Werk

Titel: Numerische und graphische Methoden (s. a. Analysis).

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nomial with real coefficients, the range on either side of the mode is limited only by the root of the polynomial lying nearest to the mode in that direction and that the polynomial is always negative within the range. A uniform procedure, employing semi-invariants, for determining the constants in the Pearson curves in graduation problems, involving the location of the zeros of the quadratic in the denominator in the corresponding differential equation is suggested. *C. C. Craig.*

Hemmingsen, Axel M.: A statistical analysis of the differences in body size of related species. Dansk naturh. Foren., Vid. Meddel. **98**, 125—160 (1934).

The author concludes inductively on the basis of fair samples from many species, that the body lengths or other linear measures of related species are distributed in skew frequency curves whereas their logarithms are normally distributed. This conclusion is acceptable on a priori grounds and supports from a new angle the assumption of common ancestry, when adequate allowance is made for the effect of climate upon body size. The article suggests methods not in common practice among biologists but having little theoretical mathematical novelty. There are some 75 references to the literature, chiefly cited as sources for the biometric data used.

Albert A. Bennett (Providence).

Haldane, J. B. S.: Some problems of mathematical biology. J. Math. Physics, Massachusetts Inst. Technol. **14**, 125—136 (1935).

Stackelberg, Heinrich von: Die grundlegenden Hypothesen der neueren Preisanalyse. Arch. math. Wirtsch.- u. Sozialforschg **1**, 84—103 (1935).

Numerische und graphische Methoden.

Cauer, W.: Elektrische Methoden und Maschinen zur Auflösung von Systemen linearer Gleichungen. Elektr. Nachr.-Techn. **12**, 147—157 (1935).

This artical describes several recent electrical devices for the solution of systems of linear equations and allied problems. In particular, detailed descriptions are given of (1) Mallock's machine (see this Zbl. **6**, 364) (based on electro-magnetic induction) for solving a system of linear equations, (2) the author's electrical eliminator (based on ohmic resistance) for reducing a system of linear equations to a readily solvable system whose matrix has all its elements below the diagonal equal to zero, and (3) the automatic Wheatstone bridge developed at Göttingen (equipped with automatic searching telephone relays and a two stage amplifier) which can be used as an electrical dividing machine. — A discussion is given of the mathematical and technical difficulties and possibilities of the first two machines together with their application to problems allied to linear equations, as for example, the calculation of inner products and the computation of the roots of the characteristic equation of a given matrix. These machines are capable of between 3 and 4 figure accuracy which is the order of accuracy of the technical data which determine the coefficients of the system. Rather than greater accuracy, there is a need for machines of greater capacity. *D. H. Lehmer* (Bethlehem, Pa.).

Fischer, Alexander: Beiträge zur Nomographie. II. Z. angew. Math. Mech. **14**, 117—121 (1934).

Der Verf. ergänzt seine in der Z. angew. Math. Mech. **1924** erschienene Arbeit durch Bemerkungen und Aufgaben. 1. Zur Theorie der Dreieck- und Sechsecktafeln: Die allgemeinen Dreiecksnetze (für beliebige schiefwinklige Dreiecke) werden durch Erörterung zweier hübscher elementargeometrischer Aufgaben fundiert. 2. Elementare Herleitung einer Multiplikationstafel mit kreisförmiger Ableselinie. 3. Logarithmische Netztafel für die quadratische Gleichung. 4. Die Auflösung von Gleichungen mit logarithmischen Gliedern: Leitertafeln für Gleichungen der Form $ax \lg x + bx + c = 0$ und für Gleichungspaare ähnlicher Gestalt. Dazu viele ergänzende Literaturangaben.

Rehbock (Bonn).