

to hemopoietic-cell transplantation in humans. The concluding chapter presents examples and problems of bone-marrow transplantation in man, and emphasizes that many failures occurred because insufficient animal data were available, particularly with regard to the number of injected cells, donor-host compatibility, and radiation exposure. The authors believe that the wealth of experimental data and techniques now available, together with the acquisition of additional information on subhuman primates, should provide a more rational clinical basis for successful transplantation of hemopoietic cells and for control of secondary disease.

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The Use of Geostatistics

Scientific Method in Analysis of Sediments. JOHN C. GRIFFITHS. McGraw-Hill, New York, 1967. xii + 508 pp., illus. \$17.50. International Series in the Earth and Planetary Sciences.

This attractively produced volume presents a synthesis of the experience of one of the foremost pioneers in the application of statistical methods to sedimentology. The rise of mathematical procedures in geology has been painfully slow, and even though Charles Lyell made a fundamentally important contribution over a hundred years ago, geologists have been tardy in perceiving the need for a quantitative grounding for their science.

A large proportion of the geologists of the world have entered the subject as a result of following the course of least mathematical resistance, and this is clearly not a state of affairs conducive to the spread of quantitative procedures within the field. Notwithstanding the general condition, an increasing interest in geostatistics is developing, and an *ad hoc* committee for an Association of Mathematical Geologists has now been formed. One of the reasons for the catalyzation of activity on this front is clearly to be found in the growing availability of electronic computers. Griffiths's book, with its wedding of statistics and descriptive sedimentology, is therefore a timely arrival.

Although the treatment of geostatistics forms the main part of the text, considerable coverage is given analyti-

cal procedures in sedimentology, and there is a discussion of sampling techniques in sedimentary rocks; the book contains a wealth of information on various aspects of the analysis of sediments, and there is much sound advice on the planning of analyses. The complexity of the statistics used is about that reached in an introductory course in applied statistics.

The quantitative approach to the expression of the properties of sedimentary rocks is reviewed and the subject of the measurement of grain size and grain shape receives a well-worked-through treatment. The measurement of grain fabric and grain packing is treated informatively, as are also modal analysis and mineral composition. Mostly, the treatment is in terms of the methods of univariate statistical analysis; these methods are dealt with in an authoritative and instructive manner. The analysis of two or more variables is presented in some haste in only the final two chapters, and this part of the book tends to fall short of the sound development of the main part of the volume. In a few places the text would have profited from a little more editorial attention. This volume will be a very useful accessory to a course on sedimentologic techniques and may be recommended as a university text.

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Vertebrate Zoology

Structure and Habit in Vertebrate Evolution. G. S. CARTER. University of Washington Press, Seattle, 1967. xvi + 520 pp., illus. \$9.50.

This is the American edition of a volume in the British "Biology Series," issued at first hand by Sidgwick and Jackson, London, and edited successively by Julian Huxley, Munro Fox, and Phillips Dales. Previous volumes by Carter are *A General Zoology of the Invertebrates* (1940) and *Animal Evolution* (1951). Books in this series have been always competent and sometimes excellent texts on biological specialties. The author intends the present volume not to be "a full text-book of vertebrate zoology" but "to be read in parallel with one of the usual text-books." Questions will arise as to the usefulness of so detailed and lengthy a tome as merely supplementary reading.

The author is concerned not with ra-

dations within major groups of vertebrates but with the origins and basic adaptations of each major group, mostly the classes of Vertebrata. In each case paleontology, morphology, physiology, and overall ecology are excellently reviewed on the basis of the technical literature. As this book depends heavily on A. S. Romer's *Vertebrate Paleontology* and is, indeed, suggested as a supplement to that work, it is unfortunate that only the 1945 edition was available to Carter. Romer's 1966 edition is greatly modified and makes some of Carter's book obsolete from the start. Carter's work can nevertheless be recommended for students of the characteristics of major grades in vertebrate evolution.

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Books Received

Advances in Enzyme Regulation. Vol. 5. Proceedings of the 5th symposium on Regulation of Enzyme Activity and Synthesis in Normal and Neoplastic Tissues, Indianapolis, Ind., October 1966. George Weber and Catherine E. Forrester Weber, Eds. Pergamon, New York, 1967. xiv + 469 pp., illus. \$20.

