

Book Reviews

ELECTROENCEPHALOGRAPHY IN DRUG RESEARCH.
 Edited by Werner M. Herrmann. Published by Butterworths.
 608 pages.

This volume contains the proceedings of the symposium "E.E.G. in Drug Research" held in Berlin, June 27-29, 1980. The symposium was held under the auspices of the Institute for Drugs of the German Federal Health Office and the International Pharmacology-EEG Group.

Neuroscientists have been aware of qualitative effects of various drugs (cocaine, barbiturates, scopolamine, etc.) on the E.E.G. since Hans Berger's first description in the 1930's. His descriptions were based on visual inspection of the analog signal. Interest in more quantitative approaches to analysis of E.E.G. data developed but had to await the development of modern, economically feasible computerized reduction of E.E.G. data. The multiple authors of this symposium refer to this attempt at quantitation as "pharmacology-EEG". The symposium attempted to outline basic standards for the use of E.E.G. data in assessing the effects of drugs on the central nervous system. This list of guidelines and the rationale for these guidelines constitutes the preamble and first chapter of this book.

Most of the presentations (which constitute the individual chapters) utilize computerized analysis of E.E.G. data. The analog E.E.G. signal for these data has been collected from two to over forty separate scalp recording sites. Some studies examine simple averaged evoked potentials from a limited array of scalp electrodes. Others attempt a topographic assessment of various evoked potential components. Many of the papers are based on digitization of the analog E.E.G. signal and derivation of power spectral data using a fast Fourier transform for initial data reduction. The spectrum is then divided into "classical" (alpha, delta, theta, beta) frequency bands and the spectra in these bands is viewed as a probability density distribution. Relative and absolute power of these bands and their variabilities following drug administration are correlated and profiles or "fingerprints" for various classes of drugs and their dose-response-time relationships studied. (Drugs studied include tranquilizers, hypnotics, Enkephalins, as well as antidepressant and antiepileptic preparations.) The conclusions based on these E.E.G. statistical manipulations should be viewed with skepticism since complex changes within these frequency bands are difficult to interpret in a meaningful way. In other words the physiological and behavioral correlates of these changes are tenuous at best.

Some studies also utilize topographic and temporal profiles of changes in the various parameters with drug administration. A variety of statistical measures are utilized to massage the derived E.E.G. data. These include linear autoregressive modelling of the spectra and identifying spectral peaks by computation from regression coefficients.

A number of the studies reported, correlate computerized E.E.G. data or indexes derived from this data with positron emission tomography data, regional cerebral blood flow data, various measures of vigilance and physiological profiles.

Most of the reported studies in this book are based on human data although some, such as the studies of Enkephalins and the

antiepileptic effects of benzodiazepine derivatives following cortical application of penicillin are in animals.

A few chapters in the book are concerned with analysis of analog E.E.G. data primarily, relating to sleep studies. One chapter in particular deals with the problems of quantitation of sleep data using the limited number of scalp leads classically applied. The difficulties in automated analysis data using this format are discussed but few solutions are proposed. There is also a section on the use of E.E.G. data in the evaluation of drugs utilized in dementia and the geriatric population.

Introductory remarks in this book suggest it embodies the "state of the art" using E.E.G. data for assessing the effects of drugs on the central nervous system. The diverse approaches to methods of data collection and analysis and their correlations with drug effects points to the need for a better understanding of the physiologic substrate of E.E.G. data before guidelines in this field can be established.

Several of the chapters in this book are written in a clear, concise manner. Many, unfortunately, are confusing by virtue of the complex and convoluted presentation of the methods and/or results. It is clear from reading the papers in this book that mathematical manipulation of E.E.G. data has reached a new peak but the meaning or clinical import of this data is often doubtful. For example, some studies reported claimed to use the E.E.G. data as an index of the therapeutic efficacy of various drugs. This may be partially true with drugs such as hypnotics and antiepileptic drugs but even in these cases requires a careful clinical correlation. Drugs affecting the central nervous system may be associated with E.E.G. changes but these E.E.G. changes are complex and often due to multiple factors including changes in vigilance, mood, personality, etc. Complex computerized E.E.G. data is often used to infer therapeutic efficacy of drugs but seldom is as suitable a parameter as objective clinical improvement measured by other means.

Overall, this book is an interesting volume and highlights the many problems inherent in analysing complex physiological data in a meaningful way.

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EPILEPSY: AN UPDATE ON RESEARCH AND THERAPY.
 Edited by G. Nistico, R. De Perri, H. Meindardi. Published by Alan R. Liss, Inc., New York. 381 pages.

Progress toward our understanding of the basic mechanisms of epilepsy is advancing at such a rapid pace and so many fronts that books such as this, containing short reviews and brief articles on recent results, are most valuable.

The first part of the book is devoted to several excellent contributions on such advances in several areas of the basic science of epilepsy. Included among these is a well written review by Massimo Avoli of McGill on whether epilepsy is a disorder of inhibition of excitation which includes some of his work relevant to this question.

