

stronger for invertebrate than for vertebrate neurosecretory systems. One of the most impressive aspects of this volume is that it shows that anyone studying peptide or amine secretion will find it valuable to consider results from any of the other systems. This conference and its memoirs are a major contribution which will help to further communication between groups working on these related vertebrate (and, one might hope, invertebrate) endocrine systems.

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Plasmodium and Its Hosts

The Primate Malarias. G. ROBERT COATNEY, WILLIAM E. COLLINS, MCWILSON WARREN, and PETER G. CONTACOS. National Institutes of Health, Bethesda, Md., 1971 (available from the Superintendent of Documents, Washington, D.C.). xii, 366 pp., illus. \$7.

This long-awaited monograph on malaria parasites exceeds all expectations in the brevity and clarity of the text and the quality of the 27 colored plates. The authors went to great lengths to achieve uniformity in the preparation of the latter; all but two were painted by a single artist under their direct supervision from material stained by exactly the same technique, and all the illustrations are at the same magnification. The treatment of the subject is fundamentally zoological, but the malariological background of the authors is reflected in the concentration on the practical aspects of identification of species. Thus, most attention is paid to the morphology of the parasites in Giemsa-stained blood films. Nevertheless the diagnostic importance of the sporogonic stages is emphasized, and a unique feature is the inclusion of 18 plates, which trace sporogony from the earliest oocyst, in a series of figures, to the sporozoites. Less attention is paid to the details of exoerythrocytic schizogony (nine plates of photomicrographs in black and white illustrate the details) or the first stages of sporogony. Each species is described in a standard way: history and synonymy; developmental cycles of the parasite in the blood, mosquito, and liver respectively; the course of the infection; vertebrate and invertebrate hosts and immunity.

The first chapter comprises a highly original account of the evolution of the

primate species of *Plasmodium*. It is suggested that the simplest explanation of the peculiar zoogeography of these parasites and their vertebrate hosts is that their cradle was sited in the jungles of southern Asia, where florid speciation of both parasite and host arose; then at a more recent date, perhaps in the early Pleistocene, an early hominid invaded this region from the west or north. He shared the same sylvatic environment and soon became infected with the indigenous parasites. Such events occur, albeit rarely, today, as the authors vividly describe from their own observations on the contraction of *P. knowlesi* malaria by an American surveyor who had spent a few days in the forest in Malaya. The zoonotic potential thus still exists. Speculations on the return of infected hominids to Africa and the late introduction of malaria into early man and the great apes in that continent seem less plausible, but no better theory has really been advanced. More certain, perhaps, is the theory of the introduction, only a few hundred years ago, of *P. malariae* and *P. vivax* into the New World, where these parasites spread not only to the human inhabitants but also to the monkeys, where they became adapted as *P. brasilianum* and *P. simium* respectively. A later chapter describes in more detail the present-day ecological relationship in the three continents regarding the transmission of primate malaria by sylvatic species of anopheline mosquitoes. The last introductory chapter is notable for a clear exposition of the nature of relapses and the various theories that have been suggested to explain the mechanism, but the complete picture is still missing.

Twenty-four species of *Plasmodium* are described in separate chapters which range in length from 30 pages (on *P. cynomolgi*, the most widely used experimental model) to little more than a single page (on *P. girardi* and *P. lemuris*, rare parasites of lemurs). The four species found in man receive considerable attention, and invaluable information is summarized here on the behavior of different strains, particularly of *P. vivax* and *P. falciparum*. Although, in general, clinical details are omitted from this book, symptomatology of these human infections is discussed in reference to types of fever and duration of the disease, largely on the basis of the authors' own observations on sporozoite-induced infections in patients requiring malaria therapy or, more recently, in prison volunteers. Many ex-

amples are taken from the literature also to illustrate special points of interest. The descriptions of the malaria parasites of Asian nonhuman primates are particularly good, because they embody the profound studies of the four authors, in the field, in experimental vertebrate and invertebrate hosts, and finally in man; incidentally, five of the species were discovered and named by one or more of the writers.

The book itself reveals throughout an intimate knowledge of the organisms. It is written in such excellent English that the nonspecialist can read it with interest and could quickly become familiar with the subject. The 73 figures and 41 tables relate chiefly to the course of parasitaemia and of sporogony, and show at a glance these important aspects of malaria in the primate and in the mosquito.

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Scattering Techniques

Theory of Thermal Neutron Scattering. The Use of Neutrons for the Investigation of Condensed Matter. W. MARSHALL and S. W. LOVESEY. Oxford University Press, New York, 1971. xxiv, 600 pp., illus. \$38.50. International Series of Monographs on Physics.

