literature citations. Crystal and ligand field theory, π-bonded compounds, and similar post-1951 topics are, of course, lacking, but the editors have succeeded to some extent in remedying this by providing brief commentaries in footnotes. An entire chapter is devoted to Chernyaev's *trans* effect and its implications; the final chapter relates the complex-forming tendencies of the elements to their position in the periodic table.

The book is liberally provided with structural diagrams, equations, reaction schemes, tables, and figures, and the extensive annotated bibliography, mostly to Russian sources, is a model of organization. A short supplementary bibliography of review articles, compiled by the editors, contains one reference to a paper published in 1961. The author and subject indexes seem inadequate, if one considers the tremendous amount of material covered. The number of misspellings and typographical errors (at least 75) is far in excess of those permissible for a book of this length; almost all could have been prevented by more thorough proofreading.

This modest-sized volume is refreshingly different, and despite its shortcomings, it complements the growing Western literature on coordination compounds. I unreservedly recommend it to instructors and students alike.

GEORGE B. KAUFFMAN
Department of Chemistry,
Fresno State College

Gymnosperms

Gnetum. Botanical Monograph No. 1. P. Maheshwari and Vimla Vasil. Council of Scientific and Industrial Research, New Delhi, India, 1961. xiv + 142 pp. 40s.

This monograph on an unusual genus of gymnosperms is the first in a series on higher plants which will be published by the Indian Council of Agricultural Research; the council has already issued six volumes on lower plants. India has become a leader in some aspects of botanical science, and it behooves us to accord proper recognition to the accomplishments of Indian workers, as they have done to advances in the West.

The authors have attempted to bring together all known information on the genus *Gnetum*. The most valuable contributions are the data dealing with development of the male and female apparatus and of the embryo following fertilization. This monograph brings together the reports of recent years, but, more important, it also includes previously unpublished descriptions and illustrations from at least three theses by students of Maheshwari, a world-famous authority on angiosperm embryogeny. The photographs and line drawings are sharply reproduced on high-quality paper, and the strong binding will ensure the book's long life. The extensive bibliography and the carefully documented references in the text make this a most desirable reference for classes studying gymnosperms.

The only previous book to contain detailed information on the morphology of *Gnetum* was H. H. W. Pearson's *Gnetales* (1929), which treated also *Welwitschia* and *Ephedra*. Despite their marked individuality, these three unusual genera share certain reproductive and vegetative features that point to a common ancestry. Since the new volume contains significant new data, it is not repetitive of the earlier work.

The authors state that *Gnetum* has been investigated more thoroughly than any other genus of gymnosperms. However, although some 30 species are known, anatomical studies have been almost confined to *Gnetum africanum*, *G. gnemon*, and *G. ula*, presumably because of their greater availability. It is unfortunate that no data more recent than 1930 were available on American species; there is now herbarium material to confirm distribution in Panama, Colombia, and Peru.

The entire report on roots is contained in one paragraph, and the discussion of leaves occupies one and one-half pages of text. Only petiolar transections and stomal peels are illustrated. With so much recent emphasis on number and morphology of chromosomes, it is remarkable that only four persons reported counts, and that among these the haploid numbers vary from 11 and 12 to between 20 and 25.

The last ten pages, "Relationships," report little new information, because, as the authors concede, "*Gnetum* remains a phylogenetic puzzle." This listing of contents is not intended to reflect on either the book or its authors, but rather to emphasize how little we really know. Not until we have gathered additional information is the phylogenetic puzzle likely to be solved.

ROBERT J. RODIN
Biological Sciences Department,
California State Polytechnic College

Linderstrom-Lang Memorial

Selected Papers. Kaj Linderstrøm-Lang. Danish Science Press, Copenhagen; Academic Press, New York, 1962. 584 pp. Illus. $17.

This book, intended as a tribute and a memorial to the late K. U. Linderstrøm-Lang, is a selection of his scientific papers covering the period 1923 to 1957. These were chosen by an international committee on the basis of ". . . their particularly lasting value or because they have been published in less accessible scientific journals." This fact alone should earn the book a place on many library shelves.

The collection is devoted entirely to the works of Linderstrøm-Lang, with the exception of a very brief foreword. No eulogy for this truly great scientist has been included. Indeed, none is required. The scope and significance of the 25 representative papers are all that is necessary to demonstrate his greatness.

