ment or are alternative to the iterative procedure described by the author. Next, if the distributions of the measurement errors are not Gaussian, then the estimated standard errors are not unbiased estimators of the population standard errors and the confidence intervals given in the text may produce misleading inferences. No discussion of closely related work on the design of experiments to estimate functional or regression relationships by Hoel, Kiefer and Wolfowitz and others is given or referenced. Finally, prediction analysis may be easily reformulated so that it is not necessarily based on the iterative least squares method and can make use of partial knowledge about the structural parameter and error variances in a formal way. Such a reformulation is possible through Bayesian decision theory.

To sum up, this text is a contribution to the statistical design and analysis of experiments to estimate the structural parameters in functional relationship and regression surfaces of known form. The detailed techniques developed here are reasonable to use in choosing the number of observations to take on the dependent variable and in estimating the structural parameters when the values of the independent variables are chosen in advance, the independent variables are measured without error, the variance of the measurement error for the dependent variable is known, some knowledge is available about the structural parameters and the probability distribution of the measurement error is "approximately" Gaussian. When one or more of these assumptions is not true, use of the iterative least squares method needs to be justified in each particular application.

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49[9].—M. Lal & P. Gillard, *Table of Euler's Phi Function, $n < 10^5$*, Memorial University of Newfoundland, St. John's, Newfoundland, October 1968, 200 pp., paperbound. Deposited in the UMT file.

The number-theoretic function $\phi(n)$ is listed for $n = 0(1)99999$, 500 values per page. If

$$n = \prod_i p_i^{a_i},$$

then

$$\phi(n) = n \prod_i \frac{p_i - 1}{p_i}, \tag{1}$$

and the function was computed here by (1).

Earlier well-known tables of $\phi(n)$ were by J. J. Sylvester [1] (to $n = 10^3$) and J. W. L. Glaisher [2] (to $n = 10^4$). Both of these earlier authors seemed primarily interested not in $\phi(n)$, as such, but rather in $\sum\phi(n)$ and in the inverse of $\phi(n)$. In the present case, the interest seems to be in finding solutions of

$$\phi(n) = \phi(n + 1)$$

and similar functional equations.

D. H. Lehmer points out [3] that computation of a table of $\phi(n)$ usually has some indirect purpose inasmuch as any desired individual value of $\phi(n)$ can be rather easily obtained. See [3] for further discussion.

D. S.

1. J. J. SYLVESTER, "On the number of fractions contained in any Farey series . . . ," *Philos. Mag.*, v. 15, 1883, pp. 251–257.
2. J. W. L. GLAISHER, *Number-Divisor Tables*, British Association Mathematical Tables, v. 8, Cambridge, 1940, Table I.
3. D. H. LEHMER, *Guide to Tables in the Theory of Numbers*, National Acad. of Sciences, Washington, D. C., 1941, pp. 6–7.

50[9].—MORRIS NEWMAN, *Table of the Class Number $h(-p)$ for p Prime, $p \equiv 3 \pmod 4$, $101987 \leqq p \leqq 166807$*, National Bureau of Standards, 1969, 49 pages of computer output deposited in the UMT file.

This is an extension of Ordman's tables [1] previously deposited and reviewed. Those tables were computed because the undersigned wished to examine all cases of $h(-p) = 25$; this extension to $p = 166807$ was computed because (you guessed it) he wished to examine all cases of $h(-p) = 27$.

Unlike Ordman's tables, all $p = 4n + 3$ are listed consecutively here; those of the forms $8n + 3$ and $8n + 7$ are not listed separately.

We may now extend the table in our previous review of the first and last examples of a given odd class number:

h	$8n + 3$		$8n + 7$	
27	3299	103387	983	11383
29	2939	166147	887	8863
31	3251	133387	719	13687

For $p = 8n + 7$ our table here could be much extended, but not for $p = 8n + 3$, since there are known $p = 8n + 3 > 166807$ with $h(-p) = 33$.

D. S.

1. EDWARD T. ORDMAN, *Tables of the Class Number for Negative Prime Discriminants*, UMT 29, *Math. Comp.*, v. 23, 1969, p. 458.

51[9].—A. E. WESTERN & J. C. P. MILLER, *Indices and Primitive Roots*, Royal Society Mathematical Tables, Vol. 9, University Press, Cambridge, 1968, liv + 385 pp., 29 cm. Price \$18.50.

To describe fully what is in this volume would be a long task; we therefore abbreviate somewhat. Let P be prime and let

$$P - 1 = \prod_i q_i^{\alpha_i} \tag{1}$$

be the factorization of $P - 1$ into prime-powers. If ξ is the smallest positive exponent such that

$$y^\xi \equiv 1 \pmod P$$