

The Metaphorical Brain 2: Neural Networks and Beyond.
MICHAEL A. ARBIB.
Wiley-Interscience, New York, 1989. No. of pages: 458.
Price: £43.20.

According to the preface, this book began as a revision of *The Metaphorical Brain* (published 1972) but developed into an essentially new book filling the same 'ecological niche'. Certainly, 75% of the references are to work published since 1972, and the central thread of Arbib's ideas is newly formulated in terms of perceptual and motor 'schemas'.

The revival of a 20-year-old title reflects the renewed interest and advances in interacting networks as models of cognitive and sensory-motor function, which were rather eclipsed during the seventies and early eighties by artificial-intelligence-type algorithms. Arbib's book brings together an overview of network models, old and new, with some of the highlights of the neuroscience of

sensory-motor systems. Analyses in terms of algorithms and of control systems theory are also integrated into the account. Most of the detailed examples are taken from the work of Arbib's own group in Massachusetts, but they cover a good range. Compared to most accounts of neural network theories, problems of motor control get a fuller consideration here, but the results of modifying networks by learning rules are rather less explored.

The book would provide a mathematical or physical scientist with a good introduction to many issues in modelling brain function. There are some sections which might daunt the non-mathematical biomedical reader, but without these he or she will still find a clearly written, spirited account of a lively and important area of research.

OLIVER BRADDICK
University of Cambridge

Gerontology: Approaches to Biomedical and Clinical Research.

Edited by: M. A. HORAN and A. BROUWER.
Edward Arnold, London, 1990. No. of pages: xiv + 225.
Price: £37.50.

The present volume comprises 10 chapters with contributions drawn from centres in Western Europe and North America. According to the editors, the book represents the first attempt in the study of ageing to bridge the gap between basic science and clinical practice, a claim which a substantial number of authors and editors might wish to dispute.

The major advantage of multi-authored texts is that by using a range of contributors, each expert in a specific aspect of a research area, the reader can be presented with a current, comprehensive view of the entire subject. A potential disadvantage is failure of the compilation to form a coherent whole, a criticism which unfortunately can be levelled at the present volume. The initial problem for this reviewer lay in attempting to identify the readership at whom the book had been aimed. Although the title focuses on gerontology, this is somewhat misleading as even a cursory glance reveals the emphasis to be on geriatric medicine. Then there is the curious dichotomy between chapters with a strong research bias, which implicitly assume at least a moderate background know-

ledge of the subject among readers, and very basic beginner's level material. Perhaps the most extreme example of this divide is the juxtaposition of a detailed account on ageing of the brain and Alzheimer's disease, citing 299 publications, with a brief contribution on how to interpret scientific papers written in the field of gerontology. While both are worthy topics, it is difficult to perceive how or why they logically should be found within the same, quite modest, volume. The fact that the advisory notes on interpreting research papers form the final chapter of the book is especially puzzling.

In summary, lurking within the covers there actually appear to be two books, one which could serve as a basic, self-instruction text for those entering geriatric medicine, and perhaps conscious of deficiencies in fully comprehending research reports or wishing to plan and undertake a minor research project; the other for persons already active in the field and/or with an interest in particular aspects of gerontological research. If you can recognize yourself as belonging to either category, at least you can be assured there will be something for you in this text. However, for researchers the paucity of post-1987 references will be a disappointment.

A. H. BITTLES
*King's College, University of London; Population Studies
Center, University of Michigan*