

formation in these chapters, and they are a good survey of the current status of pollen biochemistry.

The literature review is extensive and is particularly good for papers from the '30's to the '60's. For a book published in 1974 there are relatively few references for the late '60's and '70's. This does not, however, detract from the usefulness of the volume, which should be in the library of anyone interested in pollen.

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## Biological Psychiatry

**Experimental Approaches to Psychopathology.** MITCHELL L. KIETZMAN, SAMUEL SUTTON, and JOSEPH ZUBIN, Eds. Academic Press, New York, 1975. xviii, 488 pp., illus. \$19. Personality and Psychopathology, 15.

The chapters of this book originated as papers presented at a Biometrics Research Workshop in February 1968. The fact that many of the chapters remain informative and interesting after a publication delay of nearly eight years is both a testimony to the farsightedness of the authors and an indictment of progress in the field.

The chapters focus on experimental studies of psychological phenomena—attention, arousal, and learning—and on their physiological basis. For that reason, the workshop was a harbinger of a split in the ranks of biological psychiatrists. Now, the division between the two viewpoints on psychopathology is more clear. In one camp are the researchers represented in this volume—investigators whose biological investigations begin with behavioral observations and psychological theories of psychopathology and who attempt to study the physiology of the central nervous system or cardiovascular response to expand or objectify basically psychological theories.

In the other camp are researchers entirely omitted from this volume—investigators whose research in human psychopathology proceeds from new knowledge about brain neurochemistry and the pharmacology of synaptic transmission gained primarily in animal or in vitro experiments. On a working level, they tend to view psychopathology as an epiphenomenon riding on a sick synapse. From this viewpoint, psychopathology is of interest as an indicator of neurochemical malfunction rather than as a phenomenon to be studied in its own right.

Both camps have made progress in the

last eight years, and it is hard to deny that the saltatory advances of neurochemistry are the more extensive and comprehensive. However, the difficulty in establishing connections between neurochemical phenomena and the complex and peculiar behavior and thought in the schizophrenic patient or disturbed child is troublesome.

In their cogent introduction, the editors explain their emphasis on neurophysiology and learning models as resulting from the increasing body of experiments that attempt to make these difficult connections: "Scientific models are merely scaffolds for building bridges across gaps in knowledge." They aim the scientific effort at the gaps between concepts such as arousal or attention that have relevance both as clinical observations and in neurophysiology, and not at the chasm between synapse and schizophrenia.

Arousal and attention superficially seem to be quite separate psychological issues on an acute psychiatric ward; patients running around in circles are overaroused and patients who walk through a pool of urine are not attending to where they are going. In an experimental setting, however, does a fast reaction time represent a highly aroused, eager patient or a relaxed, attentive one? The editors have somewhat artificially divided the book into four sections—Arousal, Attention, Learning, and Methodological Issues. The chapter authors have wisely seen the attention-arousal problem as critical in approaching the physiology of psychopathology. In his unique way Hernández-Péon, in a chapter written shortly before his death, shapes a speculative neurophysiological integration of attentional and arousal mechanisms into a model of psychopathology. In an up-to-date (containing 1974 work) chapter, Horn discusses neurophysiological experiments on the attention-arousal problem. Using reaction time paradigms, Zubin focuses on the attentional deficits of schizophrenics, whereas Zahn follows the arousal response to "attentional" tasks; both have updated their chapters and include some unpublished data and new speculations. Even many of the chapters in the learning section (Martin and Levey, Lang *et al.*, and Maltzman) address the attention-arousal issue with autonomic reactivity measurements.

Perceptual aspects of attention and arousal are discussed in the chapters on human evoked potential by Callaway and Jones and by Shagass and Overton. A critique of evoked potential methodology is then given by Vaughan. All three chapters are somewhat out of date, both because of rapid progress in the field and because these authors have all published newer material quite extensively. Vaughan's meth-

odological criticisms of the evoked response work, while still important, have been largely taken into account in newer studies by both Callaway and Shagass.

Useful summaries of methodological strategies such as pupillography (Hakerem and Lidsky), temporal judgment (Goldstone), and psychomotor techniques (King) are provided. The chapter by Miller on visceral learning is a valuable review of whole series of his experiments.

