presentation, since he is clearly suggesting an analogy between the classes of forms under composition with the earlier residue classes under multiplication modulo m—with analogous primitive roots, order of the groups, etc.

Typographical errors that could well cause difficulties are, say, $D = 850/2$, $1550/2$, etc. instead of $850\frac{1}{2}$, $1550\frac{1}{2}$, etc. on p. 359, and $m\sqrt{(D - n)}$ instead of $m\sqrt{D} - n$ on p. 364.

For inadequate, false, and/or confusing translations, try these: "unless the congruence" and "But this omission," at the top of p. 4; and "vague computations," at the bottom of p. 5. Again, the statement of the reciprocity law on p. 87: "which, taken positively," etc. is certainly ambiguous. Garbled, and quite misleading, is "That is, there is only a small number . . . " on p. 363.

Beside these many new defects, nothing is done to correct Gauss's own rare notational discrepancies, or his even rarer actual errors. Thus we find $AX^2 + 2BXY + CY^2 \cdots F$, $Ax^2 + 2Bxy + Cy^2 \cdots (F)$, and $F = ax^2 + 2bxy + cy^2$, on pp. 116, 123, and 220. On p. 363, Gauss's error stating that there are 27 determinants with classification IV,1 is still present. Actually, there are 26, and Gauss is presumably classifying 99 as IV, 1 instead of the correct IV, 2.

On the positive side, the volume is very nicely printed on good paper, and it includes many additional notes by the translator, mostly consisting of the exact titles of Gauss's many references. He also includes *Gauss's Handwritten Notes*, which are not given in the French edition [2]. These indicate the dates of Gauss's many discoveries first published in his book. Finally, there is a *List of Special Symbols* and a *Directory of Terms*, but these, again, are not as well done as would be desirable.

For all that, any translation is better than none, and no doubt this volume will introduce many students to Gauss's work. The reviewer must say that he is pleased to own a copy, even with its many defects. It can be best used if the reader also has access to a European translation, say [2], for purpose of comparison.

Anyone interested in Gauss's work would do well to examine Mathew's *Theory of Numbers* [3], since, of all textbooks in English, this is the one most in harmony with Gauss's subject matter and treatment. Also of value here is the chapter by G. J. Rieger in the *Gauss Gedenkband* [4]. Free tip to publishers: This last volume should (also) be translated into English. As luck would have it, this may well be a perfect translation, and appear in much less than 165 years.

D. S.

1. Daniel Shanks, *Solved and Unsolved Problems in Number Theory*, Vol. 1, Spartan, Washington, D. C., 1962, p. 62.
2. Ch. Fr. Gauss, *Recherches Arithmétiques*, reprinted by Blanchard, Paris, 1953.
3. G. B. Mathews, *Theory of Numbers*, reprinted by Chelsea, New York, 1961.
4. Georg Johann Rieger, "Die Zahlentheorie bei C. F. Gauss," *C. F. Gauss Gedenkband Anlässlich des 100. Todestages am 23. Februar* 1955, Teubner, Leipzig, 1957, pp. 37–77.

87[F].—Marvin Wunderlich, *Tables of Fibonacci Entry Points*, edited by Brother U. Alfred, published by The Fibonacci Association, San Jose State College, San Jose, California, January 1965, vii + 54 pp., 28 cm. Spiral bound. Price $1.00.

88[F].—Douglas Lind, Robert A. Morris & Leonard D. Shapiro, *Tables of Fibonacci Entry Points, Part Two*, edited by Brother U. Alfred, published by

The Fibonacci Association, San Jose State College, San Jose, California, September 1965, 50 pp., 28 cm. Spiral bound. Price $1.50.

The first of these two publications contains a table of the rank of apparition (here called "entry point") in the Fibonacci sequence for every prime to 48163, inclusive; the second contains a continuation to 99991, inclusive. Inverse tables are also presented, which together permit the identification of all primes less than 10^5 that correspond to ranks of apparition, $Z(p)$, less than 10^5, arranged in numerical order.

The tables in the first book were calculated on an IBM 709 at the Computation Center of the University of Colorado; those in the second, on an IBM 1620 at the Reed College Computing Center.

Previously published tables of such information are quite limited in scope. That of Kraitchik [1] gives (in different notation) the value of $(p - \epsilon)/Z(p)$ for $p < 10^3$, while that of Yarden [2] extends to all $p \leqq 1511$. Here, according to a well-known theorem of Lucas, the quantity ϵ is equivalent to the Legendre symbol $(5/p)$.

The first volume under review contains a discussion of the relationship between the entry points for the Fibonacci sequence and the Lucas sequence, and illustrations of the application of the tables to the factorization of members of both sequences. Also included in the introductory material is a brief discussion of the periods of the Fibonacci and Lucas sequences with respect to a given prime modulus. A list of four references is appended.

The list of typographical corrections appearing on p. vii of the first book should be increased by three additional corrections noted by this reviewer upon making a single comparison of the published tables with the underlying manuscript tables of Mr. Wunderlich, which were lent him by John D. Brillhart. Thus, on p. 16 the value of $Z(p)$ corresponding to $p = 26459$ should read 26458 in place of 26459, on p. 25 the value of $Z(p)$ when $p = 44071$ should read 8814 in place of 8614, and on p. 41 the argument $Z(p) = 8968$ corresponding to the entry $p = 17737$ should be replaced by 8869.

The editor has informed this reviewer that the tables in the first book were typed from the printed computer output, thus accounting for many of the typographical errors present.

On the other hand, the tables in the second book were printed directly from the computer output, so that such imperfections appear to have been obviated. Moreover, the entries in the second set of tables are arranged systematically in blocks of eight lines each; this results in a more pleasing appearance than that of the first set, where no similar separation of the entries occurs.

Finally, it should be emphasized that these two volumes represent a major contribution to the numerical information that is available on both the Fibonacci and the Lucas sequences.

J. W. W.

1. M. Kraitchik, *Recherches sur la Théorie des Nombres*, Gauthier-Villars, Paris, 1924, p. 55.

2. D. Yarden, "Luach Tsiyune-hehofa'a Besidrath Fibonatsi" [Tables of the ranks of apparition in Fibonacci's sequence], *Riveon Lematematika*, v. 1, no. 3, December 1946, p. 54. (See *MTAC*, v. 2, 1947, pp. 343–344, RMT **439**.)