

seek specific characters in their search for prey, and that once a new constellation of characters is discovered to mean "food," it is selectively sought. This has been an attractive concept, although L. Tinbergen advanced it merely as a hypothesis to explain his data relating prey abundance to risk of predation. A test, even on a non-insectivorous species such as crows, is welcome. Croze provides reasonable support for the usefulness of the concept.

Regrettably, Croze's admirable contribution suffers much from a lack of skill in the use of the English language and the publisher's failure to provide better copy editors. In any event, Croze's empirical approach to searching images merits the attention of ethologist, psychologist, and ecologist alike.

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## Ethological Essays

**Social Behaviour in Birds and Mammals.** Essays on the Social Ethology of Animals and Man. JOHN HURRELL CROOK, Ed. Academic Press, New York, 1970. xlii, 492 pp., illus. \$21.

One can feel sympathy with the editor of this book, which is dedicated to the memory of K. R. L. Hall, in his attempt to unite over a common denominator individual papers which one would expect to find in a behavioral journal or in a volume called University of Bristol's Miscellaneous Collection, Sec. Psychology. In this book, comprehensive and creative reviews (for example J. H. Crook's own chapter on the socioecology of primates) alternate with rather specialized accounts (for example J. D. Gross-Custard's chapter on feeding dispersion in some overwintering wading birds). In the introduction the hope is expressed "that these studies demonstrate the value of carrying out behavior research at several levels of analysis within the same institution and attempting purposefully to show how they may be synthetically related," but it remains unclear on what this hope is based.

Four of the 11 chapters seem to fulfill the expectations evoked by the title of the volume and therefore deserve mention. Crook reviews and discusses the sociology of primates, with emphasis on the contribution of en-

vironmental factors and of tradition, and gives special attention to the social mobility of the male in primate groups. A good example of his approach is his discussion of cercopithecoid social systems and their association with environmental variables: Assuming three major habitat types of increasing seasonal change (forest, savanna, arid open country), he proposes associations with predation, numerical density, size and composition of the reproductive groups, male motility, utilization of space (home range, territory), group coherence, communication types, and reproductive seasonality. J. E. Archer gives a comprehensive review of the effects of population density on the behavior of various species of rodents. His conceptual framework is as follows: High densities lead to emigration; if emigration is restricted, aggression increases as an effect of crowding, which in turn leads to physiological changes (such as adrenal hyperactivity) and behavioral changes (such as shortened or interrupted sequence of sexual or maternal behavior). I. Vine has compiled an extensive review of communication by facial-visual signals, devoting much space to observations and investigations on human subjects, especially to the role of gazing. Janet Kear's chapter on the adaptive radiation of parental care in waterfowl gives a detailed survey of pair-bond, nest construction, incubation, and family life in swans, geese, ducks, and related waterfowl including flamingos, screamers, and magpie geese, and sets new standards for comparative behavior studies.

This book apparently does not provide revolutionary changes in our concepts of social behavior, but has its merit as a guide to the widely scattered literature. The attitude of its editor and contributors follows the present trend in ethology: emphasis of ecological aspects, caution in the application of traditional concepts of drive and motivation, interest in the role of learning, and great hopes in systems theory and cybernetics (without much attempt to test their value).

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## Books Received

**The AAAS Science Book List.** A Selected and Annotated List of Science and Mathematics Books for Secondary School Students, College Undergraduates and Nonspecialists. Compiled by Hilary J.

Deason. American Association for the Advancement of Science, Washington, D.C., ed. 3, 1970. xiv, 440 pp. \$10; cash orders, \$9.

**Adipose Tissue.** Regulation and Metabolic Functions. Bernard Jeanrenaud and Dieter Hepp, Eds. Thieme, Stuttgart; Academic Press, New York, 1970 (U.S. distributor, Intercontinental Medical Book Corporation, New York). viii, 212 pp., illus. \$11.50.

