And again, if in N trials, the score x_i is obtained n_i times, $i = 1 \ldots n$ he states (on p. 43)

$$`E(x) = \lim_{N\to\infty} \left[\sum_{i=1}^{n} n_i x_i/N\right]'$$

(allowing for what must be a misprint).

Whilst such statements as these are to some extent mitigated by introductory discussion, it must be said that the arguments used are often not only loose but such as seriously and unnecessarily to confuse the student.

There is another class of loose argument also used which is due to the low level of mathematics assumed in the reader, namely 'suggestive' or heuristic mathematical proofs and these are relatively venial and in any case unavoidable. Indeed, they contribute to the reader's understanding if he is under no illusions as to their nature. In this book, however, they are often so indirect, intricate and tedious that they are of doubtful utility. Further, they use such principles as, for instance, the uniqueness theorem for moments, without even an indication that this requires proof, and so beg the question in a hidden fashion. This sort of treatment can only unnerve the intelligent reader who has a limited knowledge of mathematics and lead him to mistrust his own judgement.

The book lacks an index, which is a serious shortcoming when important principles and techniques are introduced in an *ad hoc* manner, as and when they are needed for a particular application (as for instance, criteria such as bias, efficiency, etc. of estimators or the principles of testing statistical hypotheses).

The concepts of sufficiency, maximum likelihood estimation or power of a test do not seem to be mentioned.

D. E. BARTON

Concise Tables for Statisticians. By K. C. S. PILLAI. Manila: The Statistical Center, University of the Philippines. 1957. Pp. 50. \$1.50 plus postage.

This is a book of eighteen short tables on 33 octavo pages preceded by 14 pages of introductory matter. The tables fall into three groups. The first consists of seven basic tables: the normal density function and its integral, the percentage points (95 and 99 %) of the χ^2, t, F and r (the sample correlation for $\rho = 0$) and a table of random numbers. The next group consists of eight tables of analogous functions based on normal range (rather than sample S.D.). The last group contains two tables of percentage points of the largest root (table 16) and the sum of roots (table 17) of the matrix generalization of the variance ratio for multivariate analysis. In the language of Foster and Rees, table 16 consists of the percentage points (95 and 99 %) of the generalized β distribution $I_x(k; p, q)$ for $k = 2, 3, 4, 5$ at a very much coarser set of intervals than Foster's and Foster & Rees's tables. Table 17 is an approximation based on fitting Pearson curves.

The introduction, in so far as the first two groups of curves are concerned, consists of little more than specification of the function tabled, but the multivariate tables are more fully introduced with worked examples of application. No indication is directly given of the method of computation used (except for table 17 as noted) nor of what methods of interpolation are appropriate. References are given, however, to the publications in which each table (or part of it) appeared.

D. E. BARTON

Functions of Real and Complex Variables. By W. F. OSGOOD. New York: Chelsea Publishing Company. 1958. Pp. 407 + 262. \$4.95.

This book—a reprint, in one volume, of two books published in 1936—deals with those branches of the theory of functions which are normally taught in a B.Sc. Special course in mathematics, and with some others, such as Fourier series, Fourier integrals, existence of solutions of differential equations, analytic continuation, Picard's theorem, and the more advanced theory of conformal mapping.

The quality of the book is, in my opinion, fairly indicated by that of the following excerpt, in which the terms 'cluster point' and 'point of condensation' mean 'limit point', and 'upper limit' means 'exact upper bound':

'THE WEIERSTRASS–BOLZANO THEOREM. *An infinite linear point set which lies in a finite interval, has at least one cluster point.*'

Consider the points x of the line, such that, if x' be any one of them, only a finite number of points of the given set (in particular, none whatever) lie to the left of x'. This point set is bounded from above. It has, therefore, an upper limit, G. This point, G, is a point of condensation. For otherwise it would be an isolated point of the set, or not belong to the set at all. In either case, there would be a point x to the right of G.

T. ESTERMANN