**2[F, G].**—DANIEL B. LLOYD, "The use of finite polynomial rings in the factorization of the general polynomial," *J. Res. Nat. Bur. Standards Sect.* B, v. 69, 1965, pp. 189–212.

In the Foreword to this paper the author describes the evolution of his manuscript factor tables, which extend through degree 11 for moduli 2 and 3, through degree 8 for modulus 5, and through degree 6 for modulus 7. His first set of tables, extending through degree 6 for these four moduli, were calculated at the University of Oklahoma; the present tables, designed with a more concise format, were computed on an IBM 7090 system at the University of Maryland.

Because of the size of these tables, only excerpts for moduli 2, 3, and 5 are included in this paper, and the modulus 7 table is entirely omitted. Condensation of the tabular entries was achieved by using the octal form of the detached coefficients in the modulus 2 table, and by writing successive pairs of detached coefficients in the nonary system for the modulus 3 table. On the other hand, a condensed notation is not used in the excerpt given of the modulus 5 table.

A further abridgment of the tables was accomplished by listing only monic polynomials and by omitting reciprocal polynomials (that is, those formed by writing tabulated coefficients in reverse order), since the factors of such polynomials are the reciprocals of the factors of the original polynomials.

The author describes his procedure for finding the factors of a general polynomial over the ring of the rational integers through a study of a limited set of congruent polynomials over finite rings such as those modulo 2, 3, or 5. He restates, with proofs, three theorems [1] that underlie this procedure. Use of the tables is illustrated by the factorization of three reducible polynomials of degree 5, 8, and 10, respectively.

It is interesting to note, as the author does, that previously published tables have been restricted to the listing of *irreducible* polynomials for small prime moduli.

These tables should be useful in studies of the structure of Galois fields and to the application of congruential polynomials to error-correcting codes such as those discussed by Peterson [2].

Pertinent references, in addition to the list of 20 appended to this paper, include papers by Swift [3], Watson [4], and Tausworthe [5].

J. W. W.

1. D. B. LLOYD, "Factorization of the general polynomial by means of its homomorphic congruential functions," *Amer. Math. Monthly*, v. 71, 1964, pp. 863–870.
2. W. W. PETERSON, *Error-Correction Codes*, Wiley, New York, 1961.
3. J. D. SWIFT, "Construction of Galois fields of characteristic two and irreducible polynomials," *Math. Comp.*, v. 14, 1960, pp. 99–103.
4. E. J. WATSON, "Primitive polynomials (mod 2)," *Math. Comp.*, v. 16, 1962, pp. 368–371.
5. R. C. TAUSWORTHE, "Random numbers generated by linear recurrence modulo two," *Math. Comp.*, v. 19, 1965, pp. 201–209.

**3[I].**—ALEX M. ANDREW, *Table of the Stirling Numbers of the Second Kind*, with an Introduction by H. VON FOERSTER, Tech. Rep. No. 6, Electrical Engineering Research Laboratory, Engineering Experiment Station, University of Illinois, Urbana, Illinois, December 1965, 22 + 154 pp., 28 cm. Price $2.00.

This report contains the most extensive tabulation to date of the Stirling numbers of the second kind, herein designated $S(n, k)$. The table is complete for $k \leqq n = 1(1)95$; however, for $k \leqq n = 96(1)100$, a total of 98 tabular omissions occur because of the arbitrary restriction that all entries shown be less than $10^{109}$.

These numbers occur naturally in the study of distributions, as is noted in the Introduction. Also of importance in combinatorial analysis is the sum

$$\sum_{k=1}^{n} S(n, k),$$

which is included in the present table, for $n = 1(1)95$.

The most extensive previous table of Stirling numbers of the second kind appears to have been in a manuscript of Miksa [1], for the range $k \leqq n = 1(1)50$, part of which has been reproduced in the NBS *Handbook* [2]. The sums of $S(n, k)$ over $k$ were also given by Miksa, and a more extensive tabulation, for $n = 1(1)74$, has been given by Levine and Dalton [3]. None of these references is cited in this report.

The introduction to the present table includes the definition of the Stirling numbers of both the first and second kinds and the derivation of several of their properties. For more details the table-user is referred to the well-known book of Riordan [4].

The arrangement of the tabular data and their use is also described in the Introduction.

Immediately preceding the table is a description of the computer program used in performing the underlying calculations on the ILLIAC II system. The printed output consists of juxtaposed computer words in which high-order zeros were not printed; consequently, all such spaces are to be read as zeros, as noted on p. 12 of the Introduction.

Despite this imperfection in the editing of the computer output, the rather poor reproduction of the tabular material, and the omission of a bibliography, this table is a valuable addition to the literature dealing with Stirling numbers and their applications.

J. W. W.

1. F. L. Miksa, *Table of Stirling Numbers of the Second Kind*, deposited in the UMT file. (See *MTAC*, v. 9, 1955, p. 198, RMT **85**.)
2. M. Abramowitz & I. A. Stegun, Editors, *Handbook of Mathematical Functions with Formulas, Graphs, and Mathematical Tables*, National Bureau of Standards, Applied Mathematics Series, No. 55, U. S. Government Printing Office, Washington, D. C., 1964, p. 835.
3. J. Levine & R. E. Dalton, "Minimum periods, modulo $p$, of first-order Bell exponential integers," *Math. Comp.*, v. 16, 1962, pp. 416–423.
4. J. Riordan, *An Introduction to Combinatorial Analysis*, Wiley, New York, 1958.

**4[J, L, P, X].**—V. Mangulis, *Handbook of Series for Scientists and Engineers*, Academic Press, New York, 1965, viii + 134 pp., 24 cm. Price $6.95.

Suppose one is given a function and one asks for its power series' representation or, for example, its representation in series of Bessel functions. On the other hand, suppose one is given a power series or, for example, a series involving Legendre polynomials, and one desires to identify the sum of the given series. This handbook should prove a convenient tool to answer the posed problems. As in the case of