The selection committee has made an excellent choice. The papers are arranged chronologically beginning with "On the salting-out effect," published in 1923, followed by the well-known "On the ionization of proteins," published in 1924. The Lane Medical Lectures on Proteins and Enzymes, delivered at Stanford in 1952, comprise one-fifth of the book. Another long article considers the theoretical treatment of the Cartesian diver microrespirometer. All of the papers are written in English except one, "Über den Antagonismus von Zink und Bläusaure bei deren Einwirkung auf die Peptidaseaktivität."

Included in this collection are four of Linderstrøm-Lang's "special" publications. The first, "New Year 1957," which appeared in *Politiken*, is a plea for the continued hard work so necessary to achieve peace. It is an expression of uncertainty about the future and consternation at the present ways of man. The second of these, "Man, science, and industrial development," was an address to the European Brewery Convention in 1957. Here, Linderstrøm-Lang discusses the role of the scientist in industrial development and the necessity of industry to promote scientific freedom. The third is a sharp but witty analysis, "Taxi chauffeurs in New York," and the last is the classic treatise entitled "The thermodynamic activity of the male housefly," coauthored with F. Fizz-Loony.

Thus, the remarkable scientific

achievements, the concern for and understanding of mankind, and the subtle sense of humor, all of which characterized Kaj Linderstrøm-Lang, are aptly demonstrated in this collection. It is truly a fitting tribute and memorial.

JAMES F. RIORDAN
Biophysics Research Laboratory, Harvard Medical School, and Peter Bent Brigham Hospital, Boston, Massachusetts

Statistics

Elements of Mathematical Statistics. J. F. Ratcliffe. Oxford University Press, New York, 1962. x + 202 pp. Illus. $4.

If the title of a book is *Elements of Mathematical Statistics*, and if it is published by Oxford University Press in 1962, then one expects to find in it a reasonable mathematical development of a certain amount of statistical inference. However, this book does *not* contain a mathematical development of the subject. It is true that a few theorems are stated. Some of them concern notions that the author has not previously defined or discussed; this is particularly true with respect to theorems II, III, and IV on page 21; theorem I on page 22, and theorem IV on page 78. Theorem II on page 23 is true, but it says absolutely nothing. Three theorems are not quite true as stated: II on page 72, III on page 74, and the theorem on page 157. The author seems to be oblivious to the fact that one should define a symbol or a technical term before using it; yet, without giving any previous definitions, he uses the following symbols and terms: *skew*, ${}^nP_r$, ${}^nC_r$, *independence, expectation, standard deviation, best* (with respect to estimates), and $\bar{x}$. He does state some definitions, but several of them might be called incorrect. For example, on page 79, an unbiased estimate of a parameter is essentially defined as a statistic for which the parameter is a median.

In my opinion this book is not suitable for use as a textbook, either for classroom courses or for individual study. Even some of the applications are doubtful. In addition, the quality of the expository writing exhibited in this book is very poor.

HOWARD G. TUCKER
Department of Mathematics, University of California, Riverside

New Books

Mathematics, Physical Sciences, and Engineering

Adsorption and Collective Paramagnetism. Pierce W. Selwood, Academic Press, New York, 1962. 198 pp. Illus. $7.50.

Advanced Engineering Mathematics. Erwin Kreyszig. Wiley, New York, 1962. 873 pp. Illus. $10.50.

Applied Cryogenic Engineering. R. W. Vance and W. M. Duke, Eds. Wiley, New York, 1962. 528 pp. Illus. $17.50.

Astronautics in the Sixties. Kenneth W. Gatland. Wiley, New York, 1962. 388 pp. Illus. $8.25.

Basic Problems in Geotectonics. V. V. Beloussov. Translated from the Russian second edition (1954) by Paul T. Broneer. John C. Maxwell, Ed. McGraw-Hill, New York, 1962, 832 pp. Illus. $14.

Chemical Reaction Engineering. An introduction to the design of chemical reactors. Octave Levenspiel. Wiley, New York, 1962. 516 pp. Illus. $10.75.

Contributions to the Theory of Estimation from Grouped and Partially Grouped Samples. Gunnar Kulldorff. Wiley, New York, 1962. 144 pp. Illus. $5.

