16[G H].—ÉMILE DURAND, *Solutions Numériques des Équations Algébriques*, Masson et Cie, Editeurs, Paris, 1961, viii + 445 p., 24.5 cm. Price 90 NF.

The second volume of Durand's work includes the following chapters: General Properties of Matrices; Discrete Methods for Linear Systems; Iterative Methods for Linear Systems; and Inversion of Matrices.

In these chapters, the author essentially considers problems related to the evaluation of small or medium systems of algebraic equations (iterative methods in the case of two variables).

The rest of the volume is devoted to methods for the determination of characteristic values of matrices by reduction to diagonal form, to triangular form, and to tridiagonal form. Other topics include deflation, solution of non-linear systems, and iterative methods applied to vectors.

The work includes numerous computational examples, as well as contributions of the school of Toulouse to the development and improvement of numerical methods.

The general impression that one obtains from the book is that it contains a series of methods rather than a unified theory. Particularly, the theory of errors is limited to consideration of common-sense methods and certain rules.

The book does not contain a bibliographic index, but only references in the course of the text and a brief list at the end.

The presentation is very clear, and the volume should have bright prospects as an instruction manual.

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17[I].—HERBERT E. SALZER, GENEVIEVE M. KIMBRO, & MARJORY M. THORN, *Tables for Complex Hyperosculatory Interpolation over a Cartesian Grid*, General Dynamics/Astronautics, San Diego, 1962, 71 p., 27.4 cm.

As stated in the introduction, these tables are designed to facilitate interpolation for analytic functions tabulated over a Cartesian grid in the complex plane, when the values of the first and second derivatives are known or readily obtainable at the tabular points. This "hyperosculatory" interpolation formula is thus a special case of the Hermite interpolation formula, as the authors note explicitly.

The hyperosculatory formula, with remainder term, is written in the form

$$f(z_0 + Ph) = \sum_j \{A_j^{(n)}(P)f(z_j) + hB_j^{(n)}(P)f'(z_j) + h^2C_j^{(n)}(P)f''(z_j)\} + h^{3n}[\Pi_j(P-j)]^3\lambda f^{(3n)}(\alpha)/(3n)!$$

Here, $z = z_0 + Ph$ lies within or upon the side of a square Cartesian grid of length h in the complex plane. The fixed point z_0 constitutes the lower left corner of that square, and $z_j = z_0 + jh$, where j is a Gaussian integer. Furthermore, $P = p + iq$, where $0 \leqq p \leqq 1$, $0 \leqq q \leqq 1$. The polynomial coefficients $A_j^{(n)}(P)$, $B_j^{(n)}(P)$, and $C_j^{(n)}(P)$, are of degree $3n - 1$ in P. Explicit expressions for them are listed for