Advances in Heat Transfer. Vol. 4. James P. Hartnett and Thomas F. Irvine, Jr., Eds. Academic Press, New York, 1967. xii + 458 pp., illus. \$19.

Analytical Chemistry of Cobalt. I. V. Pyatnitskii. Translated from the Russian edition (Moscow, 1965) by N. Kaner. D. Slutzkin, Ed. Israel Program for Scientific Translations, Jerusalem, 1966; Davey, New York, 1967. xvi + 224 pp., illus. \$14. Analytical Chemistry of Elements Series.

Behavior-Genetic Analysis. Jerry Hirsch, Ed. McGraw-Hill, New York, 1967. xviii + 552 pp., illus. \$12.50. McGraw-Hill Series in Psychology.

Bertrand Russell: Philosopher of the Century. Essays in His Honour. Ralph Schoenman, Ed. Atlantic Monthly Press (Little, Brown), Boston, 1967. iv + 326 pp. \$7.95.

Biomedical Aspects of the Laser. The Introduction of Laser Applications into Biology and Medicine. Leon Goldman. Springer-Verlag, New York, 1967. viii + 232 pp., illus. \$11.40.

The Birds. Roger Tory Peterson and the Editors of Time-Life Books. Time, New York, 1967. 128 pp., illus. \$3.95. Young Readers Edition, Life Nature Library.

Catalytic Hydrogenation over Platinum Metals. Paul N. Rylander. Academic Press, New York, 1967. xiv + 550 pp., illus. \$22.50.

Computer Simulation of Competitive Market Response. Arnold E. Amstutz.

M.I.T. Press, Cambridge, Mass., 1967. xiv + 457 pp., illus. \$17.95.

The Correspondence of Henry Oldenburg. Vol. 4, 1667-1668. Edited and translated by A. Rupert Hall and Marie Boas Hall. University of Wisconsin Press, Madison, 1967. xxvi + 601 pp., illus. \$12.50.

Current Topics in Developmental Biology. Vol. 2. A. A. Moscona and Alberto Monroy, Eds. Academic Press, New York, 1967. xiv + 298 pp., illus. \$14.

Cyclic Sedimentation. P. McL. D. Duff, A. Hallam, and E. K. Walton. Elsevier, New York, 1967. xii + 280 pp., illus. \$23.50. Developments in Sedimentology, No. 10.

Dérivés Hydraziniques des Glucides. Laszlo Mester. Hermann, Paris, 1967. 179 pp., illus. Paper, 54 F. Chimie des Substances Naturelles, No. 9.

The Electromagnetic Spectrum and Sound. 50 Modern Experiments. C. H. Bailey. Pergamon, New York, 1967. x + 135 pp., illus. Cloth, \$4.50; paper, \$3.

Electronic Properties of Materials. A Guide to the Literature. Vol. 2, in 2 parts. D. L. Grigsby, D. H. Johnson, M. Neuberger, and S. J. Welles, Eds. Plenum Press, New York, 1967. Part 1, xiv + 1065 pp.; part 2, x + 734 pp. \$150.

Electrophysiological Methods in Biological Research. Jan Bureš, Mojmir, Petráň, and Jozef Zachar. Translated from the Czechoslovakian edition (Prague, 1962) by Petr Hahn. Academia, Prague; Academic Press, New York, ed. 3, 1967. 824 pp., illus. \$28.

Elsevier's Dictionary of the Printing and Allied Industries. In English, French, German, and Dutch. Compiled by F. J. M. Wijnekus. Elsevier, New York, 1967. x + 583 pp. \$32.50.

A Handbook for the Scientific and Technical Secretary. George Freedman. Barnes and Noble, New York, 1967. xiv + 300 pp., illus. Cloth, \$5.75; paper, \$3.95.

The Human Revolution. Ashley Montagu. Bantam, New York, 1967. xii + 180 pp., illus. Paper, 95¢. Reprint of the 1965 edition.

Immunity, Cancer, and Chemotherapy. Basic Relationships on the Cellular Level. Enrico Mihich, Ed. Academic Press, New York, 1967. xxiv + 390 pp., illus. \$18.