Venables suggests the utility of concepts borrowed from information theory and communications engineering in the study of psychopathology—signal-noise separation, channel capacity, storage, and so forth. This approach is now becoming increasingly popular and I am sure Venables is pleased that published experiments are overtaking his speculations in the chapter.

To borrow Venables's method, this volume may be best seen in perspective if we view psychopathology as a repairman views a poorly performing computer. These authors generally approach the problem as an error in the basic system software or in wiring, probably present when the computer was delivered from the factory. Psychosocial or psychoanalytic investigators see mistakes in current operating programs. The neurochemical group searches for abnormal metal oxide deposition in transistors. All three will find many chapters valuable and the theoretical sections still highly pertinent.

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## Books Received

**Abrégé de Botanique.** A l'Usage des Etudiants en Pharmacie. J.-L. Guignard. Masson, Paris, ed. 2, 1974. xiv, 248 pp., illus. Paper, 38 F.

**Advances in Atomic and Molecular Physics.** Vol. 10. D. R. Bates and Benjamin Bederson. Academic Press, New York, 1974. xii, 348 pp., illus. \$35.

**Analytical Calorimetry.** Vol. 3. Proceedings of a symposium, Los Angeles, Apr. 1974. Roger S. Porter and Julian F. Johnson, Eds. Plenum, New York, 1974. xii, 818 pp., illus. \$45.

**Chemistry and the Needs of Society.** Proceedings of a symposium, London, Apr. 1974. The Chemical Society, London, 1974. iv, 250 pp. + plates. Paper, \$8. Special Publication No. 26.

**COBOL Programming.** Nancy B. Stern and Robert A. Stern. Wiley, New York, ed. 2, 1975. xiv, 482 pp., illus. Paper, \$9.95.

**Comprehensive Virology.** Vol. 3, Reproduction. DNA Animal Viruses. Heinz Fraenkel-Conrat and Robert R. Wagner, Eds. Plenum, New York, 1974. xiv, 488 pp., illus. \$32.50.

**Dictionary of Scientific Biography.** Vol. 10, S. G. Navashin—W. Piso. Charles Coulston Gillispie, Ed. Scribner, New York, 1974. xiv, 622 pp., illus. \$40.

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## AAAS NEWS

(Continued from page 42)

placebos, science literacy, and enology (winemaking) for a weekly local news show. Articles appeared on electrical superconductors, high-frequency sound waves, a local archeological dig for an 18th-century fort, and a detailed review of Philip Boffey's book *The Brain Bank of America: An Inquiry into the Politics of Science*.

Plans for the second Mass Media Intern Program are currently under way. Those interested in the 1976 program may contact Wendy Weisman-Dermer, Coordinator, Mass Media Intern Program, AAAS, 1776 Massachusetts Avenue, NW, Washington, D.C. 20036. Suggestions for possible media sites, advertising slots, and so forth would also be appreciated.

WENDY WEISMAN-DERMER  
Communications Department

## Notes from Other Offices

*Science and Society*: Dr. Richard H. Bolt, member of the AAAS Board of Directors, and Dr. Richard A. Scribner, director of the AAAS Office of Science and Society Programs, have collaborated to write an article, "Toward improving the use of technical information in lawmaking." The article is one of several contributions in *Meeting the Challenge—Scientific and Technical Staff in the States' Legislatures*. The publication is available from the National Conference of State Legislatures, Science and Technology Committee, Suite 2300, 1405 Curtis Street, Denver, Colorado 80202.

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*International Science*: Members who are going abroad and who are interested in representing the AAAS at meetings or by giving lectures are requested to contact the Office of International Science. The office frequently receives requests from foreign countries for AAAS representatives. Recent requests have come from Italy, India, Ceylon, and West Africa.

### New PBS Series on Tribal Art to Begin

Starting Wednesday, 15 October, at 8:00 p.m. E.T., a seven-part series of programs entitled "The Tribal Eye" will appear over Public Broadcasting Service stations. The series about tribal art from all over the world is a presentation of WNET/New York. Each 1-hour program will focus on the artistic masterpieces of a particular tribe (for example, Aztecs and Incas) and the culture that produced them. Further information about the series will be available from local PBS stations.

