

## Salt Formations

**Paleozoic Salt Bearing Formations of the World.** MICHAEL A. ZHARKOV. A. L. Yan-shin, Ed. Springer-Verlag, New York, 1984. viii, 427 pp., illus. \$62. Translated from the Russian edition (Moscow, 1974) by R. E. Sorkina, R. V. Fursenko, and T. I. Vasilieva.

The avowed purpose of this book is to provide a compilation, analysis, and classification of the various types of salt formations as an aid to the understanding of salt accumulation through the Paleozoic portion of geological history. The volume is the second in a pair of books concerning Paleozoic salt-bearing deposits throughout the world. The first volume (*History of Paleozoic Salt Accumulation*, English edition 1981) introduced the various stages of evaporite accumulation and discussed the paleogeography, paleoclimatology, areal extent, volume, and stratigraphic position of the major evaporite deposits. The second discusses evaporite deposits in each of the geological periods of the Paleozoic and in the Precambrian. The volume most successfully fulfills its goal in its good systematic review of almost all known pre-Mesozoic evaporite deposits.

The scope of the book is broad, and the volume of literature that has been combed for data is prodigious. Particularly significant are the references to Russian and Polish publications, which are generally not well known in the West. The bibliography updates that of the earlier volume and includes some of the evaporite literature of the 1980's.

The coverage of European and Asian evaporite basin stratigraphy and the associated types and volumes of salt deposits is very detailed, as is that of non-Eurasian deposits, although some key references have been missed for a few non-Eurasian deposits, such as the Elk Point-Williston Basin complex and the Delaware Basin (North America).

In the past 10 to 15 years many papers have been written showing that, although broad concepts concerning the stratigraphy of salts are important, analysis of internal detail and of facies is both possible and necessary. Some presentations of stratigraphic sequences in the book do not include mention of sedimentary facies, except as mineral or rock names. Those features of sedimentary facies formed in evaporite basins that indicate depositional variation within any stratigraphic level are significant, for the variation not only controls the evaporites but also signifies important features in associated non-evaporitic depos-

its. Such features are not discussed in the volume. Despite this failing, Zharkov's new volume contains so many data brought together for the first time that it provides a vital resource for interested geologists.

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## Sensory Physiology

**Somatosensory Mechanisms.** CURT VON EULER, OVE FRANZÉN, ULF LINDBLOM, and DAVID OTTOSON, Eds. Plenum, New York, 1984. xiv, 396 pp., illus. \$55. Wenner-Gren Center International Symposium Series, vol. 41. From a symposium, Stockholm, June 1983.

The warm introduction by David Ottoson to this volume of papers from a meeting tells us that the meeting was initially planned by Yngve Zotterman, who, with E. D. Adrian, pioneered recording from single somatosensory elements over 50 years ago. Zotterman's death before the meeting took place imparts a "festschrift" character to a selection of topics and speakers that clearly emphasizes the marriage of electrophysiology and psychophysics—the central theme and propelling force in Zotterman's career.

There is essentially nothing here that has not been published in more complete and useful form elsewhere, but the initial chapter provides a wonderfully insightful account by Vernon Mountcastle of changing trends, new discoveries, and exciting future prospects. Painted with a broad brush, it serves as an excellent backdrop for understanding the value of cortical mapping studies of different parts of the body in various species, the multiplicity of representations and the segregation of modalities, and the environmental influences capable of altering topographic features. The section on dysfunction is especially interesting in its elaboration of ideas and observations consistent with the concept of plasticity of receptive field size and properties in the context of hyperpathia, neuralgia, hyperalgesia, and paresthesia. The most valuable feature of the volume is a summary of the excellent work deriving from Swedish laboratories, which have con-

sistently led the field in relating sensory and neurophysiological responses in human subjects. There is scant consideration of the controversial aspects of interpretation of psychophysical data or of the difficulty of quantifying feature-extraction properties of central neurons, but on the whole the excitement generated by highly effective new technology is nicely presented in reasonably up-to-date fashion. The inclusion of papers on metabolic and electrophysiological mapping studies of primate cortex and the emphasis on neurophysiology in humans should attract many clinicians.

Robust activity in the field of pain research reveals many new findings and approaches. Not unexpectedly, some of the problems that have emerged are not easily resolved. There are interesting discussions of the failure of systemic morphine to elicit analgesia and the discrepancies between nociceptor sensitization and hyperalgesia, an evaluation of a specific labeled-line pathway in the context of hyperpathias, and a plea for the importance of nociceptive-specific neurons in thalamic and cortical representation despite the apparent dominance of multireceptive neurons in most studies of central neuronal mechanisms.