The Indian Zoological Memoirs on Indian Animal Types. Vol. 7, Salmacis (The Indian Sea-Urchin). R. Gopala Aiyar. Revised by P. N. Ganapati. Zoological Society of India, Calcutta, ed. 2, 1966. xiv + 76 pp., illus. Rs. 6.

The Indian Zoological Memoirs on Indian Animal Types. Vol. 9, Scolopendra (The Indian Centipede). B. S. Jangi. Zoological Society of India, Calcutta, 1966. xiv + 114 pp., illus. Rs. 6.

Latent Image. The Discovery of Photography. Beaumont Newhall. Doubleday, Garden City, N.Y., 1967. xii + 148 pp., illus. \$4.95.

Lectures on Calculus. Kenneth O. May, Ed. Holden-Day, San Francisco, 1967. viii + 180 pp., illus. Paper, \$6.50. Mathesis Series.

Linear Algebra. W. H. Greub. Springer-Verlag, New York, ed. 3, 1967. xiv + 434 pp., illus. \$9.80. Grundlehren der mathematischen Wissenschaften, vol. 97.

Lymphatics and Lymph Circulation. Physiology and Pathology. István Rusznyák,

Mihály Földi, and György Szabó. L. Youlten, Ed. Pergamon, New York, ed. 2, 1967. 971 pp., illus. \$25.

Macromolecular Synthesis and Growth. Ronald A. Malt, Ed. Little, Brown, Boston, 1967. xxiii + 251 pp., illus. \$10. New England Journal of Medicine Medical Progress Series.

Masers and Lasers. Physics and Design. J. S. Thorp. Macmillan, London; St. Martin's, New York, 1967. viii + 312 pp., illus. \$8.50.

Mathematics and Computers in Soviet Economic Planning. John P. Hardt, Marvin Hoffenberg, Norman Kaplan, and Herbert S. Levine, Eds. Yale University Press, New Haven, Conn., 1967. xxii + 298 pp., illus. \$7.50. Yale Russian and East European Studies, No. 5.

Mathematics for the Liberal Arts Student. Fred Richman, Carol Walker, and Robert J. Wisner. Brooks/Cole (Wadsworth), Belmont, Calif., 1967. x + 190 pp., illus. \$6.95.

Maximum Principles in Differential Equations. Murray H. Protter and Hans F. Weinberger. Prentice-Hall, Englewood Cliffs, N.J., 1967. x + 261 pp., illus. \$8. Partial Differential Equations Series.

Microbiology. Bernard D. Davis, Renato Dulbecco, Herman N. Eisen, Harold S. Ginsberg, and W. Barry Wood, Jr. Hoerber (Harper and Row), New York, 1967. xii + 1464 pp., illus. \$23.50.

Microwave Communications. Diogenes J. Angelakos and Thomas E. Everhart. McGraw-Hill, New York, 1968. xvii + 248 pp., illus. \$11.50. McGraw-Hill Electrical and Electronic Engineering Series.

Modern Mathematics. An Elementary Approach. Ruric E. Wheeler. Brooks/Cole (Wadsworth), Belmont, Calif., 1967. x + 438 pp., illus. \$8.95. Contemporary Undergraduate Mathematics Series.

Multilinear Algebra. W. H. Greub. Springer-Verlag, New York, 1967. x + 225 pp. \$8. Grundlehren der mathematischen Wissenschaften, vol. 136.

A New Look at Elementary School Science. Science Curriculum Improvement Study. Robert Karplus and Herbert D. Thier. Rand McNally, Chicago, 1967. x + 204 pp., illus. Paper, \$3.50. New Trends in Curriculum and Instruction.

Organosulfur Chemistry. Reviews of Current Research. Proceedings of a symposium sponsored by The Sulphur Institute, Groningen, Netherlands, May 1966. Matthijs J. Janssen, Ed. Interscience (Wiley), New York, 1967. xii + 351 pp., illus. \$18.

Palliative Care of the Cancer Patient. Robert C. Hickey, Ed. Little, Brown, Boston, 1967. xviii + 621 pp., illus. \$23.50.

