Review

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designed for counting and perforating cards used in statistical investigations, and the second consists of a table of the value of the function

$$W\gamma = \frac{2}{\sqrt{\pi}} \int_0^r e^{-t^2} dt.$$

The book closes with a bibliography of statistical literature.

The volume is a noteworthy contribution to statistical science, meriting careful study, and would probably meet with wide appreciation if translated into English and perhaps elaborated by a fuller demonstration of the mathematical formulae employed. W. R. STRONG.

A College Algebra. By HENRY BURCHARD FINE. viii+595 pp. Boston: Ginn & Co. [1905].

After (pp. 1-5) introducing the finite cardinal numbers much in the way of G. Cantor, Prof. Fine begins a theory of what he calls (p. 6) "natural numbers," which are "signs for the cardinal numbers," and introduces negative, fractionary, irrational (by a theory most allied to Dedekind's), and complex numbers as new marks of order interpolated in the ordered system of these "natural numbers" (pp. 17, 32, 59, 70). This empty nominalism of a theory of "signs" is at bottom the same as that of Helmholtz, Kronecker, and many other amateurish philosophers among mathematicians; its weak points have been admirably ridiculed by Frege,* and Cantor † has shown that it constitutes, by its beginning with the most unessential part of the theory of number, a *ὑστερον πρότερον*. It may be remarked that Peano never stated that the *sign* 1 is a number, as he is said to have done on p. 12. Of course, he recognised that the sign 1 is a sign, but not a sign for a sign.

Thus, pp. 6-78, with their careful proofs of the commutative, associative, and distributive laws in all the cases, seem to me spoilt at the outset. Formalism in mathematics is difficult to get rid of, and it is a serious matter for students that such theories should be countenanced, as they are by many writers of text-books.

The rest of the book is devoted to algebra in a wide sense—equations, rational, irrational, and symmetrical functions, binomial theorem, inequalities, indeterminate equations of the first degree, progressions, interpolations, permutations and combinations, probabilities, infinite series (including some theorems on power-series) and products, and some theorems on continuous functions (including a proof of the fundamental theorem of algebra). This part is often happily original, and on the whole thorough, though some parts (such as the section on infinite products) are hardly so much so as is desirable.

PHILIP E. B. JOURDAIN.

A First Course in Statics. By C. S. JACKSON, M.A., and R. M. MILNE, M.A. London: J. M. Dent & Co. 1907. pp. 380, with 200 woodcuts. Price 4s. 6d.

In the discussion which took place on the Teaching of Mechanics at Johannesburg in 1905, under the leadership of Professor Perry, the

* *Die Grundlagen der Arithmetik*, Breslau, 1884, p. 107.

† *Zur Lehre vom Transfiniten*, Halle, 1890, pp. 16-19.