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Eléments de Thermodynamique Statistique. A. Pacault. Masson, Paris, 1963. 373 pp. Illus. NF. 46.

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Ferroelectric Crystals. Franco Jona and G. Shirane. Pergamon, London; Macmillan, New York, 1962. 412 pp. Illus. $15.

Fourier Analysis on Groups. Walter Rudin. Interscience (Wiley), New York, 1962. 294 pp. Illus. $9.50.

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Geodesy. G. Bomford. Oxford Univ. Press, New York, ed. 2, 1962. 577 pp. Illus. $14.40.

Introduction to Electron Beam Technology. Robert Bakish, Ed. Wiley, New York, 1962. 554 pp. Illus. $14.

Introduction to Mathematical Statistics. Paul G. Hoel. Wiley, New York, ed. 3, 1962. 439 pp. Illus. $6.95.

An Introduction to Phase-Integral Methods. J. Heading. Methuen, London; Wiley, New York, 1962. 168 pp. Illus. $4.50.

The Laplace Transform. An introduction. Earl D. Rainville. Macmillan, New York, 1963. 112 pp. Illus. Paper, $2.50.

L'Energie Thermonucléaire. Claude Étiévant. Presses Universitaires de France, Paris, 1962. 126 pp. Illus.

Matrix Iterative Analysis. Richard S. Varga. Prentice-Hall, Englewood Cliffs, N.J., 1962. 335 pp. Illus. Trade ed., $10; text ed., $7.50.

Matrix Methods for Engineering. Louis A. Pipes. Prentice-Hall, Englewood Cliffs, N.J., 1963. 443 pp. Illus. Trade ed., $13; text ed., $9.75.

Minerals in the Infrared. A critical bibliography. R. P. J. Lyon. Stanford Research Inst., Menlo Park, Calif., 1962. 88 pp. Illus. Paper.

Open Hearth Furnace Design. A. S. Lychagin. Translated from the Russian edition (Moscow, 1958) by L. C. Ronson. Butterworth, Washington, D.C., 1962. 256 pp. Illus. $18.50.

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Physics. Experiments and laboratory procedures. Compiled by Richard G. Levine. Schur, New York, 1962. 246 pp. Illus. Paper, $2.50.

Plasma Hydromagnetics. Papers presented at the sixth annual Lockheed symposium, Palo Alto, Calif. (1961). Daniel Bershader. Stanford Univ. Press, Stanford, Calif., 1962. 156 pp. Illus. $4.50.

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Projective and Euclidean Geometry. W. T. Fishback. Wiley, New York, 1962. 254 pp. Illus. $7.50.

Pyridine and Its Derivatives. pt. 3. Erwin Klingsberg, Ed. Interscience (Wiley), New York, 1962. 924 pp. Illus. $65.

Qualitative Anion-Cation Analysis. An interpretative laboratory text of semimicro procedure in basic college chemistry. Emil J. Margolis. Wiley, New York, 1962. 310 pp. Illus. $5.

Quantum Mechanics. vol. 1, *Old Quantum Theory.* Sin-Itiro Tomonaga. Translated from the Japanese by Koshiba. North-Holland, Amsterdam; Interscience (Wiley), New York, 1962. 329 pp. Illus. $12.50.

Radio Wave Propagation and the Ionosphere. Ya. L. Al'pert. Translated from the Russian edition (Moscow, 1960). Consultants Bureau, New York, 1963. 404 pp. Illus. $22.50.

Reactions of Organic Compounds. A textbook for the advanced student. Reynold C. Fuson. Wiley, New York, 1962. 773 pp. Illus. $12.95.

Reactor Handbook. vol. 3, pt. A, *Physics.* H. Soodak, Ed. Interscience (Wiley), New York, ed. 2, 1962. 326 pp. Illus. $10.75.

Renewal Theory. D. R. Cox. Methuen, London; Wiley, New York, 1962. 151 pp. Illus. $4.50.

Space Logistics Engineering. Kenneth Brown and Lawrence D. Ely, Eds. Wiley, New York, 1962. 635 pp. Illus. $16.95.

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X-Ray Optics. The diffraction of x-rays by finite and imperfect crystals. A. J. C. Wilson. Methuen, London; Wiley, New York, ed. 2, 1962. 154 pp. Illus. $4.50.