**Advances in Astronomy and Astrophysics.** Vol. 7. Zdeněk Kopal, Ed. Academic Press, New York, 1970. xiv, 294 pp., illus. \$18.50.

**Advances in Child Development and Behavior.** Vol. 5. Hayne W. Reese and Lewis P. Lipsitt, Eds. Academic Press, New York, 1970. xiv, 266 pp., illus. \$13.

**Advances in Clinical Chemistry.** Vol. 13. Oscar Bodansky and C. P. Stewart, Eds. Academic Press, New York, 1970. xiv, 536 pp., illus. \$22.50.

**Advances in Food Research.** Vol. 18. C. O. Chichester, E. M. Mrak, and G. F. Stewart, Eds. Academic Press, New York, 1970. x, 322 pp., illus. \$16.

**Advances in Heterocyclic Chemistry.** Vol. 12. A. R. Katritzky and A. J. Boulton, Eds. Academic Press, New York, 1970. x, 340 pp., illus. \$18.

**Advances in Veterinary Science and Comparative Medicine.** Vol. 14. C. A. Brandly and Charles E. Cornelius, Eds. Academic Press, New York, 1970. xviii, 420 pp., illus. \$22.

**Adventures in Research.** A History of Ames Research Center, 1940-1965. Edwin P. Hartman. Scientific and Technical Information Division, National Aeronautics and Space Administration, Washington, D.C., 1970 (available from the Superintendent of Documents, Washington, D.C.). xx, 556 pp., illus. \$4.75.

**Aide-mémoire de détermination bactérienne.** R. G. Capet. Vigot, Paris, 1970. 136 pp. Paper, \$7.

**Alejandro de Humboldt.** Modelo en la Lucha por el Progreso y la Liberación de la Humanidad. Memorial en Conmemoración del Bicentenario de su Nacimiento. Akademie-Verlag, Berlin, 1969. xviii, 186 pp. + plates.

**Amine Oxidases and Methods for Their Study.** R. Kapeller-Adler. Wiley-Interscience, New York, 1970. xiv, 320 pp. \$19.50.

**Analytical Methods Used in Sugar Refining.** R. W. Plews, Ed. Elsevier, New York, 1970. viii, 234 pp., illus. \$15.

**Annual Review of Genetics.** Vol. 4. Herschel L. Roman, Laurence M. Sandler, and Allan Campbell, Eds. Annual Reviews, Palo Alto, Calif., 1970. xiv, 524 pp., illus. \$10.

**Annual Survey of Photochemistry.** Vol. 2, Survey of 1968 Literature. Wiley-Interscience, New York, 1970. xvi, 412 pp., illus. \$19.95.

**Approximation Theory.** Proceedings of a symposium, Lancaster, England, July 1969. A. Talbot, Ed. Academic Press, New York, 1970. viii, 356 pp., illus. \$11.

**Aquatic Chemistry.** An Introduction Emphasizing Chemical Equilibria in Natural Waters. Werner Stumm and James J. Morgan. Wiley-Interscience, New York, 1970. xvi, 584 pp., illus. \$24.95.

(Continued on page 722)



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(Continued from page 668)

**The Armed Services and Society.** Alienation, Management, and Integration. A conference, Edinburgh, Scotland, May 1969. J. N. Wolfe and John Erickson, Eds. Edinburgh University Press, Edinburgh; Aldine, Chicago, 1970. viii, 170 pp., illus. \$8.95. University of Edinburgh Faculty of Social Sciences Seminar.

**Articulation Therapy and Consonant Drill Book.** Sidney Goda. Grune and Stratton, New York, 1970. xii, 162 pp., illus. \$6.75.

**An Artist in Africa.** David Shepherd. Scribner's, New York, 1970. Unpaged. \$15.

**Aspects of Scientific Explanation and Other Essays in the Philosophy of Science.** Carl G. Hempel. Free Press, New York; Collier-Macmillan, London, 1970. viii, 504 pp. Paper, \$4.95. Reprint of the 1965 edition.

