well cherished beliefs have fallen and there is a growing realisation that the subject is not as simple as it was previously thought. Throughout this time of development there has been no authoritative text on head injury and a comprehensive review is, therefore timely. This book is one such review.

On superficial reading it appears to contain nothing more than a reiteration of outdated concepts; there is a classification of the state of consciousness into six grades, a head injury examination chart full of unnecessary observations and there is the unqualified advocacy of corticosteroids for brain swelling. But such a criticism would be unfair because on detailed examination the book is generally sound. There is a comprehensive and up to date account of all aspects of head injury, from intracranial haematoma to medico-legal problems and although the book is mostly derivative, each chapter is well researched and contains a suitable list of references. The balance too is good, with lengthy chapters on the controversial and important areas of raised intracranial pressure and intracranial haemorrhage. Post traumatic hydrocephalus, isolated cranial nerve palsies and gastro-intestinal complications, areas of less importance, are dealt with quickly, but nevertheless well. It is a pity, however, that the chapter on assessment and prognosis is dealt with in a few pages and then tagged on at the end, almost as an after-thought. Such an important area deserves fuller consideration. There is no book which does not have its failings but it is a pity that in this one, having achieved the correct balance by emphasising haematoma and raised intracranial pressure, it should then have its failings in these areas. Discussing chronic subdural haematoma with acute traumatic haematoma, is not only confusing but wrong. They present totally different problems and rather than concentrate on a nicety of anatomical classification it would have been better to use a practical division of benefit to the patient. Furthermore the important features are not distinguished and emphasised. Headache and vomiting are discussed at length as symptoms of raised intracranial pressure, but nowhere is it forcibly pointed out that in acute head injury there are generally no symptoms or signs of raised intracranial pressure, the signs present are those of brain damage and herniation. The authors' worst mistake, however, is their failure to recognise that much remains controversial and this is particularly so in the management of raised intracranial pressure, where the various methods used are of unproven value.

For the neurosurgeon in training any book on head injuries must not only be a general review, but must also contain clear-cut practical advice. This book fulfils both the criteria. For the expert, lack of detailed discussion in controversial areas detracts from its value but it is still a timely update and will be one of those ubiquitous little books that is frequently used to find the appropriate reference for the less common condition. A reasonable book and one which should hold its own against what are sure to be several similar publications.

S GALBRAITH


This book is an authoritative treatise based on a lifetime's interest by the author in the problem of patients with low back pain. The section on anatomy and bio-mechanics gives an excellent start to the book, although the most recent reference in this section is 1974. The examination is clearly written and well illustrated, including the examination of the patient standing which is too frequently omitted in clinical practice. The electromyographic section is a short basic review of the subject, but gives no real guidance as to its value in patients with low back pain. Radiology, including contrast examinations, is well covered, but certainly in this country a water soluble medium is preferred universally and this section does not come down strongly enough in its favour. The description of the findings and the technique is clear, lumbar epidural venography is well reviewed and the section on computerised body tomography is a model chapter.

Spondylothesis, bone infection, primary and secondary tumours are clearly described, but I would have liked more information on the differential diagnosis of low back pain due to the occasional patient with an intra-abdominal cause. Also the very short section on ankylosing spondylitis is inadequate and still perpetuates the old idea that this is a form of rheumatoid arthritis, from which it is quite distinct. This book is surgically orientated with good descriptions of indications and techniques of surgery for disc or spinal stenotic disease or spinal instability. The section on physical treatment is clear, but the lack of good controlled trials make it difficult to accept all that is said. The good section on different types of manipulative treatment could be expanded; they are widely used and probably effective in many patients, although they have not been submitted to adequate control trials. The author provides a reasoned review of sclerosing injections and of rhizotomy. Lumbar and sacral epidural injections are described in detail, but we would normally do a reticulogram first as this is suggested, we reserve this invasive investigation for patients probably needing surgery.

In summary, this is a book which should be read by all interested in low back pain, the illustrations throughout are excellent, the text is clear, but there should be more emphasis on the role of surgical management of low back pain if the book is to be fully comprehensive.

CI GOODWIN

Chemical Influences on Behaviour

For generations the experimental study of brain and behaviour was dominated by the lesion technique. The investigation of some brain systems advanced materially with the use of this method. Localisation of function in cortex being a striking example. Subcortical and brain stem mechanisms proved less amenable to the focal lesion technique. Systems based on hierarchical levels of organisation and the intermingling parallel and sequential pathways are not easily understood if one interfere with an isolated part of the system. In the 1960s firm evidence was presented that chemical neurotransmitters existed in brain and that various transmitters were localised to discrete yet widely projecting circuitries of brain. Acetylcholine, the catecholamines, noradrenaline, serotonin, inhibitory transmitters like...
α-aminobutyric acid and more recently opioid and other peptide transmitter-containing neurones of brain have been described. Included in the list of brain peptides pathways are certain familiar hormones of the pituitary such as ACTH, oxytocin and vasopressin.

