

## Psychological Analysis

**Uncertainty and Structure as Psychological Concepts.** Wendell R. Garner. Wiley, New York, 1962. ix + 369 pp. Illus. \$8.95.

In this book the information measure that was originally developed in communication engineering serves as the basic tool for a careful analysis of various psychological problems. Using such concepts as "quantity of information," "redundancy," "information transmission," "structure," and "channel capacity," Garner searchingly reexamines experimental data in the areas of perceptual recognition, reaction time, pattern perception, language structure, tracking behavior, and concept attainment. After justifying the utility of the information measure in terms of its ability to uniformly handle distributional and sequential constraints, its nonmetric properties, and its multivariate potentialities, Garner defines such additional concepts as "total constraint," "internal and external constraint," "contingent uncertainty," and "redundancy" and develops the equations relating these concepts. These concepts then become the major tools for gaining insight into a variety of problems—for example, the effect of response restriction upon stimulus and response uncertainty, the role of redundancy in pattern perception, and the effects of irrelevant information in concept attainment tasks. For each of the many problems that he examines, Garner's rigorous and penetrating analyses resolve previously contradictory results (such as those which sometimes reveal redundancy to be helpful and those which reveal it to be harmful).

Garner warns us against employing the informational measure for psychological problems where it is inappropriate. In particular, he emphasizes that informational measures become meaningless where we have an indefinite or an unknown set of possible alternatives. Thus, his approach applies to tasks in which the subject is required to select his response from a predetermined set of alternatives, but presumably it does not apply to open-ended situations in which the subject is free to generate his own response. Although Garner excludes open-ended situations from his analyses, social psychologists start from just such situations to develop their own concepts of structure.

These latter workers have concentrated on ways to operationally specify the context of alternatives within which an individual responds (the "structure" of his "psychological space"). It is tempting to anticipate that these two approaches for dealing with the framework within which behavior occurs will converge. The social psychologists are progressing toward ways to specify the coordinates of a space within which responses occur. Garner, on the other hand, concentrates on ways to tease out the interrelationships among informational inputs for situations in which the coordinates have been determined or specified prior to the experiment.

Garner has written a wise and thoughtful book that has obvious value for psychologists who work in psychophysics and perceptual-motor behavior. To those investigators Garner suggests many provocative analyses of previously puzzling problems as well as several ideas for meaningful experiments. But Garner also has much to say to other psychologists, who, hopefully, will not be deterred by the use of problems from traditional experimental psychology. In reevaluating problems of experimental psychology in terms of structure and context, for example, Garner has transformed these problems into a form that may now suggest new problems and ideas to those social psychologists who are also struggling with ways of quantifying behavior in terms of the context in which it occurs.

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## Paleoanthropology

**History of the Primates.** An introduction to the study of fossil man. Wilfrid LeGros Clark. British Museum (Natural History), London, ed. 8, 1962. vi + 119 pp. Illus. Paper, 5s.

This little volume first appeared in 1949. Subsequent revisions by the author, one of the foremost living authorities on Primates and human evolution, have kept it up-to-date. Although it is intended primarily as a museum guide, it actually represents the best available introduction to paleoanthropology. This is no small achieve-

ment, considering the number of new fossil discoveries that have been made in this field.

The first half of the book provides an excellent background for an understanding of fossil man. It contains brief but well-presented sections on animal classification, natural selection, geological time, and the major features of the primate skull and teeth; a survey of the living primate groups (anthropoid apes, Old World and New World monkeys, tarsiers, lemurs, tree-shrews); and a remarkably comprehensive account, in 15 pages, of fossil prosimians, monkeys, and anthropoid apes. The second half is devoted to the fossil remains of the Hominidae (man and his immediate forerunners). Successive sections deal with the australopithecines, the pithecanthropines, the origin of *Homo sapiens*, Neanderthal man, the Neanderthaloids of Africa and Asia, and late Paleolithic *Homo sapiens*.

There are 40 excellent illustrations and a literature list of 30 titles.

This new edition, like the earlier ones, will no doubt prove to be of considerable value to students in beginning courses in anthropology and in other courses, such as those in biology and geology, that deal with human evolution. It has the great virtue of not requiring any real knowledge of human or comparative anatomy.

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## Introductory Treatment

**Mechanisms of Organic and Enzymic Reactions.** S. G. Waley. Oxford University Press, New York, 1962. xiv + 365 pp. Illus. Plates. \$11.20.

This book, another attempt to effect a synthesis of organic and enzymic mechanisms, is written at a fairly elementary level and is intended for both chemists and biochemists. For this reason considerable space is given to an introductory treatment of molecular structure and to the principles and methods of the organic reaction mechanism studies. The various topics of mechanistic interest are selected and presented in a conventional way; this presentation begins with nucleophilic substitution and includes elimination and addition reactions, reactions of

carbonyl compounds, esterification and hydrolysis, carboxylation and decarboxylation, saturated rearrangements, aromatic substitution, and polymerizations.