**Astronomy.** The Friday Evening Discourses in Physical Sciences held at the Royal Institution, 1851–1939. Bernard Lovell, Ed. Elsevier, New York, 1970. Vol. 1, xvi, 416 pp., illus.; vol. 2, x, 398 pp., illus. \$27.50. The Royal Institution Library of Science.

**Atlas des structures cranio-faciales sagittales d'une population mélanésienne en orientation vestibulaire.** Pellerin Claude. Laboratoire de Craniologie Comparée, Lille, France, 1970. Unpaged. Paper.

**Atti della L Riunione.** Proceedings of two conferences, Pescara and Chieti, Italy, September–October 1969. Società Italiana per il Progresso delle Scienze, Rome, 1970. 660 pp., illus. Paper, £6.5.

**The Auk, the Dodo, and the Oryx.** Vanished and Vanishing Creatures. Robert Silverberg. Illustrated by Jacques Hnizdovsky. Crowell, New York, 1970. viii, 248 pp. Paper, \$1.65. Apollo Editions. Reprint of the 1967 edition.

**Australian Academy of Science Year Book.** Australian Academy of Science, Canberra, 1970. 124 pp., illus.

**Avoidance of Failure.** A series of lectures, October 1968. Published for the Metals and Metallurgy Trust by Elsevier, New York, 1970. viii, 152 pp., illus. \$8.

**Bancroft's Introduction to Biostatistics.** Johannes Ipsen and Polly Feigl. Harper and Row, New York, ed. 2, 1970. xii, 224 pp., illus. \$9.50.

**Behavior Ecology.** Peter H. Klopfer. Dickenson, Belmont, Calif., 1970. x, 230 pp., illus. \$6.60. Contemporary Thought in Ecological Science Series.

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**Biomedical Engineering.** J. H. U. Brown, John E. Jacobs, and Lawrence Stark. Davis, Philadelphia, 1971. xvi, 436 pp., illus. \$15.

**Botany.** Taylor R. Alexander, R. Will Burnett, and Herbert S. Zim. Illustrated by Jean Zallinger. Golden Press, New York, 1970. 160 pp. Paper, \$1.25. Golden Science Guide.

**Boundaries.** Psychological Man in Revolution. Robert Jay Lifton. Random House, New York, 1970. xiv, 114 pp. \$5.95.

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**Brighter than a Thousand Suns.** A Personal History of the Atomic Scientists. Robert Jungk. Translated from the German edition (Bern, Switzerland, 1956) by James Cleugh. Harcourt Brace Jovanovich, New York, 1970. xiv, 368 pp. Paper, \$2.85. Reprint of the 1958 edition.

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**Cardiac Engineering.** Yukihiko Nose, Ed. Interscience (Wiley), New York, 1970. xii, 384 pp., illus. \$19.95. Advances in Biomedical Engineering and Medical Physics, vol. 3.

**Categories and Functors.** Bodo Pareigis. Academic Press, New York, 1970. viii, 270 pp., illus. \$13. Pure and Applied Mathematics, vol. 39.

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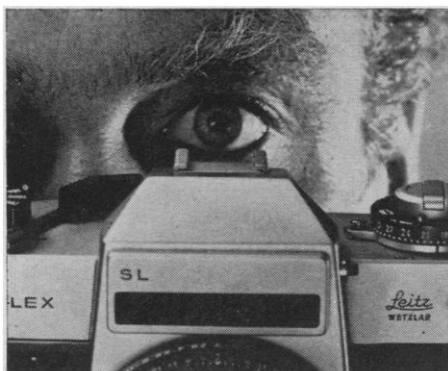
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**Chemistry for Medical Technologists.** Wilma L. White, Marilyn M. Erickson,





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and Sue C. Stevens. Mosby, St. Louis, ed. 3, 1970. xiv, 710 pp., illus. \$15.

**The Chemistry of Indoles.** Richard J. Sundberg. Academic Press, New York, 1970. xiv, 490 pp., illus. \$24.50. Organic Chemistry, No. 18.

