

BOOK REVIEWS

Elements of Statistical Reasoning. By Alan E. Treloar. New York, Wiley; London, Chapman & Hall, 1939. 11+261 pp. \$3.25.

The purpose of this book seems to be to develop fundamental statistical concepts for those who wish to reason carefully rather than to provide a compendium of statistical techniques. The author adopts the rather sensible viewpoint that it is from generous rather than meager sets of data that one grasps the general principles underlying the analysis of variation systems, and as a consequence his "original plan to include a critical analysis of small-sample techniques was finally laid aside." From this it should not be inferred that the book contains obsolete methods. On the contrary it treats such topics as chi squared and the sampling distribution of the correlation coefficient. In connection with the latter it even gives a brief discussion of the use of the t distribution for small samples from a population in which the correlation is zero.

Some other topics discussed are binomial, normal, and Poisson series, proportions (including proportions of vital statistics) and their sampling errors, contingency tables. Particular mention might be made of the discussion of the two types of error arising in making tests of significance: (A) insignificance is claimed when significance exists, (B) significance is claimed when it does not exist.

The material is clearly presented, and those who wish to obtain an introduction to modern statistical inference can study the book with profit.

PAUL R. RIDER

Tables of Sine, Cosine and Exponential Integrals. Prepared by the Federal Works Agency Work Projects Administration for the City of New York, A. N. Lowan, Technical Director. National Bureau of Standards, Washington, D. C. Vol. 1, 1940. 24+444 pp. \$2.00. Vol. 2, 1940. 37+225 pp. \$2.00.

This is the fifth and sixth volumes in the series of mathematical tables prepared by the Project for the Computation of Mathematical Tables under the auspices mentioned in the title.

The tabulations of the functions $Si(x)$, $Ci(x)$, $Ei(x)$, and $-Ei(-x)$ over the range from 0 to 2 at intervals 0.0001 in Volume 1 and from 0 to 10 at intervals of 0.001 in Volume 2 are given to nine places of decimals. These tables go a long way toward placing these functions in the class of known functions. Ordinarily, simple linear interpolation

is adequate. Even for nine place accuracy, at most second differences (as tabulated) are required either for direct or inverse interpolation by the effective methods explained and illustrated in the introduction to the two volumes. The functions tabulated are

$$Si(x) = \int_0^x \frac{\sin t}{t} dt; \quad Ci(x) = \int_\infty^x \frac{\cos t}{t} dt;$$

$$Ei(x) = \int_{-\infty}^x \frac{e^t}{t} dt; \quad -Ei(-x) = \int_x^\infty \frac{e^{-t}}{t} dt.$$

These tables supplement those recently given out by the British Association for the Advancement of Science by using a much smaller interval of the argument. Each table is preceded by a detailed explanation of the method of calculation and followed by a bibliography of tables and one of applications.

At the end of the second volume are supplementary tables of

$$Si(n\pi + h), \quad n = 1, 2, 3; \quad Ci\left(\frac{k\pi}{2} + h\right), \quad k = 1, 3, 5.$$

The Tables are reproduced by the photo-offset process from type-written sheets. There are fifty entries on each page, arranged in groups of five, followed by a leaded interval. The result is a clear, easily read page. The actual work was done under the supervision of six subdirectors by a staff of some 250 computers. Such use has been made of the checks and controls described in the introduction that a very high degree of accuracy has been attained.

VIRGIL SNYDER