

chapter, this flaw could be overlooked. But the nature of the book suggests that several chapters will be relevant to a given clinician, and he or she will be quite aware of certain suggestions (e.g., using a 24-hour halter monitor) after seeing them several times throughout the book. Also, it is not always apparent when the author shifts from citing the literature to his own opinions. The most apparent example is his initial discussion of drug side effects (prior to the comprehensive chapter on that topic) in which no references are included after he indicates that a particular side effect is commonly associated with a certain drug.

The prioritizing of the material included in this book is also occasionally difficult to understand. For example, the

discussion of aortoiliac surgery is far more detailed than would be required for the nonsurgeon, either physician or psychologist. Even suggestions for surgical technique are included! This section is followed by only one small paragraph on counseling prior to surgery, a topic on which volumes of literature exist.

Generally, the intention of this book is laudable, and the author succeeds in providing information that should be considered by every cardiologist in clinical practice. The wealth of empirical information will not only add to the quality of patient care but will no doubt have an extremely favorable impact on the life satisfaction of cardiac patients. Hopefully, their doctors will incorporate the information into their daily practices. ■

ing with the intention of the contributors and therefore should not give rise to criticism. However, the heterogeneity in the arrangement of the chapters does not make for easy reading. The great variation in the more or less detailed treatment of the individual domains (the length of chapters ranges from 14 to 38 pages) does not make this book appropriate for all readers in the same way. The question of who should read the book can be answered only in relation to the particular chapters.

In an opening chapter by Baddeley and a final chapter by Fox, the relation between cognitive psychology and cognitive science is discussed in a general way. Baddeley argues that the empirical research on human information processing is important for cognitive science. Fox discusses the role of computer simulation in cognitive psychology and evokes the danger of the transmogrification of artificial intelligence from science to engineering.

Two other chapters, "Auditory Preprocessing and Recognition of Speech" by Patterson and Cutler and "Psycholinguistics: Some Research Issues" by Noordman, can be used as informative introductions that offer novices such as the present reviewer a very good overall view of the area. Additionally, interesting research perspectives are offered in both chapters. Patterson and Cutler argue that it is necessary to give more attention to the results of current work on psychological models of auditory processing and word recognition in automatic speech recognition research. Interdisciplinary research projects that focus on the interrelation between language and thinking are described by Noordman at a concrete level.

The remaining three chapters are perhaps more suited for those who are already familiar with the research areas. In a rather concise chapter, "Human Vision and Cognitive Science," Watt and Rogers explore the possibilities of, and the need for, collaboration between human-vision and machine-vision researchers. Higher level information processing is the focus of two other chapters. Although the empirical information is not new, the authors bring together different theoretical approaches in an enlightening and stimulating way and thus offer new perspectives. In "Learning and Memory," Phillips and Baddeley describe the decisive role played by cognitive psychology in the past in cognitive science, noting, for example, that the foundations of connectionism are inherent in learning psy-

Cognitive Psychology and Cognitive Science

Alan Baddeley and
Niels Ole Bernsen (Eds.)
Research Directions in Cognitive
Science: A European Perspective,
Vol. 1: Cognitive Psychology
Hillsdale, NJ: Erlbaum, 1989.
154 pp. ISBN 0-86377-111-4. \$21.50

Review by
Elsbeth Stern

Alan Baddeley, director of the Medical Research Council Applied Psychology Unit (Cambridge, England), is author of Working Memory. ■ Niels Ole Bernsen, professor at the Cognitive Science Center of the University Roskilde (Denmark), is author of Knowledge: A Treatise on Our Cognitive Situation. ■ Elsbeth Stern is a senior researcher in developmental psychology at the Max-Planck-Institute for Psychological Research (Munich, Germany).

Cognitive science and connectionism are undoubtedly "in vogue" in psychology, and it is believed that they will provide an impetus for advances in basic research in different areas of psychology. Rather than asking what fields in psychology might profit from cognitive science, the question in this volume is put the other way around: In what way can cognitive science profit from the empirical results arising from cognitive psychology? The book is one of five volumes in the series "Research Directions in Cognitive Science: European Perspectives," which explores the potential for interdisciplinary European collaboration within the framework of cognitive science. The series summarizes the findings of a joint European project in cognitive science, organized and funded as a col-

laborative network by the research unit FAST (Forecast and Assessment in Science and Technology) of the European Communities, that was organized by Niels Ole Bernsen. Alan Baddeley is the coordinator for cognitive psychology and selected the topics and authors in this volume.

Collected volumes, particularly when they present a summary of the discussions of a scientific conference, require critical reading. Too often, these books contain very heterogeneous contributions that mostly provide a repetition of already published ideas. This reproach does not apply to this book. Although very different findings are presented in each of the chapters and are discussed in the context of the particular topic treated, heterogeneity in the choice of topics is in keep-

chology. For future research, these authors emphasize the importance of cooperation with neurobiologists. In the chapter "Problem-Solving, Reasoning, and Decision-Making," Evans particularly emphasizes research in deductive thinking and judgment under uncertainty and stresses the important role of domain-specific knowledge in different areas of problem solving, which has to be taken into consideration in cognitive modeling.

