

Drug effects

Handbook of Drug and Chemical Stimulation of the Brain: Behavioural, Pharmacological and Physiological Aspects. By R. D. Myers. Pp. xvi+759. (Van Nostrand Reinhold: New York and London; Medical Economics: Oradell, New Jersey; February 1975.) £19.90.

TECHNIQUES for the direct administration of drugs into the cerebrospinal fluid, or into discrete areas of the central nervous system (CNS) have been in use for some time and have proved increasingly popular. The apparent directness and disarming simplicity of this approach to the examination of the CNS pharmacology of various bodily functions or behavioural processes has been particularly attractive to many research workers in the fields of physiological psychology and neuroendocrinology. This volume describes the many practical difficulties and pitfalls associated with this approach.

The main advantages of the direct administration of substances into the CNS are, first, that one may examine the effects of compounds that do not readily penetrate the blood-brain barrier after systemic administration and, second, that by localised applications one may hope to localise a particular drug action to some particular neuronal system in the CNS. The approach suffers, however,

from severe practical limitations. Unless very small volumes of fluid are injected, the spread of substances may be far too great to allow localisation. It is also difficult to judge what an appropriate dose of injected material should be. If compounds that have highly selective pharmacological actions on peripheral organs are injected in high local concentrations into the CNS, the observed effects may result from the non-specific toxic or membrane stabilising effects commonly found in many drugs. The absolute specificity of action of any drug is a myth that many of those engaged in research in this area have found beguiling.

In spite of the practical and theoretical difficulties, there is little doubt that research of this type has many useful applications. Although sophisticated methods exist for the micro-application of drugs and other substances onto single neurones in the CNS by micro-iontophoresis, one could only expect to elicit observable changes in behaviour or physiological functions after the exposure of much wider populations of neurones to drug stimulation or inhibition. Dr Myers is an acknowledged authority in this area and he has prepared a useful and scholarly compendium of the literature. He discusses in detail the principles and experimental methods in current use, and reviews the results obtained in attempts to manipulate a wide variety of bodily functions or behavioural states, including the control by the CNS of cardiovascular and respiratory functions, neuroendocrine relationships, sexual behaviour, body temperature, hunger, thirst, sleep, arousal, pain and cognitive functions. Each topic is dealt with in sufficient detail to justify the use of the term 'Handbook' in the title of the volume.

The book is amply illustrated, and each section has a "Master Table" summarising the available results. It is also liberally documented, with more than 1,400 references. Unfortunately, its value is diminished greatly by the fact that references cover the literature in detail only up to early 1972; this results in what seems to be a curiously dated view on some issues. For example, the evidence that cholinergic mechanisms play a rôle in learning and memory is reviewed in some detail, whereas the rôle of monoamines is dealt with in half a page. The latter is one area in which much has happened since 1972.

Dr Myers has presented facts and has not, to any extent, aimed to integrate psychological, pharmacological and physiological findings.

The author has produced the first detailed survey of an active and often poorly understood area. The volume will certainly be a useful reference work for those interested in this field.

S. D. Iversen

Drugs and Behaviour: A Primer in Neuropsychopharmacology. By Ernest L. Abel. Pp. ix+229. (Wiley-Interscience: New York and London, October 1974.) £7.55.

THE word 'primer' was originally used at the time of the Reformation to describe a prayer book or devotional manual for the use of the laity. Only later did the term acquire its common connotations of inky schoolroom, and the plain child's introduction to simplified truths.

A primer in neuropsychopharmacology might be expected to fulfil something of both these useful functions. The members of the laity who are not specialists in this particular science will be grateful for a reliable and intelligible guide to esoteric mysteries; and those who are in the graduate schoolroom, beginning the specialist study of this subject will be grateful for an accurate professional introduction.

At first glance this book has much to recommend it under both headings. It is eminently readable, and its author has natural gifts as a master of exposition. Illustrative examples are well chosen to exemplify general scientific principles—hunger as an adrenergic mechanism, the cholinergic mediation of water intake, serotonergic mechanisms and sexual behaviour. Headings and sub-headings order the matter well. Graphs are introduced at the apt moment, and are clear in the messages they carry. All in all, the immediate impression is of a simple textbook of considerable substance and expert presentation.

Closer reading brings some disappointments. The 'psycho' element in the neuropsychopharmacology (a truly Germanic word), receives scant treatment. The word 'placebo' is not to be found in the index, and nowhere does the influence of set and expectation receive adequate attention.

And as one gets deeper into the text so many errors and omissions come to light that one begins to feel that the book has been contrived as basis for a game of 'spot the deliberate mistake'. THC is described as "the" active material in cannabis. The picture of amphetamine psychosis remains undescribed and classical work on the matter is ignored and unreferenced. The description given of schizophrenia would make Bleuter turn in his grave, and is not only misleading but damagingly misleading. The sharp differentiation drawn between psychological and physical dependence must be described as nonsense.

In short, the author should be encouraged to produce as a second edition of this readable and essentially worthwhile book (which ought to reach many editions) a text which will neither mislead the laity nor misinform the schoolroom. Otherwise anathema, and a black mark.

Griffith Edwards

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