

## Avian Who's Who

**Birds of the World.** Oliver L. Austin, Jr. Herbert S. Zim, Ed. Golden Press, New York, 1961. 320 pp. Illus. \$17.50.

This is truly a spectacular coverage of the world of birds, written by an ornithologist of experience and high standing and illustrated by Arthur Singer, an artist of skill, imagination, and a fine sense of composition. The book's large size (10¼ by 13½ inches) gives the artist an enviable opportunity to maintain the size of his bird images in arrangements that show the wide spread of color, shape, and pose within each of the 150 families treated in the text.

The text is obviously intended for the layman, and the author succeeds in evading technical terms and yet defines the different families accurately. He has also shown good judgment in selecting the more interesting and more colorful examples to represent each family and subfamily and in presenting the more interesting facts of their distribution, relationships, and life histories, a sort of "who's who" in the bird world.

As might be expected when an artist has had to use museum specimens rather than living birds as models for some of his birds, a few illustrations are less accurate than others. The head of the ruffed grouse (page 88) seems too small for the body, while the wings of the flicker (page 192) and of the wall creeper (page 238) seem too large; and the bills of the blue jay (page 225), the phoebe (page 208), the black vulture (page 72), and of Townsend's solitaire (page 251) are too small. The tarsal scales on the thrushes, especially the wood thrush and the blackbird (pages 252 and 253), are too prominent, while those of the catbird (page 249) are too inconspicuous. The legs of the California gull (page 130) should be gray instead of yellow, and the bill of the limpkin (page 106) never shows red. It is difficult to analyze satisfactorily the number and arrangement of the primaries and of the secondaries in such pictures as those of the flying osprey (page 82) or of the chimney swift (page 165), and the postures of the puffbirds (page 168) and of the manakins (page 206) would be more true to life if they were more erect like the flycatchers.

I noticed only two real mistakes: the common teal of Europe (page 68) is

identified as the green-winged teal, and the shorebird (page 121) that looks like a purple sandpiper is labeled a knot. It is likewise outside my experience to see green grass lining and growing from the side of a barn swallow's nest, as shown on page 216. But these are all minor details compared with the overall picture of a very satisfactory book with wonderfully attractive illustrations.

ARTHUR A. ALLEN  
*Laboratory of Ornithology,  
Cornell University*

## Watson and Psychology

**Behaviour.** D. E. Broadbent. Basic Books, New York, 1961. 215 pp. \$4.50.

D. E. Broadbent, director of the Applied Psychology Unit of the Medical Research Council at Cambridge, England, here gives a British psychologist's favorable view of what has been largely an American development: behaviorism, following the lead of John B. Watson. The book is addressed to an audience of nonpsychologists who may be uninformed about behaviorism, or who, having heard about it, may be offended by it. It will add little in a substantive way to the knowledge of those who have had an introductory course in psychology in an American university, though if that course was not recent it will provide a pleasant way in which to bring that knowledge up-to-date. Written pleasantly without tables or footnotes or other trappings of scholarship, the book is at the same time sophisticated and critical; while it makes a favorable case for behaviorism, it is written without polemic.

The argument is essentially that behaviorism has taught us to take an objective view toward the problems of psychology and that this is the only basis for sound knowledge. The argument is sustained through a review of experiments done primarily with animals, and includes the theoretical contributions of Hull, Skinner, and Hebb. Just as the understanding of mechanics helps us to know how our limbs and joints operate, so a mechanical understanding of information-processing may help us comprehend our intellectual activities. There is nothing degrading about comparing a brain and a computer.

For the person already abreast of contemporary psychology, the most interesting chapter is the final one in which the author looks ahead and finds the criticisms that behaviorism must answer: its neglect of natural behavior, its premature formalization, the absence of appropriate physiology, and the weakness of describing unobservables.

The book can be recommended as a thoughtful and readable introduction to the behaviorist approach. The suggestions for further reading at the end will permit the interested reader to find the sources so casually introduced into the text.

ERNEST R. HILGARD  
*Department of Psychology,  
Stanford University*

## Tumors and Viruses

**Oncogenic Viruses.** Ludwik Gross. Pergamon, New York, 1961. xi + 391 pp. Illus. \$12.

This volume presents the results of a commendable effort to bring together in a single monograph much of the available, published information about tumors of animals which appear to be induced by viral agents. The impressive quantity of material reviewed is assembled largely as it relates to various types of tumors that occur in certain animal species which have been much studied.