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**The Coccidian Parasites** (Protozoa, Sporozoa) of Ruminants. Norman D. Levine and Virginia Ivens. University of Illinois Press, Urbana, 1970. vi, 280 pp., illus. Paper, \$8.50. Illinois Biological Monographs, No. 44.

**Colloque franco-soviétique sur l'utilisation des entomophages.** A colloquium, Antibes, France, May 1968. Institut National de la Recherche Agronomique, Paris, 1970. 136 pp., illus. Paper, 35 F. INRA Publication 70-3.

**Computation and Theory in Ordinary Differential Equations.** James W. Daniel and Ramon E. Moore. Freeman, San Francisco, 1970. xiv, 172 pp., illus. \$7.50. A Series of Books in Mathematics.

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**A Correlative Study Guide for Neuroanatomy.** James L. Hall and Albert O. Humbertson. Harper and Row, New York, ed. 2, 1970. xiv, 144 pp., illus. Paper, \$4.95.

**Creativity.** A conference, St. Peter, Minn., 1970. John D. Roslansky, Ed. North-Holland, Amsterdam; Fleet Academic Editions, New York, 1970. xii, 190 pp. \$7.50.

**Deadline for Survival.** A Survey of Moral Issues in Science and Medicine. Kenneth W. Mann. Academy of Religion and Mental Health, New York; Seabury Press, New York, 1970. xii, 148 pp. Paper, \$2.95.

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**Direct Transistor Substitution Handbook.** H. A. Middleton. Hayden, New York, 1970. 224 pp., illus. Paper, \$2.95.

**Documents on Disarmament, 1969.** United States Arms Control and Disarmament Agency, Washington, D.C., 1970 (available from the superintendent of Documents, Washington, D.C.). xviii, 822 pp., illus. Paper, \$3.50. Publication No. 55.

**The Dominion of Man.** The Search for Ecological Responsibility. John Black. Edinburgh University Press, Edinburgh,

## ANTIGENS, LYMPHOID CELLS AND THE IMMUNE RESPONSE

by **G. J. V. NOSSAL**, Professor of Medical Biology and Director of the Walter and Eliza Hall Institute of Medical Research, Post Office, Royal Melbourne Hospital, Victoria, Australia, and **G. L. ADA**, Professor and Head of Department of Microbiology, John Curtin School of Medical Research, Australian National University, Canberra, A.C.T., Australia

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1970, 680 pp., \$19.50

## APPLIED SOLID STATE SCIENCE

**Advances in Materials and Device Research Volume 2**

edited by **RAYMOND WOLFE**, Bell Telephone Laboratories, Inc., Murray Hill, New Jersey

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## SOFTWARE ENGINEERING

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## PLANT PARASITIC NEMATODES

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**The Ecological Conscience.** Values for Survival. Robert Disch, Ed. Prentice-Hall, Englewood Cliffs, N.J., 1970. xvi, 206 pp., illus. Cloth, \$5.95; paper, \$2.45.

**Economic Disparity.** Problems and Strategies for Black America. William L. Henderson and Larry C. Ledebur. Free Press (Macmillan), New York; Collier-Macmillan, London, 1970. xvi, 360 pp., illus. Cloth, \$8.95; paper, \$4.45.

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**The Effects of Noise on Man.** Karl D. Kryter. Academic Press, New York, 1970. xx, 634 pp., illus. \$19.50. Environmental Sciences.

**Electric Power and Thermal Discharges.** Thermal Considerations in the Production of Electric Power. Merrill Eisenbud and George Gleason, Eds. Gordon and Breach, New York, 1969. xxxii, 424 pp., illus. \$22.50.

**Electron Beams, Lenses, and Optics.** Vol. 2. A. B. El-Kareh and J. C. J. El-Kareh. Academic Press, New York, 1970. xiv, 320 pp., illus. \$17.50.

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**Embattled Reason.** Essays on Social Knowledge. Reinhard Bendix. Oxford University Press, New York, 1970. xii, 396 pp. \$9.75.