This is a very timely and long-awaited book on thermal neutron scattering. Several reviews and monographs have appeared in recent years treating various aspects of neutron scattering for the study of basic properties of condensed matter. However, this is the first comprehensive theoretical treatment of thermal neutron scattering to cover all important applications of the technique.

As the authors state at the outset, thermal neutrons have a fortunate energy-wavelength relation (for example, 20 meV at 2 Å) which makes them ideal tools for the study of fundamental excitations in crystals, such as phonons and magnons. In addition, the normal cross-section for hydrogen permits wide applications to chemical and biological studies. Many strong sources of thermal neutrons are now available, and the neutron-scattering technique is now considered one of the basic tools in scientific research.

In this book, Marshall and Lovesey have succeeded in giving a systematic and lucid theoretical treatment of neu-

tron scattering from a unified viewpoint. They set out by defining the scattering law in terms of correlation functions among nucleus and spins in the target. This approach is extended and applied to cover all branches of neutron scattering: namely, nuclear and magnetic Bragg scattering, phonons and spin waves, liquids and gases, diffuse and defect scattering.

The main subjects of the book (10 chapters out of 15) are elastic and inelastic scattering from periodic crystalline solids. After an excellent introduction of the elementary theory, the nuclear Bragg and phonon scattering is discussed in the next three chapters. A particularly informative treatment, with useful tables, is given of the multiphonon cross section. The next seven chapters are devoted to magnetic scattering, the authors' main scientific interest. Here we find many detailed and vivid discussions on magnetic interactions in solids. Experimentalists like myself will find many stimulating suggestions for future experiments. Experimental results are also quoted in some detail; these include spin-density measurements on nickel and iron, spin configurations in chromium, and spin-wave dispersion relations for several metals and compounds. Polarization analysis of the neutron is also treated in detail, with a discussion of experimental results.

The last five chapters each discuss separate topics; these concern liquids, gases, critical phenomena, alloys, and defects. Though relatively short, they give a well-balanced view of these topics. As a whole, this book is indeed invaluable to scientists actively working in the field. It is also highly recommended to scientists in other disciplines for a clear understanding of what can be accomplished with thermal neutron scattering.

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New Journals Received

Instructional Science. An International Journal. Vol. 1, No. 1, Mar. 1972. Quarterly. American editor: Roulette Wm. Smith (University of California, Santa Barbara). Elsevier Publishing Co., Box 211, Amsterdam, The Netherlands. \$14.20; to institutions, \$27.30.

Journal of Medical Primatology. Vol. 1, No. 1, 1972. Bimonthly. Editors: E. I. Goldsmith (Cornell Medical Center) and J. Moor-Jankowski (New York University

Medical Center). Karger, Basel (U.S. distributor, Albert J. Phiebig, Inc., P.O. Box 352, White Plains, N.Y. 10602). \$22.

Journal of Psycholinguistic Research. Vol. 1, No. 1, 1971. Quarterly. Editor: R. W. Rieber (Pace College, New York). Plenum Publishing Corp., 227 West 17th St., New York, N.Y. 10011. \$18; to institutions, \$28.

Preventive Medicine. An International Journal Devoted to Practice and Theory. Official Journal of the American Health Foundation. Vol. 1, Nos. 1-2, Mar. 1972. 4 issues a year. Editor: Ernest L. Wynder (American Health Foundation, New York). Academic Press, Inc., 111 Fifth Ave., New York, N.Y. 10003. To institutions, \$35.

Resuscitation. Vol. 1, No.1, Mar. 1972. Quarterly. American editor: R. J. White (Cleveland Metropolitan General Hospital). Middlesex Publishing Co. Ltd., 21 New Street, London, EC2M 4UN, England. \$27.

Books Received

The Abacus. Its History; Its Design; Its Possibilities in the Modern World. Parry Moon. Gordon and Breach, New York, 1971. viii, 180 pp., illus. Cloth, \$14.95; paper, \$4.95.

Chemical Properties and Analysis of Refractory Compounds. G. V. Samsonov, Ed. with the collaboration of I. N. Frantsevich, V. N. Eremenko, T. N. Nazarchuk, and O. I. Popova. Translated from the Russian edition (Kiev, 1969) by G. D. Archard. Consultants Bureau, New York, 1972. viii, 128 pp., illus. Paper, \$22.50.

Developments in Operations Research. A conference, Tel-Aviv, July 1969. Benjamin Avi-Itzhak, Uri Passy, Uri Shamir, and Micha Yadin, Eds. Gordon and Breach, New York, 1971. 2 vols. Vol. 1, xvi pp. + pp. 1-294, illus. Vol. 2, xvi pp. + pp. 295-622, illus. The set, \$35.

Encyclopedia of Industrial Chemical Analysis. Vol. 15, Ion Exchange Resins to Mercaptans. Foster Dee Snell and Leslie S. Ettre, Eds. Interscience (Wiley), New York, 1972. xvi, 574 pp., illus. \$45; by subscription, \$35.

