

## BOOK REVIEW

ELEMENTARY MATRIX ALGEBRA, by FRANZ E. HOHN. The Macmillan Co., New York, 1958, xi+305 pp., 6×9½ in. Price \$7.50.

The methods of matrix algebra furnish a convenient and practical scheme for the rapid calculation, by desk computer or high-speed digital computer, of many quantities of interest in crystallography, of both the classical and modern varieties. The excellent papers of W. L. Bond (1946, 1948), and H. T. Evans, Jr. (1948) amply demonstrate the simplicity and power of matrix methods in this regard.

The book under review was developed for students of the junior, senior, and graduate levels "whose interests have included such diverse subjects as aeronautical engineering, agricultural economics, chemistry, econometrics, education, electrical engineering, high speed computation, mechanical engineering, metallurgy, physics, psychology, sociology, statistics, and pure mathematics." It does not treat crystallographic topics explicitly, but should be very useful to crystallographers, among others, as an introductory text or as a reference book.

A good idea of the topics treated in the book is gained from the chapter and appendix headings which are:

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| Chapter  | I. Introduction to Matrix Algebra (25 pp.)             |
|          | II. Determinants (39 pp.)                              |
|          | III. The Inverse of a Matrix (23 pp.)                  |
|          | IV. Rank and Equivalence (23 pp.)                      |
|          | V. Linear Equations and Linear Dependence (39 pp.)     |
|          | VI. Vector Spaces and Linear Transformations (40 pp.)  |
|          | VII. Unitary and Orthogonal Transformations (18 pp.)   |
|          | VIII. The Characteristic Equation of a Matrix (26 pp.) |
|          | IX. Bilinear, Quadratic, and Hermitian Forms (37 pp.)  |
| Appendix | I. The Notations $\Sigma$ and $\Pi$ (11 pp.)           |
|          | II. The Algebra of Complex Numbers (6 pp.)             |
|          | III. The General Concept of Isomorphism (3 pp.)        |

A very useful feature of this book is a selective bibliography of seven pages listing books on vector spaces, matrices, determinants, and their applications. A large number of exercises is included. The physical makeup of the book is excellent; in particular, the choice of type face amply meets the involved requirements for readable mathematical text.

### REFERENCES

- BOND, W. L. (1946), Computation of interfacial angles, interzonal angles, and clinographic projection by matrix methods: *Am. Mineral.*, **31**, 31.  
BOND, W. L. (1948), Transformation of axes: *Am. Mineral.*, **33**, 703.  
EVANS, H. T., JR. (1948), Relations among crystallographic elements: *Am. Mineral.*, **33**, 60.

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