The book thus not only addresses the target group that the editors had in mind (i.e., researchers in the disciplines involved in cognitive science) but is of interest to psychologists as well. Besides giving an overview of recent research in different topics and offering new research

perspectives, there is another positive aspect of the book: The results and intentions of a major research program are made available and understandable to interested professional colleagues. However, although many topics are covered, there are two important omissions: motor skills and attention. The former is covered in a volume on neuroscience in this series, but the area of attention is not mentioned at all in the present volume. Because attention is something that is important for human cognitive processing but not for computers, a discussion of the ways in which recent research on attention could contribute to cognitive science would have completed the book. ■

that the chapters with a developmental emphasis are skeptical of Piaget's approach to understanding knowledge acquisition. Piaget (1954) constructed a theory of intellectual development on the idea that the child develops through a number of qualitatively distinct stages; thinking is initially defined by sense and action and later through mental operations, which eventually become logical and abstract. In marshalling evidence for this theory, Piaget described the development of a number of technical concepts (e.g., space, conservation, number) necessary for one to interact effectively in a world populated by physical things.

A number of the chapters in this volume rally around the position that our world is more significantly inhabited with people and that using the development of technical intellectual concepts as a single-minded index to understanding the maturing mind is wrongheaded. Several of these chapters underscore the social content of thinking. Whiten and Byrne, for example, argue that understanding the evolution of primate social intelligence (rather than technical intelligence) holds more promise for revealing the fundamentals of primate cognition. Trevarthen extends this argument to human infants and emphasizes the primacy of the infant's communicative orientation to a world of people (as opposed to one of physical objects). Lloyd and Duveen follow this lead into early childhood and propose that a significant outcome of the development of children's thinking during the first four years of life is a gender identity.

Several other developmental chapters emphasize social mechanisms of cognitive change. Rogoff, for example, stresses the child's active engagement with willing adult tutors who facilitate the child's movement through the zone of proximal development. Light and Perret-Clermont describe a number of social contextual effects on performance on Piagetian tests of conservation. Like Rogoff, these authors emphasize the theme of socially guided cognitive change. However, rather than emphasize child-parent cooperation, Light and Perret-Clermont highlight peer-peer interaction as the basis for developing "agreements-in-meaning" (p. 110). A third chapter, by Collins, echoes these views by suggesting that much learning that is distinctly human takes place in face-to-face, conversational interaction.

Two more chapters highlight the cultural context in which cognition develops. Catan argues that internal represen-

Thinking in a Social World

Angus Gellatly, Don Rogers, and John A. Sloboda (Eds.)

Cognition and Social Worlds

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Review by
Paul C. Quinn

Angus Gellatly, lecturer in psychology at the University of Keele (Staffordshire, England), is editor of *The Skillful Mind: An Introduction to Cognitive Psychology*. ■ Don Rogers is lecturer in psychology at the University of Keele. John A. Sloboda is senior lecturer in psychology at the University of Keele. Rogers and Sloboda are coeditors of *Cognitive Processes in Mathematics and coeditors of NATO Human Factors Conference Series, Vol. 22: The Acquisition of Symbolic Skills*. ■ Paul C. Quinn, assistant professor of psychology at Washington and Jefferson College (Washington, Pennsylvania), is coauthor, with P. D. Eimas, of the chapter "On Categorization in Early Infancy" in J. Oates and S. Sheldon (Eds.) *Cognitive Development in Infancy: A Reader*.

Judging by the title of this volume of edited essays, a reader might guess that the book contains a number of selections about social cognition that seek to explain how we make sense of others. However, more than anything else, the book is a constructive commentary on cognitive psychology's attempt to understand mental structure and process independently of social context. Based on a conference held at the University of Keele in 1987 and following the publication of *Cognitive Processes in Mathematics* (Sloboda & Rogers, 1987), the volume is the second in the "Keele Cognition Seminars" series.

The book is introduced in an essay by Gellatly and Rogers that raises interest in the subsequent chapters and underscores the key point that ties them to-

gether; namely, that our explanations of mind will be impoverished or perhaps misguided if mainstream cognitive psychology continues to cling to an "image of the stand-alone neural computer in its attractive dermal housing" (p. 1). Many of the chapters that follow offer alternatives to the "human subject in isolation" model for much of contemporary cognitive research. A number of the chapters have developmental concerns and are intellectually rooted in several alternative perspectives including Gibsonian, Vygotskian, symbolic interactionist, and social constructionist theory.

Intellectual development in social context

Because the volume as a whole is critical of cognitivism, it is perhaps not surprising