Freud. Living and Dying. Max Schur. International Universities Press, New York, 1972. xiv, 588 pp. \$20.

The Hall Effect in Metals and Alloys. Colin M. Hurd. Plenum, New York, 1972. xvi, 400 pp., illus. \$28. International Cryogenics Monograph Series.

Inorganic Chemistry. Principles of Structure and Reactivity. James E. Huheey. Harper and Row, New York, 1972. xviii, 738 pp., illus. \$15.95.

Intelligence. Its Organization and Development. Michael Cunningham. Academic Press, New York, 1972. x, 174 pp., illus. \$8.95.

Introduction to Algol Programming. Torgil Ekman and Carl-Erik Fröberg. Studentlitteratur, Lund, Sweden; Oxford University Press, New York, ed. 3, 1972. vi, 186 pp., illus. \$7.95.

Introduction to Anthropology. A Self-Guide. Pierre Maranda. Prentice-Hall, En-

glewood Cliffs, N.J., 1972. xvi, 288 pp., illus. Paper, \$4.95.

Magnetic Resonances in Biological Research. A conference, Cagliari, Italy, 1969. Cafiero Franconi, Ed. Gordon and Breach, New York, 1971. xii, 408 pp., illus. \$24.50.

Mössbauer Effect Data Index. Covering the 1970 Literature. John G. Stevens and Virginia E. Stevens, Eds. IFI/Plenum, New York, 1972. x, 384 pp., illus. \$19.50.

MTP International Review of Science. Butterworths, London; University Park Press, Baltimore, 1972. Vol. 1, Main Group Elements: Hydrogen and Groups I-IV. M. F. Lappert, Ed. xii, 356 pp., illus. Vol. 3, Main Group Elements: Group VII and Noble Gases. V. Gutmann, Ed. xii, 292 pp., illus. Vol. 4, Organometallic Derivatives of the Main Group Elements. B. J. Aylett, Ed. xii, 412 pp., illus. Vol. 9, Reaction Mechanisms in Inorganic Chemistry. M. L. Tobe, Ed. xii, 394 pp., illus. Each vol., \$24.50. Inorganic Chemistry Series 1.

Tropical Fish. Derek McInerny. Drake, New York, 1972. 80 pp., illus. \$4.95.

Tyrosine Catabolism. The Biological, Physiological, and Clinical Significance of p-Hydroxyphenylpyruvate Oxidase. B. L. Goodwin. Oxford University Press, New York, 1972. 94 pp., illus. Paper, \$6.25. Oxford Science Research Papers.

Unified Theory of Nuclear Models and Forces. G. E. Brown. North-Holland, Amsterdam; Elsevier, New York, ed. 3, 1972. xii, 316 pp., illus. \$14.75.

Units of Measurement. An Encyclopaedic Dictionary of Units both Scientific and Popular and the Quantities They Measure. Stephen Dresner. Hastings House, New York, 1972. xvi, 286 pp. \$15.

Urban Dynamics. Extensions and Reflections. Kan Chen, Ed. San Francisco Press, San Francisco, 1972. xiv, 290 pp., illus. Cloth, \$7.50; paper, \$3.75. University of Pittsburgh School of Engineering Publication Series, No. 3.

Urban Stress. Experiments on Noise and Social Stressors. David C. Glass and Jerome E. Singer. Academic Press, New York, 1972. xiv, 182 pp., illus. \$8.75. Social Psychology.

Vitamin C, the Powerhouse Vitamin, Conquers More than Just Colds. Ruth Adams and Frank Murray. Larchmont, New York, 1972. 192 pp. Paper, \$1.25.

Volcanoes. Gordon A. Macdonald. Prentice-Hall, Englewood Cliffs, N.J., 1972. xiv, 510 pp., illus. \$18.

The Vortex Theory of Planetary Motions. E. J. Aiton, Macdonald, London; Elsevier, New York, 1972. x, 282 pp., illus. \$18.50. History of Science Library.

Without Prescription. A Guide to the Selection and Use of Medicines You Can Get Over-the-Counter without Prescription, for Safe Self-Medication. Erwin Di Cyan and Lawrence Hessman. Simon and Schuster, New York, 1972. 322 pp. \$7.95.

Wolff's Headache and Other Head Pain. Revised by Donald J. Dalessio. Oxford University Press, New York, ed. 3, 1972. xvi, 688 pp., illus. \$19.50.

World Review of Nutrition and Dietetics. Vol. 14. Geoffrey H. Bourne, Ed. Karger, Basel, 1972 (U.S. distributor, Phiebig, White Plains, N.Y.). xii, 344 pp., illus. \$37.50.