Waley gives a clear though elementary exposition of most of the highlights of organic reaction mechanisms. After each organic topic, he briefly describes the pertinent enzymic mechanisms. In general these latter discussions are rudimentary as a result of the inherent lack of information on enzymic mechanisms but also because the author greatly emphasizes the necessary background of organic mechanisms. The general topics are quite suitable for a discussion of organic reaction mechanism, but some are not very pertinent to enzymic mechanisms; for example, Waley's 34-page discussion of the mechanisms of aromatic substitution, one of the fascinating areas of organic chemistry, contains only 1½ pages pertinent to enzymic reactions. On the other hand, oxidation-reduction mechanisms, a most pertinent subject, are given only rudimentary treatment in the chapter on carbonyl reactions.

*Mechanisms of Organic and Enzymic Reactions* is a presentation of basic groundwork rather than a probe at the research frontier of all the area it treats. That the author refers to only ten papers published later than 1959 in this book published in 1962 attests the truth of this statement. The author presents clearly the highlights of organic reaction mechanisms and the beginnings of enzymic mechanisms in an elementary form. His book should interest those who are novices in both areas.

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## Text and Reference Source

**A Hundred Years of Geography.** T. W. Freeman. Aldine, Chicago, 1962. 335 pp. \$6.95.

The aim of this book, whose author is reader in geography at Manchester University, is to provide a synoptic view of the development of academic geography during the past century. In British geography Freeman discerns six successive trends, which begin with the encyclopedic compilations of 19th-century travelers and which end with

the current tendency towards systematic specialization, based on detailed local study. These trends are outlined in chapter 1 and then discussed chronologically in three subsequent chapters, special emphasis being placed on the work of individual geographers whose biographies appear in a short appendix. In chapters 5 through 10 Freeman changes from a chronological treatment to a discussion of the value of the regional approach in geography and of the major systematic fields. Along with his treatment of physical, economic, social, and political geography, he devotes a special chapter to the development of cartographic techniques and their application in national atlases. A final chapter provides a summary of the themes outlined in chapter 1 and an indication of the probable trend of future research; here the author's views are expressed in this phrase: "many ideas and new techniques are not new, but merely taken up again after an interval of years and more effectively developed."

According to the publishers, this book is intended to be an introductory text and a reference book. It fulfills both aims, not least because books on the history of modern geography are few in number. As a text, it provides a coherent and well-written survey of a broad field, by an experienced geographer, although its value might have been enhanced by a clearer statement of the purpose of modern geography as it is revealed in recent methodological writings. As a reference book, it provides a straightforward account of the growth of geography in Britain and its relationship with contemporary thought in Europe and America. Here Freeman makes a notable contribution; he may not be a provocative writer, but he has a broad command of the literature, and his book deserves to be widely read.

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## Note

### Food for Thought

The professional and the nonprofessional alike will find in *Nutrition in a Nutshell*, written by Roger J. Williams (Doubleday, Garden City, N.Y., 1962. 171 pp. 95¢), a convincing account of

why nutrition is important not only for the body as a whole but for its multitude of parts—the cells and tissues that make up the body. Williams discusses qualitative and quantitative nutritional needs, the results of faulty nutrition, nutritional supplements, nutrition education, the personal responsibility for being well nourished, keeping up-to-date on nutrition, and avoiding food faddism.

His advice for being well nourished is most general but carefully explained: (i) Don't be a hypochondriac or a worry-wart; (ii) diversify your diet; (iii) use and cultivate your body wisdom; (iv) avoid too much refined food; and (v) use nutritional supplements when, on the basis of informed opinion, it seems desirable.

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## New Books

### General

**The Cubeo.** Indians of the Northwest Amazon. Irving Goldman. Univ. of Illinois Press, Urbana, 1963. 313 pp. Illus. Paper, \$4.

**Parts and Wholes.** The Hayden colloquium on scientific method and concept. Daniel Lerner, Ed. Free Press (Macmillan), New York, 1963. 192 pp. Illus. \$4.95.

**Point to the Stars.** Joseph Maron Joseph and Sarah Lee Lippincott. McGraw-Hill, New York, 1963. 96 pp. Illus. \$3.95 (juvenile).

**Producing, Harvesting, and Marketing High Quality Southern Timber.** Eleventh annual forest symposium. William C. Hopkins, Ed. Louisiana State Univ. Press, Baton Rouge, 1962. 117 pp. Illus. \$4.

**Psychology.** The science of mental life. George A. Miller. Harper and Row, New York, 1962. 399 pp. Illus. \$6.95.

**The Sonjo of Tanganyika.** An anthropological study of an irrigation-based society. Robert F. Gray. Oxford Univ. Press, New York, 1963. 195 pp. Illus. \$6.

**Star Gazing with Telescope and Camera.** George T. Keene. Chilton, Philadelphia, 1962. 128 pp. Illus. Paper, \$1.95.

**The Study of Rockets, Missiles, and Space Made Simple.** Walter B. Hendrickson, Jr. Doubleday, Garden City, N.Y., 1963. 157 pp. Illus. Paper, \$1.45.

**University Research and Patent Policies, Practices, and Procedures.** Publ. No. 999. Archie M. Palmer. Natl. Acad. of Sciences—Natl. Research Council, Washington, D.C., 1962. 299 pp. Paper, \$5.

**The Weather Handbook.** H. McKinley Conway, Jr., Ed. Conway Publications, Atlanta, Ga., 1963. 255 pp. Illus. \$15. Weather summaries for 100 cities in the U.S. and for 160 outside the U.S.