

does not concern itself only with the surface-active agent. A brief section on recent advances in surface physics tends to emphasize the important role played by the substrate in phenomena involving surfactants. The bulk properties of surface-active agents, particularly the formation and structure of micelles, are given good coverage.

Because of its encyclopedic coverage and extensive bibliography, volume 2 of *Surface Active Agents and Detergents*, by Schwartz, Perry, and Berch, should be a valuable addition to the library of anyone whose work requires an up-to-date knowledge of this important and active field of technology.

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Thinking. An experimental and social study. Frederic Bartlett. Basic Books, New York, 1958, 203 pp. \$4.

This highly readable little book represents another example of the characteristically British trait of performing interesting psychological research with relatively simple methods, in contrast to the American trend toward increasing dependence on complex mathematical and electronic techniques. It reports the outcome of 25 years of Bartlett's own thinking about thinking and is intended to be neither an exhaustive survey of the field nor the final report of an organized research program.

Bartlett's approach incorporates several unique features. He conceives of thinking as an advanced form of "bodily skill," to be most fruitfully studied in terms of what is known about the latter. The book is divided into two sections. The first is concerned with thinking within "closed systems," in which a limited number of "items" is involved. Most of Bartlett's experimental work is included here. Chapters on experimental, everyday, and artistic thinking constitute the second section (entitled "Adventurous thinking"), which includes primarily biographical and case material.

Semantic confusion results from Bartlett's definition of thinking as "the extension of evidence in accord with that evidence so as to fill up gaps in the evidence." This brings into the fold much of the work on perception, as well as Bartlett's own classic work, *Remembering*. In contrast with the most common usage, thinking is distinguished from problem-solving in that the latter is said to be concerned only with behavior directly associated with the solution to a problem.

The space devoted to reports of ex-

periments seems uneven; I found myself wishing for more detailed descriptions of procedure and results in some instances and for the omission of lengthy protocols in others. Those researchers on complex mental processes who find straightforward conclusions exceedingly difficult to come by may be somewhat skeptical of the sweeping general statements made with respect to the results of some experiments. Unfortunately almost no effort is made by Bartlett to relate his work to similar work in other laboratories.

Thinking will undoubtedly be most useful to those who are active in this line of research, as a stimulant for new ideas, although it is sufficiently nontechnical for the interested layman. It is not appropriate for use as a textbook, nor was it intended for such use, but it may well be valuable to students of research methodology. This is particularly true of the chapter in which Bartlett attempts to reconstruct some of his own scientific thinking.

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The Lipids. Their chemistry and biochemistry. vol. III, *Biochemistry*. Biosynthesis, oxidation, metabolism, and nutritional value. Harry J. Deuel, Jr. Interscience, New York, 1957. xxxvi + 1065 pp. \$25.

The text of this posthumous, third, and final volume of *The Lipids* was completed before the untimely death of Harry Deuel. Some of his colleagues and friends have finished the task of seeing the manuscript through the press. The material was left largely unchanged, except that certain minor corrections of details have been made to include some information that became available after the time of the author's final draft. A brief biographical introduction has been provided by his long-time friend George R. Cowgill.

Chapter 1 provides a recapitulation of what is known about digestion, absorption, transport, and storage of lipids—topics considered at length in volume 2.

Seven chapters deal with the metabolism, including, as possible mechanisms, the biosynthesis and oxidation of fats; fatty acids of various kinds, saturated and unsaturated, with straight and branched chains; hydroxy, keto, di- and tricarboxylic acids; fatty acid amides and aldehydes; phospholipids and their hydrolysis products; cholesterol and related sterols; and hydrocarbons. Other chapters review the role of acetic, for-

mic, and propionic acids in the intermediary metabolism of fats; the question of the conversion of fat to carbohydrate; and the metabolism and nutritional value of the vitamins A, D, E, and K. The carotenoid pigments, the essential fatty acids, and the nutritional value of fats—subjects of long interest to Deuel, as attested by the many references to articles bearing his name—are especially fully treated.

The discussions are noteworthy for the comprehensive and detailed presentation of the historical background and development of the several topics and for the attention given to earlier theories and views, even though experimentally unconfirmed or subsequently discredited. In general, the compilation of knowledge of the various subjects has been based on a very thorough review of the literature, carried well up to date. Rapid advances in certain of the areas and the circumstances surrounding the completion of this volume have, however, precluded the inclusion of some more recent discoveries, such as the biosynthesis of lecithin and the oxidation of propionic acid and certain branched-chain fatty acids.

All who are interested in the chemistry and biochemistry of the lipids are indebted to Deuel for the competence, industry, and tenacity of purpose with which he assembled and completed this three-volume treatise.

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The Tissues of the Body. An introduction to the study of anatomy. W. E. Le Gros Clark. Oxford University Press, New York, ed. 4, 1958. xii + 415 pp. Illus. \$9.75.

This unique book first appeared in 1939. Dynamic in point of view and lucid in style, it was and remains entirely modern in presenting anatomy as a living science that can be studied by an experimental approach, rather than as simply a discipline limited to the study of embalmed cadavers and fixed tissues.

Human anatomy has traditionally been taught as two separate courses—gross anatomy and microscopic anatomy. Whether or not this is desirable lies outside the scope of this review. In any event, this arrangement is likely to persist in most medical schools, if only for convenience of presentation. Yet, whatever its virtues, it unfortunately tends to mislead the beginning student into regarding gross anatomy and microscopic anatomy as distinct and even unrelated disciplines. One of the great-

est virtues of this book is that it serves to link together these two approaches to anatomy and to demonstrate, in a manner which will appeal to even the beginning student, that they are properly parts of one and the same subject. Sir Wilfrid has, moreover, attained his goal of being not only informative but also intellectually stimulating.

In preparing this latest revision, the author has successfully resisted the too often fatal temptation to expand the contents; thus, despite the advances in anatomical knowledge, the book is only 43 pages longer than the first edition of 19 years ago. Unfortunately, some of the illustrations have deteriorated in the course of the several editions, and the type of paper used in this new one is not the most favorable one for halftones. One of the outstanding features of this book has been the numerous references, in the form of footnotes, to the pertinent, basic literature, a procedure that is particularly attractive to the medical student. The number of references (not allowing for some repetition) now totals nearly 600, and some 70 (or about 12 percent) relate to publications which have appeared since 1952, the date of the last previous edition.

In view of the growing tendency toward drastic curtailment of the time allotted to the study of human anatomy, at least in the United States, this up-to-date, integrating, and synthesizing presentation is especially valuable.

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New Books

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