## BOOKS RECEIVED

(Continued from page 46)

**Ecological Aspects of Toxicity Testing of Oils and Dispersants.** Proceedings of a workshop, London. L. R. Beynon and E. B. Cowell, Eds. Halsted (Wiley), New York, 1974. viii, 150 pp., illus. \$15.50.

**ELF and VLF Electromagnetic Field Effects.** Michael A. Persinger, Ed. Plenum, New York, 1974. viii, 316 pp., illus. \$27.50.

**Environmental Impact Assessment.** Principles and Procedures. Report of a workshop, Victoria Harbour, Canada, Feb. 1974. R. E. Munn, Ed. International Council of Scientific Unions, Scientific Committee on Problems of the Environment, Toronto, Canada, 1975. 160 pp., illus. Paper, \$4.50. SCOPE Report 5.

**Equilibrium Configurations of Degenerate Gaseous Masses.** G. S. Saakyan. V. A. Ambartsumyan, Ed. Translated from the Russian edition (Moscow, 1972) by C. F. Hall. Halsted (Wiley), New York, and Israel Program for Scientific Translations, Jerusalem, 1974. xii, 294 pp., illus. \$36.

**Experimental Design and Analysis.** Wayne Lee. Freeman, San Francisco, 1975. xviii, 354 pp., illus. \$15. Workbook, x, 116 pp., illus. Paper, \$3. A Series of Books in Psychology.

**Fossil and Living Dinoflagellates.** W. A. S. Sarjeant. Academic Press, New York, 1974. viii, 182 pp., illus. \$13.

**Genetic Distance.** Papers from a workshop, Paris, Sept. 1971. James F. Crow and Carter Denniston, Eds. Plenum, New York, 1974. viii, 196 pp., illus. \$19.50.

**Gravitation.** Harold Aspden. Sabberton, Southampton, England, 1975. viii, 78 pp., illus. Cloth, \$7; paper, \$3.50.

**A Guide to Professional Development Opportunities for College and University Administrators.** Seminars, Workshops, Conferences, and Internships. January–December 1975. Judith T. Irwin, Ed. Academy for Educational Development, Washington, D.C., and American Council on Education, Washington, D.C., 1975. vi, 228 pp. Paper, \$4.

**History and Prehistory of the Lubbock Lake Site.** Papers from a symposium, Lubbock, Tex., Mar. 1974. Craig C. Black, Ed. West Texas Museum Association of Texas Tech University, Lubbock, 1974. 160 pp., illus. Paper, \$5. *The Museum Journal* XV, 1974.

**An Illustrated Encyclopaedia of Australian Wildlife.** Michael Morcombe. Doubleday, Garden City, N.Y., 1975. 126 pp. \$35.

**International Review of Cytology.** Supplement 4, Aspects of Nuclear Structure and Function. G. H. Bourne, J. F. Danielli, and K. W. Jeon, Eds. Academic Press, New York, 1974. viii, 468 pp., illus. \$39.50.

**Ion Mass Spectra.** Robert G. Wilson. Wiley-Interscience, New York, 1974. x, 432 pp., illus. \$20.95.

**Legacies in the Study of Behavior.** The Wisdom and Experience of Many. Joseph Warren Cullen. Thomas, Springfield, Ill., 1974. xii, 276 pp., illus. \$17.50. American Lecture Series, No. 951. A Publication in the Bannerstone Division of American Lectures in Objective Psychiatry.

**The Making of the Earth.** Volcanoes and Continental Drift. Haroun Tazieff. Translated from the French edition (Paris, 1972) by Veronica Lawson. Saxon House, Westmead, England, 1975 (U.S. distributor, Atheneum, New York). xii, 112 pp., illus. \$7.

**Masked Depression.** Stanley Lesse, Ed. Aronson, New York, 1974. xvi, 374 pp. \$12.50.

**The Mechanisms of Photosynthesis.** C. P. Whittingham. Elsevier, New York, 1974. viii,

126 pp., illus. Cloth, \$13.50; paper, \$5.95. A Series of Student Texts in Contemporary Biology.