The extensive data presented and the necessarily condensed comments on them are arranged in many sections, frequently only a paragraph or two in length, with succinct and direct subject headings. This helpful arrangement is, however, not reflected in the subject index, which is less full and comprehensive than it might be. The extensive and fully documented list of references, which follows each chapter, identifies most of the pertinent papers that have appeared in various languages; these are in themselves of large usefulness.

The volume is written in an easily comprehended and straightforward style that is readily readable and informative. Specific details and experimental results in large numbers are included, and at times selected experimental techniques are presented. The early history of the discovery of most of the agents considered is presented, and a number of excellent photographs

of the major contributors to this field are appropriately placed in the monograph.

The author reveals, from the introduction onwards, a strong inclination toward the view that malignant tumors, regardless of the species in which they occur, are caused by viruses, and he raises, as a working hypothesis, the possibility that such agents may be their most common cause. The volume provides a broad cross section of presently available knowledge of viruses associated with tumors, and it emphasizes the need for more knowledge.

FRANK L. HORSFALL, JR.  
*Sloan-Kettering Institute for Cancer Research, New York*

## A Wanderer Through Nature

**The Collected Letters of Antoni van Leeuwenhoek.** vol. 6. Edited, illustrated, and annotated by A. Schierbeek and J. J. Swart and a commission of Dutch scientists. Swets and Zeitlinger, Amsterdam, Netherlands, 1961. 425 pp. Illus. + plates. \$24.

This volume, the sixth of a series (the first volume of which appeared in 1939) comprising a definitive edition of van Leeuwenhoek's letters, includes letters 90 to 101 (numbers 49 to 56 in van Leeuwenhoek's own numbering), written between 2 April 1686 and 11 July 1687. Letters 91 and 95 are merely listed, since the manuscripts have not been located and the two letters have not been previously published.

The main contents of the volume are given in Dutch and English on facing pages; however, some footnotes dealing with Dutch linguistic matters are not translated into English. Each letter is accompanied by a list of other places of publication and is collated, in footnotes, with other readings; most of the letters are briefly summarized, and they are fully annotated with respect to scientific content. The volume contains a frontispiece, 32 halftone plates, several appendixes, a discussion of galls and their economic importance in van Leeuwenhoek's time, an essay on van Leeuwenhoek as surveyor and wine-gauger, and some brief excerpts from contemporary treatises on tobacco, coffee, and tea. A biographical register, a list of references quoted, and name and subject indexes are included.

The letters in the volume deal with such diverse subjects as skin glands, fish scales, attempts at disproving spontaneous generation, galls, structure of plant embryos, seeds and their germination, eggs of crustaceans, development of silkworms, structure of wood, coffee beans, structure of teeth of elephants as well of pigs, oxen, and men, and squinting and prenatal influence. The weight of all the extensive apparatus that makes the book so valuable as a work of reference can suppress neither the freshness of van Leeuwenhoek's observations nor the vividness with which he described them. The letters merit the attention given them in this great compendium, and, as important, they are in themselves wonderful to read.

JANE OPPENHEIMER  
*Department of Biology,  
Bryn Mawr College*

## New Books

### Mathematics, Physical Sciences, and Engineering

**Advances in Spectroscopy.** vol. 2. H. W. Thompson, Ed. Interscience, New York, 1961. 494 pp. Illus. \$13.

**Arches, Tables for Static Analyses.** Jan Szymczyk. Pergamon, New York, 1961. 536 pp. Illus. \$20.

**Charles Babbage and His Calculating Engines.** Selected writings by Charles Babbage and others. P. Morrison and E. Morrison, Eds. Dover, New York, 1961. 438 pp. Illus. Paper, \$2.

**Determination of Organic Structures by Physical Methods.** vol. 2. F. C. Nachod and W. D. Phillips, Eds. Academic Press, New York, 1962. 784 pp. Illus. \$16.

**Discrete Variable Methods in Ordinary Differential Equations.** Peter Henrici. Wiley, New York, 1962. 418 pp. Illus. \$11.50.

