and are 276, 552, 564, 660, 840 and 966. Recently M. C. Wunderlich (written communication) has shown that the 276-sequence is incomplete at 10^{44}:

$$276{:}469 = 276_{469} = 14938\ 48465\ 98254\ 84424\ 39056\ 95992\ 65141\ 29198\ 55640.$$

The tables of the title are part of the author's MSc thesis [Univ. of Calgary, 1976]. They enable the reader to discover the known behavior of all n-sequences with $n < 10^5$. If a sequence does not have a term exceeding 10^6 it is called *trivial* and a sequence having such a term before it becomes tributary is called *major.* Table A contains 2212 entries, one for each major sequence with $n < 10^5$: U if the sequence is incomplete at 10^{18}; T if the sequence terminates; P if it is periodic; – if it is tributary. Table B is of 2212 10^6 *bounds.* The first term of a sequence greater than 10^6 is listed with the major sequence leading to that bound. Table C lists the maximum, the first member of the cycle and the length of 28 major periodic sequences. Table D lists the maximum, the prime and the length of 636 main terminating sequences. All other major sequences with $n < 10^5$ are tributary; Table E lists 411 such, with the sequences to which they are tributary and the distances along each sequence before they join. An example of the use of the tables is given: 44156 does not appear in Table A, so we calculate its 10^6 bound, 44156:8 = 1163288. In Table B we find 1163288 30324, so 44156 is tributary to 30324. Table A has the entry 30324 –, so in Table E we find 30324:29 = 138:4, i.e. that 30324 was tributary to 138, its 29th term being the 4th of 138. Finally, Table A lists 138 T and Table D lists the maximum

$$17\ 99318\ 95322 = 138{:}117 = 2.61.929.1587569,$$

the length 177 and the prime 59 of the 138-sequence.

Tables F, G, H, I have similar information to that in Table A for n-sequences, $n = 10^k + 2m$, $1 \leqslant m \leqslant 500$ and $k = 9, 10, 11, 12$. This is summarized in Table 5.2 of the author's thesis:

n even	$\leqslant 10^4$	$k = 9$	$k = 10$	$k = 11$	$k = 12$
Incomplete at 10^{18}	803	332	350	357	383
Terminating	4044	161	146	139	113
Periodic	153	7	4	4	4
Total	5000	500	500	500	500

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15[9].—HAROLD M. EDWARDS, *Fermat's Last Theorem. A Genetic Introduction to Algebraic Number Theory,* Springer, New York, 1977, 410 pp. Price $19.80.

If someone opens this book expecting a report on the most recent progress on Fermat's Last Theorem, he will be rather surprised. Instead, he will find a very interesting introduction to algebraic number theory; the deepest result in the book on Fermat's Last Theorem is that it is true for regular primes. The author describes his approach as genetic. This means that we do not just receive a polished version with slick proofs. Rather, when a question is raised, we are shown through explicit calculations where the difficulties lie and why new ideas must be introduced. Concepts therefore arise naturally, in contrast to the usual approach in which it sometimes seems that some almighty power dictates what must be studied.

Using Fermat's Last Theorem as a guide, the author first leads us through the work of some of the early number theorists: Fermat, Euler, Sophie Germain, Dirichlet, and Legendre. Then we come to the main part of the book, dealing with Kummer's results. Through many explicit calculations, we are shown how Kummer was led to develop divisor theory for cyclotomic fields. This is then applied to prove Fermat's Last Theorem for regular primes. The relationship between the class number and Bernoulli numbers is then treated, via the explicit formula for $L(1, \chi)$. The book concludes with three chapters on quadratic fields and binary quadratic forms, including Gauss' theory of composition and Dirichlet's class number formula.

The prerequisites for reading the book are minimal (there is an appendix on congruences). However, the reader who knows some algebraic number theory, but only as a collection of abstract theorems, will profit the most. Those who read this book first should subsequently consult a standard treatment of algebraic number theory since the present book does not consider a general number fields or commutative algebra. For this reason the book probably should not be used by itself for a text, but would be excellent when used in conjunction with another book.

Finally, there is an excellent set of exercises, many of them interesting and difficult. Fortunately, there are answers at the end of the book.

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16[9].—HERMAN J. J. TE RIELE, *Unitary Aliquot Sequences,* Report MR 139/72, Mathematisch Centrum, Amsterdam, Sept. 1972, iv + 44 pp., 26.5 cm.

A divisor d of n is called *unitary* if $(d, n/d) = 1$; $s^*(n)$ denotes the sum of the unitary divisors of n, apart from n itself, e.g. $s^*(72) = 1 + 8 + 9 = 18$. A *unitary aliquot sequence* (UAS) is obtained by iterating the function s^*; if a UAS is periodic, its members form a *unitary t-cycle.* The first 40, 000 UAS's, were found to comprise 35701 terminating; 728 of which ultimately cycled on a unitary perfect number, 6, 60 or 90; 966 which ultimately cycled on one of six unitary amicable pairs (114, 126), (1140, 1260), . . . ; and 2605 which ultimately cycled on the triple (30, 42, 54), on the quintuple (1482, 1878, 1890, 2442, 2178) or on one of three groups of order 14.

All sequences < 40000 which are ultimately periodic are tabulated and many of them are displayed as digraphs. Only two sequences were found with maxima $> 10^9$; the UAS for 38370 and 31170 had lengths of 1154 and 879.

The existence of arbitrarily long UAS's is proved after the method of H. W.