

## Book Reviews

**Aggression.** John Paul Scott. University of Chicago Press, Chicago, 1958. xi + 149 pp. Illus. \$3.75.

This compact little book provides a good over-all view of what we know, to date, about the biological aspects of mammalian aggression. Scott's many years of behavior research at the Roscoe B. Jackson Memorial Laboratory have given him a sure touch not only in describing the actions of animals but in recognizing the relevant antecedents of even such complex forms of behavior as aggression. Written for the series "The Scientist's Library—Biology and Medicine," this book is technical at the knowledge level of biological and behavioral scientists but reports broad conclusions rather than the interim puzzlements, excitements, or arguments of those who are presently immersed in such research. It is eminently readable—delightfully so in many places—and the author has not hesitated to introduce thoughtful commentary on the social implications of his biological facts. The University of Chicago Press is to be commended for establishing this popular (among scientists) series and congratulated for having got such a skillful recounter to present this—for biology—difficult area of behavioral science.

Scott defines aggression as the act of initiating a fighting attack. He describes the mechanics of the process by which animals learn to attack and to refrain from attacking and shows how the facts fit a starkly Pavlovian theoretical model. To psychologists, this will be the most interesting chapter in the book, for by avoiding the more customary definition of aggression (that given in terms of intent to injure), Scott has been able to conceptualize aggression as a simple operant act. If this procedure leaves something to be desired in the explanation of human aggression, it nonetheless orders well a significant body of observations on the lower mammals.

Successive chapters describe the physiology of aggressive behavior. The physiological chapter provides an updating of older theories (Cannon's emergency and the James-Lange self-perception), with a brief and not-too-technical description of recent research. Scott concludes that aggression must be understood as an externally instigated reaction, depending for its duration and vigor on a complex

feedback mechanism. This rejection of an instinct theory that implies spontaneous internal instigation will doubtless satisfy biologically oriented psychologists; it still bypasses the question of how spontaneous attacks are instigated in the absence of primary stimulus conditions. While the Pavlovian model can probably be expanded to account for such behavior, Scott has made no effort to examine the complexities of human aggression that have led psychoanalytic investigators to posit instinctual sources of some of this behavior.

The book is at its best when it treats of the lower animals—their physiology and the effects of their environments. The casual disregard of extensive areas of research on human aggression, however, leaves the problem of aggression, as such, only half covered. The book points up the apparent dilemma of current comparative psychology over whether to limit consideration of a behavioral problem to its infrahuman manifestations—and thus maximize the importance of this research discipline—or to recognize man as an important object of comparative study—and perhaps make an inquirer wonder why we should *infer* answers to practical human problems from mice, rather than seek the answers by direct investigation of man himself. Scott has chosen to emphasize the lower mammals and has done a good job of it. However, since he has had to display, also, important *species* differences, even among breeds of dogs, one cannot but wonder how applicable his conclusions are for an understanding of human aggression. Perhaps this is to say no more than that Scott did what he set out to do so effectively that one only regrets he did not do twice as much.

ROBERT R. SEARS

*Department of Psychology,  
Stanford University*

**The Chemistry and Biology of Yeasts.** A. H. Cook, Ed. Academic Press, New York, 1958. xii + 763 pp. Illus. \$22.

In spite of the great progress that has been made in recent years on the whole frontier of yeast research, it is probably correct to say, as Winge and Roberts maintain in their excellent chapter,

"Life history and cytology of yeasts," that of all organisms yet investigated, none have caused more disagreement among cytologists than yeasts. Although the action of yeast has been known and used by man since time immemorial and the yeast organism was observed by Leeuwenhoek as far back as 1680, we must admit that the deeper we penetrate into the secrets of this organism that plays such an important role in human life, the more we become aware of great areas of physiological and biochemical realities that need further elucidation.

Yeast research is presently a focal point of scientific activity, cutting across biophysics, biochemistry, ecology, cytology, genetics, technology, nutrition, physiology, and pathology; the subject can no longer be treated exhaustively and authoritatively by one single specialist but requires the cooperation of numerous scientists, each an expert in his area of research, for presentation of a comprehensive and systematic and yet not too unwieldy assessment of the present status of this very broad, and yet inadequately explored, field of knowledge, still in continuous flux.

The great and difficult task of coordinating numerous contributions from all frontiers of yeast research has been admirably accomplished by the editor, who is himself an eminent authority in yeast research. He has presented here the first comprehensive work to encompass in one volume a vast store of information on all aspects of yeast research.

While the book will be an invaluable reference work in the library of mycologists and biochemists, it should also become an efficient tool in the hands of nutritionists, plant and animal pathologists, and such professional people as bakers, brewers, distillers, and food technologists in general. However, it should also be read by advanced students of cytology, plant physiology, and genetics, whose well-established notions about living matter and life processes will be shaken in their foundations by many facts presented here that should become general knowledge in the field of life sciences. Space permits me to mention only a few outstanding items.

We like to accept it as a basic fact of life that germ cells have half the number of chromosomes of somatic cells. We also know that yeasts reproduce both sexually and asexually and exist in either haploid or diploid phases. However, in contrast to generally accepted laws of reproduction, vegetative growth of yeast can take place in the haploid and diploid phase as well as in a mixture of both, and what formerly were thought to be two distinct genera are actually only two phases of one and the same genus.

Yeasts have definite sexuality, and whether or not sexual reproduction takes