussner of Schubert's tables, which first appeared in 1898.

As the full title states, the tables are printed in two colors—logarithms in red and all other material in black (in two previous editions that the reviewer has examined, the colors were brown and blue, respectively). A total of sixteen tables are given. These include 4D common logarithms of numbers from 1 to 10^4, supplemented by 7D logarithms of primes through 97; 4D common logarithms of trigonometric functions; addition and subtraction logarithms; natural logarithms of integers to 100, supplemented by 6D tables of the first ten multiples of ln 10 and log e; squares and cubes; natural values of the trigonometric functions; values of frequently used mathematical constants, mainly to 6D; conversion tables (to 6D) from sexagesimal to radian measure; and miscellaneous useful tables, such as mortality tables, interest and annuity tables, geographical and astronomical tables, a table of physical properties of materials, and a periodic table of chemical elements.

The table of antilogarithms appearing in earlier editions has been omitted; however, inverse interpolation in the table of logarithms is so simple, because of the small differences, that this deletion is of negligible practical importance.

On the title page of the table of common logarithms appears a footnote explaining the formation of the logarithm tables of both numbers and trigonometric functions by truncation of the corresponding entries in one of the Bremiker editions of Vega's tables. In cases of doubtful rounding to 4D of the Bremiker 7D logarithms, the convention was arbitrarily adopted of making the fourth-place digit odd. The reviewer found a total of ten entries in the table of logarithms of numbers that were subjected to this rounding; of these, four are affected by rounding errors. Such slight inaccuracies could have been avoided by referring to available ten-place tables such as those of J. Peters, which were first published in Germany in 1922. These rounding errors appear also in the Schubert-Haussner tables dated 1945; only one such error, however, appears in an edition dated 1917 that the reviewer has examined.

In summary, despite minor flaws the reviewer considers this book to be an unusually extensive and valuable compilation of four-place tables. Their continued usefulness and popularity can be inferred from the numerous editions and printings of this member of the Sammlung Göschen series.

J. W. W.

63[C, L].—ANDRES ZAVROTSKY, "Construccion de una escala continua de las operaciones aritmeticas," Revista *Ciencia e Ingeniería de la Facultad de Ingeniería de la Universidad de Los Andes*, Mérida, Venezuela, December 1960, No. 7, p. 38–53.

The author studies the function $S(x, y; n) = L^{-n}(L^n x + L^n y)$, where $L^n x$ is the iterated logarithm:

$$L^n x = \log L^{n-1} x; \ L^1 x = \log x.$$

The function $S(x, y; n)$ is of interest as a generalized arithmetic operation, since the values 0 and 1 of the parameter n yield $x + y$ and $x \cdot y$, respectively.

In a previous paper [1] tables for $S(x, y; n)$ were given for $x, y = 0(1)10; n = -1(1)3$, where $L^n x$ was defined in terms of logarithms to the base 2.

In the current paper non-integer values of the parameter n are introduced by putting $L^n x = H(Gx - 1)$, where the mutually inverse operators H and G are defined by $GLx = Gx - 1$ and $H(x - 1) = LHx$.

In this paper, where $L^n x$ is defined in terms of natural logarithms, the function $S(x, y; n)$ is tabulated for $x, y = 0(1)10; n = \frac{1}{2}, \sqrt{2}$, and for $x, y = 2(1)10; n = \pi$. All tabular entries are given to 5D.

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1. A. ZAVROTSKY, "Algunas generalizaciones del concepto de campo," Acad. Ciencias Fis. Mat. y Nat., Caracas, Venezuela, *Boletín*, No. 28, 1946, 1947, 23 p. [See **RMT** 494, *MTAC*, v. 3, 1948–1949, p. 97.]

64[F].—L. MCKEE, C. NICOL & J. SELFRIDGE, "Indices and power residues for all odd primes and powers less than 2000," an unpublished mathematical table stored on magnetic tape, January 18, 1961.

The computing center at the University of Oklahoma has recently computed a table of indices and power residues for all odd primes and powers thereof less than 2000. The computations were done on a modified IBM 650 and have been stored on magnetic tape. Anyone desiring any portion of this table should write to: Director, Computing Center, University of Oklahoma, Norman, Oklahoma.

AUTHORS' SUMMARY

65[G].—RICHARD BELLMAN & MARSHALL HALL, JR., Editors, *Proceedings of Symposia in Applied Mathematics*, Vol. X, "Combinatorial Analysis," American Mathematical Society, 1960, vi + 311 p., 26 cm. Price $7.70.

This book contains the following papers, presented at a symposium on applied mathematics sponsored by the American Mathematical Society and the Office of Ordnance Research three years ago (April 1958).

Marshall Hall, Jr.	Current Studies on Combinatorial Designs
R. H. Bruck	Quadratic Extensions of Cyclic Planes
D. R. Hughes	On Homomorphisms of Projective Planes
A. A. Albert	Finite Division Algebras and Finite Planes
L. J. Paige & C. B. Tompkins	The Size of the 10 x 10 Orthogonal Latin Square Problem
R. P. Dilworth	Some Combinatorial Problems on Partially Ordered Sets
R. J. Walker	An Enumerative Technique for a Class of Combinatorial Problems