In the foreword, Professor Wiederholt advises us that the first edition was indeed well received but there was constructive criticism and this has been taken into account.

The chapter on "Infections of the Nervous System" had been critically reviewed and has been rewritten. Some alarm was expressed in 1983 that in the chapter on headache, lumbar puncture was said "to be used to assess... tumour and increased pressure." Surely this sentence must come out of the book, for with the advent of CT scanning, lumbar puncture in tumour suspects must be culpable, and certainly this recommendation to non-neurologists is totally unacceptable. In an earlier chapter, the same author, i.e. Frank R. Sharp states "... Meningitis and encephalitis are major indications for lumbar puncture. The presence of focal signs or symptoms require CT or MR imaging and neurological consultation prior to lumbar puncture" and in the same chapter under the heading "Mass Lesion" the author states "... This is a contraindication since L.P. may precipitate or hasten herniation (sic)." I would certainly recommend that the editor deletes the initial recommendation from any future edition. The advice in these three sections is confusing and could well lead to spinal fluid examination in the face of raised intracranial pressure.

The possible increased morbidity of lumbar puncture is recognised in the section on spinal cord compression but the advice to the clinician is again somewhat uncertain. It is suggested that lumbar puncture may worsen pre-existing spinal cord compression and no doubt this is true but the clinician is advised that "in this event emergency myelography should be performed and surgery considered..." Surely it is more acceptable to suggest that spinal cord compression be undertaken at the myelogram initially, to define the extent and location of the lesion.

Thus I feel this book is found wanting in two major areas of acute neurological-neurosurgical practice. It is unfortunate that the short chapter on Craniospinal Trauma has not been expanded. This is an area of major concern and as the author states, "Accidents constitute the leading cause of death in the United States in those between the ages of one and 40".

The remainder of the book, however, is attractive. It is short and could readily be assimilated by a person taking up his initial residency in neurology. As in the first edition, the essays are largely written from the Department of Neurology in San Diego. I feel Professor Wiederholt should be congratulated on his book which, with the above provisos will, I am sure, again prove useful and of great value to those without specific neurological training.


The range of techniques for studying the topography of cerebral function has recently been expanded by the development of PET, SPECT, MRI spectroscopy and magnetoencephalography (MEG). At the same time a fresh impetus has been given to the mapping of electrical activity by the development of the low cost coloured computer graphics available commercially as devices for brain electrical activity mapping (BEAM). This book records a symposium held in 1987 which brought together expertise in topographic EEG and evoked response (ER) analysis, MEG, PET and SPECT. Several reports concern correlational studies of magnetic and electrical measurements for EEG and regional blood flow or metabolism.

The first section devoted to localisation of electrical and magnetic ER sources is introduced by technical and theoretical reviews of interest both to the specialist (Nunez, Meij et al) and the more general reader (Kaufman and Williamson, Romani). Several studies indicate the possibilities for resolving basic ERs into the activities of topographically distinct generators (Huttunen et al, Bertrand et al). Some interesting results emerge, for instance that the fields produced by simultaneous stimuli in different sensory modalities are not simply the sum of sources for the ERs to each individual modality (Weinberg et al).

Section II considers what Gevins and Bressler term "functional topography", not simply mapping electrical fields nor deriving equivalent dipoles, but using statistical techniques to analyse functional relationships between activities at different sites. Pfurtscheller and colleagues approach this by considering event-related desynchronisation in relation to sensory processing and memory, and a single contribution on motor mapping by direct electrical stimulation through the scalp is provided by Cohen and Hallett.

Conventional BEAM is introduced by a critical review of methodology and current problems by Duffy. Petsche et al, employ significance probability mapping to display differences during various tasks, and Etevenon et al adopt a similar approach to pharmacological studies. Reports on psychiatric material include a study by Gruzelier et al showing that memory tests which discriminate between schizophrenics and controls are also accompanied by anomalies of EEG topography in the former.

The final section on PET and SPECT (disappointingly MRI spectroscopy is omitted) covers a good deal of familiar ground but includes a very full review by Engel of the relationship between PET and EEG findings in partial epilepsies.

It is the view of many clinical neurophysiologists that the introduction of BEAM in clinical EEG practice has thus far been counter-productive. In centres of excellence it has proved a useful research tool, offering improved insights into the typograph of ERs in particular, but, as indeed Duffy points out, more generally its clinical use has been either naive, as a supposedly simple substitute for proper EEG recording and interpretation, or frankly exploitative: a coloured brain map looks as impressive as a PET scan and is cheaper to produce. The present volume provides a much needed corrective to the many recent publications which have misrepresented and trivialised brain mapping. It describes exciting and innovative approaches to the topographical study of cerebral function, some of which must surely be a standard neuro-diagnostic techniques in the future. This book is not easily read, partly because of the wide range of technologies covered, but certainly merits the attention of experimental and clinical neurophysiologists, cognitive psychologists and other neuroscientists.

**Colin B Binnie**


This volume is the fifth in the series *Frontiers of Clinical Science* and attempts to provide the clinician caring for stroke patients with a working knowledge of non-invasive techniques for investigating cerebral ischaemia.

Divided into nine chapters, it includes sections on echocardiography, Doppler, CT and MRI, SPECT, PET and, rather incongruously, cerebral monitoring during endarterectomy.

The section on echocardiography, written by a cardiologist, is little more than a very basic text on echocardiography and its only concession to the investigation of cerebral ischaemia amounts to 16 lines with no useful