These articles in the basic science section are concise, well written, and obviously reflect high level research efforts.

The clinical section is more variable. Andre Olivier of McGill thoroughly describes the current N.M.I. evaluation and results of patients undergoing temporal lobectomy for uncontrolled complex partial seizures. Perucca and Crema give a first class review of therapeutic monitoring of serum antiepileptic drug levels, a review which any neurologist seeing epileptic patients would find valuable. From contributions of this calibre, this section of the book descends to "Developments of Pharmacotherapy of Epilepsy" by Meinardi, Binnie, Goedhart, and Meijer of Heemstede, Holland who present a wandering disorganized account of the subject.

This is an excellent volume for clinical neurologists-epileptologists who have an interest in the basic science of epilepsy and certainly for those in the basic sciences who wish to keep abreast of developments in their fields relative to epilepsy. The neurologist who sees some epileptic patients will find certain of the clinical contributions of value.

Given the difficulty of bringing out a high quality multi-authored review in a brief period of time, the editors should be commended on this most valuable contribution.

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EPILEPSY: DIAGNOSIS AND MANAGEMENT. First Edition. Edited by Thomas R. Browne, M.D. and Robert G. Feldman, M.D. Published by Little, Brown and Company, Boston. 376 pages. \$24.

In the preparation of this text, the editors have attempted to include the abundance of new information available over the past decade on the diagnosis and management of epilepsy. They have been entirely successful in meeting this objective and in producing a very readable, well-referenced and comprehensive textbook on epilepsy. Each major seizure type is accorded an individual chapter with definitions and accounts of pathophysiology, clinical and electroencephalographic features, differential diagnosis, management and prognosis. The comprehensive discussions of management include pharmacological principles, use of blood levels, nursing considerations, behavioral methods of seizure control and the effects of epilepsy and anticonvulsants on sexual function and pregnancy. A chapter on surgical management accurately and succinctly summarizes current thinking.

The pharmacology of current anticonvulsants is comprehensively reviewed with a chapter devoted to each drug group nicely organized with numerous headings.

An account of resources available to American epileptic patients will have little application for Canadian readers. The chapter on infantile spasm contains several tabulations which could have been summarized.

Excellent current references are provided with each chapter affording the reader an opportunity to expand information on virtually any aspect of the text.

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THE ASSESSMENT OF APHASIA & RELATED DISORDERS. Second Edition. Edited by H. Goodglass and E. Kaplan. Published by Lea & Febiger. 102 pages. Additional materials: A Boston Diagnostic Aphasia Examination booklet, copy bound in the book (32 pages); test stimulus cards (16); the Boston Naming Test (64 pages); Boston Naming Test scoring booklet (8 pages). \$34.50 Canadian.

The new edition of the Assessment of Aphasia and Related Disorders is a substantially revised edition of the 1972 test which has achieved the considerable popularity as the most comprehensive and sophisticated aphasia test to date.

Changes in the actual test procedure include more frequent allowances for discontinuing subtests after repeated failures. The mechanics of writing has been redefined as a new five-point scale. It is now based on the patient's entire written output. The rating scale on the narrative writing has been redesigned to give credit for the information conveyed. Other changes in the test included the visual confrontation naming of body parts being increased and the old body part naming subtest being deleted. The paraphasic errors have been relabelled and more detailed, clinical description is given. There are changes in the Supplementary Language tests, as well as the Supplementary Nonlanguage tests, which reflect some of the work done in the Boston Aphasia Research Center.

The revised score summary sheet was based on a new normative sample of 242 aphasics tested between 1976 and 1982. In edition, the Z-scores were abandoned in favour of percentiles, which alters the classification somewhat. In the final chapter on major aphasic syndromes, sections on global aphasias, mixed nonfluent aphasia and subcortical aphasias are also included. The manual contains interesting information about the test construction and a theoretical framework for aphasia as well.

The Boston Naming Test is a useful addition to the Boston Diagnostic Aphasia Examination, although it has not been standardized to the same extent.

The Boston Aphasia Examination has become an extensively used, well standardized leading aphasia test in North America. There is a considerable body of research carried out using this test. It is lengthy and complicated, and not likely used for screening purposes. This book and the test are recommended to speech pathologists and neurologists with an interest in aphasia. The price is very reasonable.

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EVOLUTION OF THE NERVOUS SYSTEM. Second Edition. By Harvey S. Sarnat and Martin G. Netsky. Published by Oxford University Press, New York, 1981. 504 pages. \$36 apx. Cdn.

This volume is a highly interesting, up-to-date survey of comparative neuroanatomy and evolutionary trends extending from protochordates via placoderms, amphibians and reptiles to mammals including *Homo sapiens*. Although the basic concept is that of classical neuroanatomy, the authors have succeeded well in animating the reading by making functional correlations between homologous systems throughout phylogeny. The chapters are also divided into functional systems making it easy