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**Engineering Materials for M.E.T.** Part 2. L. C. Mott. Oxford University Press, New York, 1970. x, 186 pp., illus. Paper, \$4.

**Environmental Side Effects of Rising Industrial Output.** Alfred J. Van Tassel, Ed. Heath Lexington, Lexington, Mass., 1970. xxiv, 550 pp., illus. \$19.50.

**The Enzymes.** Kinetics and Mechanism. Vol. 2. Paul D. Boyer, Ed. Academic Press, New York, ed. 3, 1970. xvi, 584 pp., illus. \$23.

**Equipotential Space.** Freedom in Architecture. Renato Severino. Praeger, New York, 1970. x, 142 pp., illus. Cloth, \$12.50; paper, \$4.50.

**Erik H. Erikson.** The Growth of His Work. Robert Coles. Little, Brown, Boston, 1970. xxii, 440 pp. \$10. Atlantic Monthly Press Book.

**Essays in Cell Metabolism.** Hans Krebs Dedicatory Volume. W. Bartley, H. L. Kornberg, and J. R. Quayle. Wiley-Interscience, New York, 1970. xii, 290 pp., illus. \$16.50.

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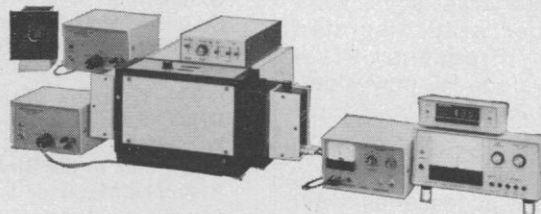
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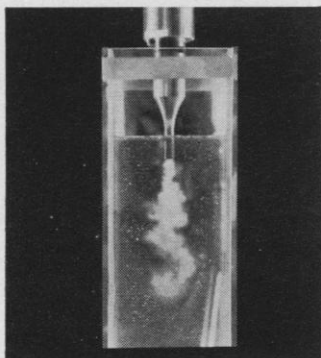
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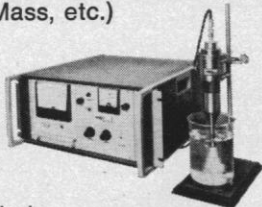
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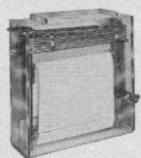
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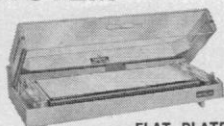
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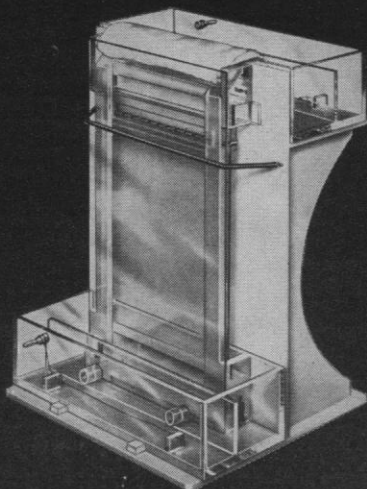
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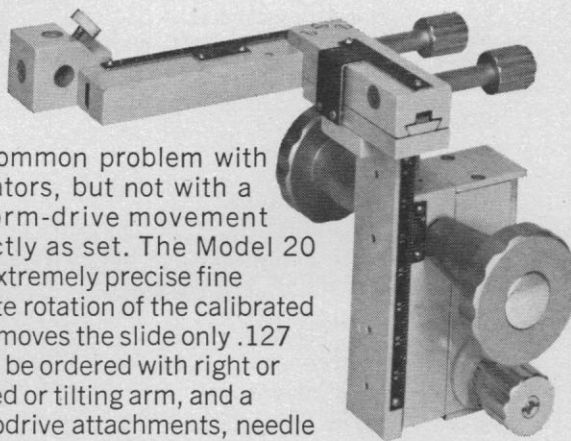
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