

examples of control fit the more general and heuristic idea that control is directed at restoring the independence of media.

The stimulation produced by Barker's theorizing is matched by that of his data and procedures. The data about Midwest's environments have the same unsettling effect on traditional ideas in psychology as do some of the papers in Willems and Raush. Affect, thinking, and instrumental talk are prominent in a relatively small portion of the environments occupied by people in Midwest, yet many theorists argue that these mechanisms are crucial to understanding motivation, attitude formation, social perception, and so on. By comparing the availability of settings with their occupancy in man-hours, Barker is able to pinpoint those settings that overgenerate and undergenerate behavior. It is tempting to equate a setting that undergenerates behavior with one that is undermanned, but it is not clear whether this is warranted and Barker says nothing to inform us one way or the other. This reflects the major disappointment a reader of the book may feel. With all the information and insight Barker presents, there is no attempt to illustrate the theory by means of data presented in the preceding chapters. One can only guess at how the theoretical concepts would be operationalized in terms of the data that were gathered. But there is enough stimulation in this book to insure that other investigators will push these ideas ahead. There is no question—Barker has more to say about behavioral environments than any other person currently writing in psychology.

It is not apparent that many realize this, however. His other major book—*Midwest and Its Children*—is now out of print. Surely a scientist of Barker's stature deserves better than that. Thus it is small wonder that naturalistic researchers feel compelled to argue their case to excess. The *Zeitgeist* in psychology has so far been downright rude toward naturalistic research. Perhaps these two books will induce a long overdue change.

KARL E. WEICK

Department of Psychology,
University of Minnesota, Minneapolis

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The Fundamental Concepts of Pharmacology

Principles of Drug Action. The Basis of Pharmacology. AVRAM GOLDSTEIN, LEWIS ARONOW, and SUMNER M. KALMAN. Harper and Row, New York, 1968. xii + 884 pp., illus. \$18.50.

Twenty-eight years ago the teaching and practice of pharmacology were given renaissance (perhaps more properly *naissance*) by the appearance of Louis Goodman and Alfred Gilman's *The Pharmacological Basis of Therapeutics*. That book of classic title and content, now in its third edition, has also made possible the definition of this subtle science, a blend of chemistry, magic, molecular and organ physiology, and the life-or-death practice of medicine.

Goodman and Gilman's book is constructed along lines of organ or drug systems, making it possible for the student or physician to find for any subject the essential bridge between basic and applied knowledge. The formula has been successful enough to spawn copies and competitors, none quite matching the original.

But until *Principles of Drug Action* no general text has existed on the fundamental concepts of pharmacology, which cut across all organ systems and therapeutic applications: binding forces of drugs; structure-activity relations and their biochemical basis; principles of drug absorption, distribution, and elimination; drug metabolism; general theories of drug resistance; principles of toxic reactions. These are main topics in medical and graduate school teaching of pharmacology, and now for the first time we have a book for the purpose. And for good measure, the book is literate, critical, and abundantly documented.

Somewhat surprising and most important is the suitability of this book to the medical student. Not that he should or will consume it all, but that the fundamental matter of pharmacology is now available in clear and thoughtful exposition. Perhaps one key to this great success lies in the "476 illustrations" noted on the title page. Thus we are taken, on almost every page, back to original data, which are analyzed and put into context, in a manner eminently suitable for both teaching and research.

There are, certainly, small and large omissions, and some small errors. Most are not worth documenting, but it may be asked if a book that reflects "the breadth of modern pharmacology" can exclude the autonomic and cardiovas-

cular and renal systems. It is not a systems book; yet, there are "principles of drug action" that derive from chemical interactions at the physiological level. Perhaps the next edition. . . .

Then there are some surprising features: chapters on carcinogenesis, teratogenesis, drug development including clinical trials, and (yes!) principles of prescribing. What does it mean when three reasonably avant-garde pharmacologists, who know all about how to misread an RNA codon, devote at least 100 pages to such matters? Are they intimidated by beards talking relevance? Probably not. The truth of the matter is that in pharmacology there is a long but coherent line between the most basic and the most applied; relevance is built into the science, back to Marshall, Abel, and Schmiedeberg.

Are the student and teacher then left with a dilemma sounding like a line out of Beowulf? Goodman and Gilman vs. Goldstein *et al.*? Certainly not! Both are essential; they are complementary. The total cost—0.5 percent of a year's expenses to the medical or graduate student, or about the cost of one football weekend.

THOMAS H. MAREN

Department of Pharmacology and
Therapeutics, University of Florida
College of Medicine, Gainesville

Damage-Induced Growth

Tissue Repair. R. M. H. McMINN. With a chapter by J. J. Pritchard. Academic Press, New York, 1969. xii + 432 pp., illus. \$23.50.

This book is concerned largely with the response of adult mammalian tissues and organs to damage. There is also some discussion of compensatory hypertrophy and hormone-induced growth. Unlike most books on tissue repair, which limit themselves to particular organs such as the skin, this one covers all the principal organs. There is a good author and subject index. The chapter on bone repair is written by J. J. Pritchard.

Tissue Repair is not only the most comprehensive book in recent times on the subject of damage-induced growth, but it also brings order to the data it summarizes, and it tells the reader what is known as well as what is not known. As might be expected in a book of such breadth, the depth