**Metabolism and Regulation of Secondary Plant Products.** Papers from a meeting, Pacific Grove, Calif., Aug. 1973. V. C. Runeckles and E. E. Conn, Eds. Academic Press, New York, 1974. xiv, 250 pp., illus. \$22.50. Recent Advances in Phytochemistry, vol. 8.

**Methods in Radioimmunoassay, Toxicology, and Related Areas.** Papers from a symposium, New York, Nov. 1973. Ivor L. Simmons and Galen W. Ewing, Eds. Plenum, New York, 1974. viii, 184 pp., illus. \$22.50. Progress in Analytical Chemistry, vol. 7.

**Modern Trends in Human Leukemia.** Biological, Biochemical and Virological Aspects. Proceedings of a workshop, Lübeck, Germany, June 1973. Rolf Neth, Robert C. Gallo, Sol Spiegelman, and Frederick Stohlman, Jr., Eds. Grune and Stratton, New York, 1974. vi, 366 pp., illus. \$29.50.

**Natural History Photography.** D. M. Turner Ettlinger, Ed. Academic Press, New York, 1974. xxviii, 396 pp., illus. \$23.25.

**Ondes Elastiques dans les Solides.** Application au Traitement du Signal. E. Dieulesaint and D. Royer. Masson, Paris, 1974. xvi, 408 pp., illus. 196 F. Monographies d'Electronique.

**Parallel Evolution in Early Trigonicean Bivalves.** Norman D. Newell and Donald W. Boyd. American Museum of Natural History, New York, 1975. pp. 53–162. Paper, \$5.90. *Bulletin of the American Museum of Natural History*, vol. 154, article 2.

**Parenteral Drug Information Guide.** Lawrence A. Trissel, Carl R. Grimes, and Joseph F. Gallelli. American Society of Hospital Pharmacists, Washington, D.C., 1974. iv, 196 pp. Paper, \$5.

**Phase Transitions and Critical Phenomena.** Vol. 3, Series Expansions for Lattice Models. C. Domb and M. S. Green, Eds. Academic Press, New York, 1974. xviii, 694 pp., illus. \$46.50.

**Physical Investigations in Strong Magnetic Fields.** D. V. Skobel'tsyn, Ed. Translated from the Russian edition (Moscow, 1973) by Albin Tybulewicz. Consultants Bureau (Plenum), New York, 1974. vi, 164 pp., illus. Paper, \$32.50. The Lebedev Physics Institute Series, vol. 67.

**Les Plans d'Organisation du Règne Animal.** Manuel de Zoologie. R. Ginot and A. L. Roux. Doin, Paris, 1974. 248 pp., illus. 98 F.

**Power and Research Reactors in Member States.** 1974 Edition. International Atomic Energy Agency, Vienna, 1974 (U.S. distributor, Unipub, New York). xl, 80 pp. Paper, \$5.

**Problèmes d'Automatismes Numériques.** Applications des Méthodes de l'Analyse Binaire. R. L. Vallée. Masson, Paris, 1974. vi, 160 pp., illus. Paper, 75 F.

**Prostheses and Tissue.** The Interface Problem. Proceedings of a symposium, Clemson, S.C., Apr. 1973. S. F. Hulbert, S. N. Levine, and D. D. Moyle, Eds. Wiley, New York, 1974. xvi, 448 pp., illus. \$19.50. Biomedical Materials Symposium No. 5.

**Psychology of the Mexican.** Culture and Personality. R. Díaz-Guerrero. Translated from the Spanish edition (Mexico City, 1967). University of Texas Press, Austin, 1975. xxii, 172 pp. \$10.95. The Texas Pan American Series.

**Tradition and Change in a Turkish Town.** Paul J. Magnarella. Schenkman, Cambridge, Mass., and Halsted (Wiley), New York, 1974 (distributor, Halsted [Wiley], New York). xiv, 200 pp., illus. Cloth, \$10; paper, \$4.95.

**Waves and Satellites in the Near-Earth Plasma.** Ya. L. Al'pert. Translated from the Russian by Julian B. Barbour. Consultants Bureau (Plenum), New York, 1974. x, 196 pp., illus. \$35. Studies in Soviet Science.