The offset reproduction of various typefaces, the numerous spelling and stylistic misfortunes, and the hard-cover paper binding do not contribute aesthetic delight or notable economy to the book, but perhaps this is part of the price that must be paid for rapid publication.

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## Vitamin A and Its Derivatives

**The Retinoids.** MICHAEL B. SPORN, ANITA B. ROBERTS, and DEWITT S. GOODMAN, Eds. Academic Press, New York, 1984. In two volumes. Vol. 1, xiv, 424 pp., illus. \$46. Vol. 2, xiv, 446 pp., illus. \$48.

These two volumes are a timely and comprehensive treatise on the chemical and biological functions of vitamin A and its natural and synthetic derivatives (retinoids). Following an introductory chapter, 15 dense, encyclopedic chapters cover in detail the chemistry, biochemistry, biology, and clinical applications of these compounds. The two volumes in toto convey the strong message that re-

tinoids are important molecules with multiple functions.

The synthesis of new derivatives of vitamin A and the testing of their functions in biological systems have increased our understanding of the native compound and moved consideration of the retinoids from their nutritional aspects to their molecular ones. Although the importance of vitamin A and its molecular interaction in vision have been appreciated for some time, the metabolic interactions of vitamin A, the serum and cellular retinol-binding proteins, and the pleiotropic biochemical effects of retinoids have only recently been appreciated. All these topics are covered extremely well in these two volumes.

Retinoids have been used in the past decade to probe the process of differentiation and maturation. What has become clear is that these compounds affect biological responses in a wide variety of normal and malignant cells, both in vitro and in vivo, and may in certain instances regulate oncogene expression. These themes are presented and discussed well in chapters by Roberts and Sporn and Moon and Itri. Molecular biology has developed rapidly in the past year, and I suspect that if the chapter concerning differentiation and maturation were being written today it would include a large section on the regulation of genes and growth factors. The retinoids may function to regulate the immune systems, and the book contains a current, balanced review of the subject by Dennert.

The nutritional role and the clinical aspects of vitamin A are fairly discussed. The role of vitamin A in classical nutrition is dealt with in a highly readable chapter by Underwood that is perhaps the best review of this topic that I have read.

The preclinical and clinical toxicology of selected retinoids is fairly discussed by Kamm, Ashenfelter, and Ehmann, although the important teratogenic effects of retinoids in humans, which were recognized largely in the past year, are necessarily not covered. A chapter on retinoids and cancer by Moon and Itri succeeds admirably in the very difficult task of integrating animal and clinical studies. The authors provide a firm base for understanding a subject in which there has been an explosion of interest in the past year or two that has generated a large number of human trials. The potentials and pitfalls of the subject are well considered.

The major impact that the retinoids have had on a whole series of serious, largely untreatable dermatological conditions is concisely presented in a 17-page

chapter by Peak. Three pairs of before-and-after photographs of three different serious cutaneous diseases dramatically show why almost all dermatologists consider the use of retinoids to be the most important advance in the treatment of skin diseases in the 20th century. Many investigators suspect that retinoids will come to play important roles in the treatment of other diseases, including cancer and rheumatological diseases.

*The Retinoids* will likely be viewed as a classic for decades. It will certainly serve as an important reference for years to come.

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## Books Received

**Adsorption and the Gibbs Surface Excess.** D. K. Chattoraj and K. S. Birdi. Plenum, New York, 1984. xiv, 471 pp., illus. \$59.50.

**Advances in Veterinary Science and Comparative Medicine.** Charles E. Cornelius and Charles F. Simpson, Eds. Vol. 28, Research on Nonhuman Primates. Andrew G. Hendrickx, Ed. Academic Press, Orlando, Fla., 1984. xiv, 385 pp., illus. \$69.

**Alkenes in Organic Synthesis.** Herbert F. Schuster and Gary M. Coppola. Wiley-Interscience, New York, 1984. xviii, 358 pp., illus. \$47.50.

**Amenable Locally Compact Groups.** Jean-Paul Pier. Wiley-Interscience, New York, 1984. xii, 418 pp. \$44.95. Pure and Applied Mathematics.