**Les Eclipses.** Paul Couderc. Presses Universitaires de France, Paris, 1961. 132 pp. Illus.

**Electromagnetic Waves.** R. E. Langer, Ed. Univ. of Wisconsin Press, Madison, 1962. 408 pp. Illus. \$6.

**Elementary Theory of Numbers.** W. J. LeVeque. Addison-Wesley, Reading, Mass., 1962. 140 pp. \$5.

**Experiments in Sound.** Nelson F. Bee-ler. Crowell, New York, 1961. 130 pp. Illus. (juvenile).

**Fundamental Data Obtained from Shock-Tube Experiments.** A. Ferri, Ed. Pergamon, New York, 1961. 426 pp. Illus. \$12.

**Gravity.** G. Gamow. Doubleday, Garden City, N.Y., 1962. 158 pp. Illus. Paper, \$0.95.

**Introduction to Chemical Instrumentation.** Edward J. Bair. McGraw-Hill, New York, 1962. 356 pp. Illus. \$10.75.

**An Introduction to Elementary Particles.** W. S. C. Williams. Academic Press, New York, 1961. 415 pp. Illus. \$11.

**Life in the Universe.** A scientific discussion. M. W. Ovenden. Doubleday, Garden City, N.Y., 1962. 160 pp. Illus. Paper, \$0.95.

**Linear Programming.** G. Hadley. Addison-Wesley, Reading, Mass., 1962. 532 pp. Illus. \$9.75.

**Magnetic Amplifier Analysis.** David L. Lafuze. Wiley, New York, 1962. 261 pp. Illus. \$9.75.

**Mathematical Recreations and Essays.** W. W. Rouse Ball. Macmillan, New York, 1962. 434 pp. Illus. Paper, \$1.95.

**Mathematics, a Cultural Approach.** Morris Kline. Addison-Wesley, Reading, Mass., 1962. 716 pp. Illus. \$7.75.

**Mathematics for Practical Use.** Kaj L. Nielsen. Barnes and Noble, New York, 1962. 248 pp. Illus. Paper, \$1.25.

**Methods Engineering.** Design and measurement of work methods. Edward V. Krick. Wiley, New York, 1962. 548 pp. Illus. \$10.75.

**Methods of Experimental Physics.** vol. 3, *Molecular Physics.* Dudley Williams, Ed. Academic Press, New York, 1961. 774 pp. Illus. \$19.

**Minerals for the Chemical and Allied Industries.** S. J. Johnstone and M. G. Johnstone. Wiley, New York, ed. 2, 1961. 799 pp. \$25.

**Modern Physics.** F. W. VanName, Jr. Prentice-Hall, Englewood Cliffs, N.J., ed. 2, 1962. 239 pp. Illus. \$8.25.

**Nonlinear Differential Equations.** Raymond A. Struble. McGraw-Hill, New York, 1962. 277 pp. \$7.50.

**Organic Chemical Crystallography.** A. I. Kitaigorodskii (translated from the 1955 Russian edition). Consultants Bureau, New York, 1961. 551 pp. Illus. \$17.50.

**The Plasma Dispersion Function.** The Hilbert transform of the Gaussian. Burton D. Fried and Samuel D. Conte. Academic Press, New York, 1961. 15 pp. + 404 pp. of tables. \$12.

**Quantum Mechanics for Mathematicians and Physicists.** Ernest Ikenberry. Oxford Univ. Press, New York, 1962. 281 pp. Illus. \$8.

**Radar Observes the Weather.** L. J. Battan. Doubleday, Garden City, N.Y., 1962. 159 pp. Illus. Paper, \$0.95.

**Radio Astronomy.** J. H. Piddington. Harper, New York, 1961. 128 pp. Illus. \$2.50.

**Scientific Foundations of Vacuum Technique.** Saul Dushman. J. M. Lafferty, Ed. Wiley, New York, ed. 2, 1962. 823 pp. Illus. \$19.50.

**A Second Course in Number Theory.** Harvey Cohn. Wiley, New York, 1962. 289 pp. Illus. \$8.

**Structural Design of Missiles and Spacecraft.** Lewis H. Abraham. McGraw-Hill, New York, 1962. 348 pp. Illus. \$12.50.

**Surface Phenomena in Metals and Alloys.** V. K. Semenchenko. Translated by N. G. Anderson. R. Kennedy, Ed. Pergamon, New York, 1961. 486 pp. Illus. \$17.50.

**Systems Engineering for the Process Industries.** Theodore J. Williams. McGraw-Hill, New York, 1961. 92 pp. Illus. \$4.95.