ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume. Cross references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

290. Walter Leighton: *Proper continued fractions.*

This paper presents a generalization of the regular continued fraction which includes the "continued cotangent" algorithm of Lehmer as a special case. It is shown that corresponding to any sequence of positive integers $a_1, a_2, a_3, \cdots$ there exists a unique *proper* continued fraction expansion of the form $b_0+K(a_n/b_n)$ for each real number y_0. Here b_0 is an integer and $b_1, b_2, b_3, \cdots$ are positive integers with $b_n \geqq a_n$. The generalizations of a number of theorems pertaining to the regular case are obtained, including a generalization of the famous Lagrange theorem on the representation of a quadratic surd. (Received June 3, 1939.)

291. A. N. Lowan: *On the problem of wave-motion for the wedge of an angle.*

The object of this paper is the integration of the nonhomogeneous differential equation of wave-motion for the two-dimensional domain bounded by the half planes $\theta=0$ and $\theta=\theta_0$. In Part I the displacement is prescribed over both boundary planes. In Part II the displacement is prescribed over one of the boundary planes while the gradient of the displacement is prescribed over the other. Finally in Part III the gradient of the displacement is prescribed over both boundary planes. The solution of the systems satisfied by the Laplace transform are obtained by means of Green's theorem in terms of the appropriate Green's functions for the operator ∇^2+k^2. In Parts I and III the required Green's functions are obtained from the integral representations of arbitrary functions in terms of the Green's functions in the theory of heat conduction for the same domain. The Green's function in Part II is obtained from that of Part I by a reflection of the given domain on the line $\theta=\theta_0$. The transition from the Laplace transform to the functions themselves offers no difficulty. (Received June 16, 1939.)

292. A. N. Lowan and Jack Laderman: *On the distribution of errors in nth tabular differences.*

The object of this paper is the determination of the distribution of errors in the nth tabular differences of a mathematical table under the assumption of a rectangular distribution of the errors in the entries of the table, the entries being given to k decimal places. This problem is solved with the aid of the powerful theorem which states that the characteristic function of the distribution of a sum of random variables is equal to the product of the characteristic functions of the distributions of the individual