**Analysis and Design of Energy Systems.** B. K. Hodge. Prentice-Hall, Englewood Cliffs, N.J., 1985. xii, 308 pp., illus. \$29.95. Prentice-Hall Series in Energy.

**Analytical Profiles of Drug Substances.** Vol. 13. Klaus Florey, Ed. Academic Press, Orlando, Fla., 1984. x, 771 pp., illus. \$46.50.

**Annals of Theoretical Psychology.** Vol. 2. Joseph R. Royce and Leendert P. Mos, Eds. Plenum, New York, 1984. xiv, 375 pp. \$45.

**Annual Review of Nuclear and Particle Science.** Vol. 34. J. D. Jackson, Harry E. Gove, and Roy F. Schwitters, Eds. Annual Reviews, Palo Alto, Calif., 1984. xii, 592 pp., illus. \$30.

**Anticipated and Abnormal Plant Transients in Light Water Reactors.** Pamela L. Lassahn, Debu Majumdar, and George F. Brockett, Eds. Plenum, New York, 1984. Two volumes. xxviii, 1438 pp., illus. \$225. From a meeting, Jackson, Wyo., Sept. 1983.

**Applied Environmental Geochemistry.** Iain Thornton, Ed. Academic Press, Orlando, Fla., 1983. xiv, 501 pp., illus. \$70. Academic Press Geology Series.

**Arid Australia.** H. G. Cogger and E. E. Cameron, Eds. Australian Museum, Sydney, 1984. 338 pp., illus. Paper, A\$11. Based on a symposium, Sydney, Sept. 1977.

**Astrophysics Today.** A. G. W. Cameron, Ed. American Institute of Physics, New York, 1984. xii, 337 pp., illus. Paper, \$25. Readings from *Physics Today*, No. 1.

**Basement Membranes and Cell Movement.** Pitman, London, 1984 (U.S. distributor, CIBA Pharmaceutical Company, Newark, N.J.). x, 285 pp., illus. \$35. Ciba Foundation symposium 108. From a symposium, London, Jan. 1984.

**Bioactive Microbial Products 2.** Development and Production. L. J. Nisbet and D. J. Winstanley, Eds. Published for the Society for General Microbiology by Academic Press, Orlando, Fla., 1983. x, 142 pp., illus. \$25. Special Publications of the Society for General Microbiology, 10. From a symposium, Uxbridge and Glaxo, Greenford, U.K., July 1982.

**Biochemistry of the Essential Ultratrace Elements.** Earl Frieden, Ed. Plenum, New York, 1984. xviii, 426 pp. \$59.50. Biochemistry of the Elements, vol. 3.

**Biology of Knowledge.** The Evolutionary Basis of Reason. Rupert Riedel, with Robert Kaspar. Wiley-Interscience, New York, 1984. x, 252 pp., illus. \$47.95. Translated from the German edition (Hamburg, 1981) by Paul Foulkes.

**The Biology of the Actinomycetes.** M. Goodfellow,

M. Mordarski, and S. T. Williams, Eds. Academic Press, Orlando, Fla., 1984. x, 544 pp., illus. \$95.

**Blue Light Effects in Biological Systems.** H. Senger, Ed. Springer-Verlag, New York, 1984. xvi, 538 pp., illus. \$55.50. Proceedings in Life Sciences. From a conference, Marburg, Germany, July 1984.

**Butterflies of South America.** Bernard D'Abbrera. Hill House, Ferny Creek, Victoria, Australia, 1984 (U.S. distributor, BioQuip, Santa Monica, Calif.). 246 pp., illus. Paper, \$19.50.

**Cassava.** New Potential for a Neglected Crop. James H. Cock. Westview, Boulder, Colo., 1985. xvi, 192 pp., illus. \$25. IADS Development-Oriented Literature Series.

**Cereal Production.** E. J. Gallagher, Ed. Published in association with the Royal Dublin Society by Butterworths, Boston, 1984. x, 354 pp., illus. \$89.95. From a summer school, 1982.

**Cerebral Cortex.** Vol. 2, Functional Properties of Cortical Cells. Edward G. Jones and Alan Peters, Eds. Plenum, New York, 1984. xvi, 340 pp., illus. \$42.50.

**Chemical Toxicology and Clinical Chemistry of Metals.** Stanley S. Brown and John Savory, Eds. Academic Press, Orlando, Fla., 1983. xiv, 416 pp., illus. \$35. From a conference, Montreal, July 1983.

