the author. It features elegant calculations, of binding mechanisms, lifetimes, and scattering cross sections for ions on vortex lines, which are then applied to experiments.

Students of theoretical physics will find particularly useful the derivation of the generalized hydrodynamic equations, from conservation laws and the Galilean transformation, and the discussion of Bogolyubov's theory of a weakly interacting Bose gas, in which second quantization is used. These are carried through with several of the usually elusive intermediate steps displayed so that the treatments are clear, detailed, and interesting.

A strong point of the entire work is the clear presentation of the theory in close association with important experimental data. This leads to a large collection of interesting and useful figures. In fact, the figures and references in this book form by themselves a good introduction to modern liquid-helium physics. These figures are supplemented by an excellent appendix which is a small storehouse of experimental and theoretical data on the properties of liquid helium.

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Comparative Neurology

The Central Nervous System of Vertebrates. HARTWIG KUHLENBECK. Vol. 1, Propaedeutics to Comparative Neurology (320 pp., illus.). Vol. 2, Invertebrates and Origin of Vertebrates (380 pp., illus.). Academic Press, New York, 1967. Each volume, $17.50.

The two volumes under review represent the introductory chapters of an intended five-volume treatise on the comparative morphology of the vertebrate nervous system. These two volumes, however, belie their title and have little to do with vertebrate neuromorphology. Accordingly it seems legitimate to consider each on its own merits as an independent work without prejudice to the following three volumes. Presumably these latter will deal more specifically with the subject of neuroanatomy and will represent a contribution to comparative neurology.

Volume 1 begins with a brief and unexceptional discussion of basic neurological concepts. A third of the volume is then devoted to a brief outline of the major phyla of the plant and animal kingdoms and a somewhat lengthy account of various aspects of organic evolution. The final half of the volume is undoubtedly of most interest, for in it Kuhlenbeck presents in detail a discussion of the history, philosophy, and methodology of comparative morphology. He is an advocate of the form-analytic approach, in which primary attention is directed to topologic location and orderliness of structure. *Homology* and *analogy* acquire purely morphological definitions in terms of the relation of a structure to a composite ideal form or *Bauplan*, and have neither functional nor phylogenetic connotations. Such a strict separation of form and function represents an approach which is perhaps foreign to many active neuroanatomists today, and many of the issues raised in the final sections of volume 1 seem of less immediate importance than they might have 30 years ago. Nevertheless, the approach advocated is logically valid, and the question of its usefulness to current neurological thought will be determined only upon the appearance of the final three volumes which embody it.

Despite the encyclopedic work of Bullock and Horridge on invertebrate nervous systems, there remains a definite place for a modest, competent summary of invertebrate neuroanatomy. Volume 2 purports to be such a review, but unfortunately it fails decisively. The treatment, which is on the level of an elementary zoology text, is diffuse and unorganized, with extensive interruptions for unconnected or irrelevant observations. Much of the material seems derived from secondary sources, and literature citations are too frequently neither the best nor the most recent. Although undoubtedly much of the work on invertebrate neuroanatomy was done before 1930, the omission of adequate discussion of many more recent findings, such as those of Pantin and Horridge on coelenterate nerve nets or of Alexandrowicz on arthropod ganglia and receptors, seems remarkable. In many places implications of the findings of comparative neurophysiology for structural organization seem to be misunderstood or ignored, and obsolete or unusual terminology may cause some confusion. Illustrations are profuse but of uneven value; many are poorly integrated with the text and many have been extensively modified or simplified from the original. The volume ends with a review of theories of the origin of the vertebrates.

I have difficulty in imagining the audience for either of these volumes. Those interested in the history or philosophy of morphological thought as exemplified by the German school may find the first volume of value. The second volume, however, is not sufficiently authoritative to serve as a reference for any professional scientist, and it is too poorly organized and written to be recommended as an introduction to invertebrate neuroanatomy for scientist, student, or layman.

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Books Received

Aerial Discovery Manual. Carl H. Strandberg. Wiley, New York, 1967. xvi + 249 pp., illus. Paper, $14.95. Wiley Series on Photographic Science and Technology and the Graphic Arts.

By Prescription Only. Morton Mintz. Beacon Press, Boston, 1967. xlvi + 446 pp. Cloth, $6.95; paper, $3.95. Revised edition of *The Therapeutic Nightmare*, 1965.

Challenge to the Court. Social Scientists and the Defense of Segregation, 1954–1966. I. A. Newby. Louisiana State University Press, Baton Rouge, 1967. xiv + 239 pp. $6.50.

The Changeless Order. The Physics of Space, Time and Motion. Edited with introductions by Arnold Koslow. Braziller, New York, 1967. viii + 328 pp., illus. $7.50.

Characteristics and Operation of MOS Field-Effect Devices. Paul Richman. McGraw-Hill, New York, 1967. x + 150 pp., illus. $10.

Chemical Engineering in Medicine and Biology. Proceedings of the 33rd annual chemical engineering symposium of the Division of Industrial and Engineering Chemistry of the American Chemical Society, Cincinnati, Ohio, October 1966. Daniel Hershey, Ed. Plenum, New York, 1967. x + 658 pp., illus. $25.

Courtship. An Ethological Study. Margaret Bastock. Aldine, Chicago, 1967. viii + 220 pp., illus. $6.

The Craters of the Moon. An Observational Approach. Patrick Moore and Peter J. Cattermole. Norton, New York, 1967. 160 pp., illus. $5.95. Amateur Astronomer's Library.

Handbook of Filter Synthesis. Anatol I. Zverev. Wiley, New York, 1967. xiv + 576 pp., illus. $19.95.

High Energy Physics. Vol. 2. E. H. S. Burhop, Ed. Academic Press, New York, 1967. xii + 483 pp., illus. $24.

Indians of Brazil in the Twentieth Century. Edited and with parts translated from the Portuguese by Janice H. Hop-