Party Systems and Voter Alignments. Cross-National Perspectives. Seymour M. Lipset and Stein Rokkan, Eds. Free Press, New York; Collier-Macmillan, London, 1967. xviii + 554 pp., illus. \$9.95. International Yearbook of Political Behavior Research, vol. 7.

Patterns of Survival. Lorus J. Milne and Margery Milne. Illustrations by Stanley Wyatt. Prentice-Hall, Englewood Cliffs, N.J., 1967. xii + 339 pp. \$7.95.

Practical Hints on Absorption Spectrometry (Ultra-Violet and Visible). J. R. Edisbury. Plenum, New York, 1967. xii + 266 pp., illus. \$9.75.

The Principles of Current Methods for the Study of Electrochemical Reactions. Boris B. Damaskin. Translated from the Russian edition (Moscow, 1965) and edited by Gleb Mamantov. McGraw-Hill, New York, 1967. xvi + 112 pp., illus. Paper, \$4.95.

Les Prix Nobel en 1966. Nobel Foundation. Norstedt, Stockholm; Elsevier, New York, 1967. 182 pp., illus. \$15.50.

Progress in Brain Research. Vol. 26, Developmental Neurology. C. G. Bernhard and J. P. Schade, Eds. Elsevier, New York, 1967. x + 258 pp., illus. \$16.

Psychoanalysis Observed. Geoffrey Gorer, Anthony Storr, John Wren-Lewis, Peter Lomas. Edited with an introduction by Charles Rycroft. Coward-McCann, New York, 1967. 165 pp.

The Psychoanalytic Study of the Child. Vol. 22. Ruth S. Eissler, Anna Freud, Heinz Hartmann, and Marianne Kris, Eds. International Universities Press, New York, 1967. 425 pp. \$12.

Random Matrices and the Statistical Theory of Energy Levels. M. L. Mehta. Academic Press, New York, 1967. x + 259 pp., illus. \$12.

Reflections on Latin American Development. Roberto de Oliveira Campos. Published for the Institute of Latin American Studies by the University of Texas Press, Austin, 1967. xiv + 168 pp. \$5. Latin American Monographs, No. 8.

Slow-Wave Propagation in Plasma Waveguides. A. W. Trivelpiece. San Francisco Press, 255 12th Street, San Francisco, 1967. x + 165 pp., illus. \$5.50.

SNOBOL 3 Primer. An Introduction to the Computer Programming Language. Allen Forte. M.I.T. Press, Cambridge, Mass., 1967. xii + 107 pp., illus. Paper, \$3.95.

Social Stratification. The Forms and Functions of Inequality. Melvin M. Tumin. Prentice-Hall, Englewood Cliffs, N.J., 1967. x + 118 pp. Cloth, \$4.50; paper, \$1.75. Foundations of Modern Sociology.

Soil Testing and Plant Analysis. Part 1, Soil Testing. Proceedings of a symposium, Columbus, Ohio, November 1965. Soil Science Society of America, Madison, Wis., 1967. xi + 157 pp., illus. Paper, \$2. SSSA Special Publication, No. 2.

Statistical Decision Theory in Adaptive Control Systems. Yoshikazu Sawaragi, Yoshifumi Sunahara, and Takayoshi Nakamizo. Academic Press, New York, 1967. xiv + 216 pp., illus. \$12. Mathematics in Science and Engineering, vol. 39.

The Stereochemistry of Macromolecules. Vol. 2. A. D. Ketley, Ed. Dekker, New York, 1967. xiv + 383 pp., illus. \$18.75.

Steroid Hormone Analysis. Vol. 1. Hans Carstensen, Ed. Dekker, New York, 1967. xiv + 493 pp., illus. \$23.50.

Stochastic Approximation and Non-linear Regression. Arthur E. Albert and Leland A. Gardner, Jr. M.I.T. Press, Cambridge, Mass., 1967. xvi + 204 pp., illus. \$16.50. Research Monograph No. 42.

The Thermal Properties of Transition-Metal Ammine Complexes. Wesley Wm. Wendlandt and James P. Smith. Elsevier, New York, 1967. x + 235 pp., illus. \$17.

Topics in Several Particle Dynamics. K. M. Watson and J. Nuttall, with a chapter by J. S. R. Chisholm. Holden-Day, San Francisco, 1967. x + 121 pp., illus. \$7.50.