**La Classification Ecologique des Milieux Forestiers de la Partie Ouest des Cantons d'Hébertcourt et de Roquemare, Abitibi, Québec.** Yves Bergeron et al. Laboratoire d'Ecologie Forestière, Université Laval, Québec, 1983. x, 169 pp., illus. Paper, C\$15. Etudes Ecologiques, 9.

**Clinical Biophysics.** Michael Anbar, Robert A. Spangler, and Peter Scott, Eds. Warren H. Green, St. Louis, 1985. xx, 747 pp., illus. \$75.

**Coffee and Health.** Brian MacMahon and Takashi Sugimura, Eds. Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y., 1984. xii, 259 pp., illus. \$47.50. Banbury Report 17. From a conference, Cold Spring Harbor, N.Y., Oct. 1983.

**Cognitive Development in Atypical Children.** Progress in Cognitive Development Research. Linda S. Siegel and Frederick J. Morrison, Eds. Springer-Verlag, New York, 1985. xiv, 184 pp. \$26. Springer Series in Cognitive Development.

**Comprehensive Virology.** Vol. 19, Viral Cytopathology: Cellular Macromolecular Synthesis and Cytocidal Viruses. Heinz Fraenkel-Conrat and Robert R. Wagner, Eds. Plenum, New York, 1984. xx, 536 pp., illus. \$69.50.

**Computer Culture.** The Scientific, Intellectual, and Social Impact of the Computer. Heinz R. Pagels, Ed. New York Academy of Sciences, New York, 1984. x, 288 pp., illus. Paper, \$66. Annals of the New York of Sciences, vol. 426. From a symposium, New York, April 1983.

**Computer Studies of Phase Transitions and Critical Phenomena.** Ole G. Mouritsen. Springer-Verlag, New York, 1984. xii, 200 pp., illus. \$24.50. Springer Series in Computational Physics.

**Constitutive Relations for Soils.** G. Gudehus, F. Darve, and I. Vardoulakis, Eds. Balkema, Rotterdam, 1984. xii, 497 pp., illus. From a workshop, Grenoble, France, Sept. 1982.

**Constructibility.** Keith J. Devlin. Springer-Verlag, New York, 1984. xii, 425 pp. \$58. Perspectives in Mathematical Logic.

**Contrasts.** Soviet and American Thinkers Discuss the Future. Wiktor Osiatyński. Macmillan, New York, 1984. xx, 219 pp. + plates. \$19.95. Translated from the Polish by Ewa Woydyo.

**The Cosmic Web.** Scientific Field Models and Literary Strategies in the Twentieth Century. N. Katherine Hayles. Cornell University Press, Ithaca, N.Y., 1984. 209 pp. \$19.95.

**Cost/Benefit and Predictive Value of Radioimmunoassay.** A. Albertini, R. P. Ekins, and R. S. Galen, Eds. Elsevier, New York, 1984. viii, 269 pp., illus. \$62. Symposia of the Giovanni Lorenzini Foundation, vol. 18. From a symposium, Milan, Italy, May 1984.

**Developing Expert CAD Systems.** Vivienne Begg. Unipub, New York, 1984. 118 pp. \$19.95.

**Disease, Metabolism and Reproduction in the Toxic Response to Drugs and Other Chemicals.** P. L. Chambers, P. Preziosi, and C. M. Chambers, Eds. Springer-Verlag, New York, 1984. xiv, 535 pp., illus. Paper, \$50. Archives of Toxicology, Supplement 7. From a meeting, Rome, March 1983.

**Dr. Webb of Colorado Springs.** Helen Clapesattle. Colorado Associated University Press, Boulder, 1984. xii, 507 pp., illus. \$19.50.

**Dynamic Soil-Structure Interaction.** D. E. Beskos, Theodore Krauthammer, and I. Vardoulakis, Eds. Balkema, Rotterdam, 1984. viii, 176 pp., illus. \$30. From a symposium, Minneapolis, Sept. 1984.

**Economic Microbiology.** Vol. 8, Food Microbiology. A. H. Rose, Ed. Academic Press, Orlando, Fla., 1983. xiv, 298 pp. \$54.

**Energy after the Eighties.** A Cooperative Study by Countries of the International Energy Agency. G. Tosato et al., Eds. Elsevier, New York, 1984. xxii, 298 pp., illus. \$75. Energy Research, vol. 6.

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