Fortunately for research a number of drugs already existed which proved to interact with these chemical pathways and others were soon developed. Many of these have proved useful in varying mood, affect and intellectual abilities in Man and have come to be used widely in psychiatry. These drugs also have important experimental uses and it is largely to these that the present book is dedicated.

Drugs, like lesions, can be used to dissect the functional architecture of behaviour. Unlike irreversible focal damage, drug effects are reversible and more importantly influence at a given time diffuse circuits extending from brain stem to cortex, which have in common a chemical responsiveness. Many of the complex behaviour patterns essentially for survival, feeding, sex, aggression are controlled by extensive circuits of these kinds and drugs are proving valuable in understanding the underlying chemical substrates.

Brown and Cooper have compiled a very useful volume which illustrates well the impact that the experimental use of drugs has had on physiological psychology. The term drug in this context is a broad one extending through dietary nutrients, hormones of body and brain, psychoactive drugs used therapeutically to control appetite or psychological functions, to the presently untouched areas such as learning and memory and the need for drugs capable of modifying deficiencies of these essential functions in the aged. The chapters on food and water intake by Blundell and Latham and by Booth are excellent and illustrate how careful details to the physiological variables and the fine structure of behaviour makes it possible to dissect out levels of organisation. Toates reminds us that this form of "systems" analysis requires operational models not previously demanded in physiological psychology, although very familiar to psychologists. These chapters emphasise behavioural analysis rather than chemical influences, although two kinds of chemical influence are discussed; notably the endogenous chemi-
cal pathways of brain related to food intake control and drugs which can modify food and water intake.

In chapters 6 and 7 the reader is introduced to another major source of chemical influence on brain: the hormones of the pituitary-gonadal and the pituitary-adrenal axes. These chapters are timely and it is appropriate to reconsider the peripheral hormone mechanisms since certain releasing factors and hormones of the hypothalamic-pituitary axis have now been shown to exist in brain and their role in relation to the peripheral system needs to be evaluated. Equally sobering are the chapters on the influence of nutrition and hormones in pre-natal and perinatal development which remind us that chemical influences in the dynamic phases of development are if anything more devastating than those in adulthood and are generally overlooked. It is however proving difficult to study certain brain functions with chemical manipulations. The study of consciousness, (chapter 9) and learning and memory (chapter 10) are striking cases where drugs have not yet been used with success to determine the endogenous chemical basis of the function or to manipulate the behaviour. A number of the problems associated with experiments in this area are also expounded and in particular Cooper's chapter on the pitfalls of drug interactions is a welcome addition to the literature. This area of research is advancing rapidly and the text will inevitably date rather quickly. However, there is sufficient classical material and methodological content to make the book valuable for the advanced undergraduate and postgraduate student.

SD IVERSEN


This short monograph is an excellent summary of the present status of our knowledge of the pathophysiology of migraine. The first two chapters include work on the cranial and cerebral circulation, whilst the largest chapter in this first section (Observations of the migraine attack) is concerned with biochemistry, including a review of the relevant neurotransmitters in blood and CSF.

The main burden of the book is experimental data on the action of antimigraine drugs using microspheres in animal work, and supports the thesis of arteriovenous anastomoses opening up as a basis for the migraine attack. Since the time that Heyck put it forward the latter thesis has been denied in recent years but, for any doubters, this is necessary reading and I would recommend it to any clinician interested in migraine—which must surely include every neurologist.

F CLIFFORD ROSE


The title of this book is a little misleading as the problems considered are largely restricted to those of a surgical nature, mainly in relation to nerve injury. The advances in this field in recent years have been substantial and occasioned by developments such as the introduction of sophisticated electrodiagnostic procedures, the use of microsurgical repair techniques and the experimental analysis of nerve injury by quantitative morphometry and electron microscopy. This book is edited by two orthopaedic surgeons whose interest in nerve injury was stimulated by experience in the US Army and later in civilian practice.

The time was certainly ripe for a compilation of this type. The book is divided into sections that range from diagnostic techniques, through the assessment and treatment of pain syndromes and the consequences of various types of nerve injury, to techniques of nerve repair and the rehabilitation of patients after nerve injury. Attention is also given to the treatment of peripheral nerve tumours, leprosy neuropathy and neurological involvement in rheumatoid arthritis. It concludes with a section on laboratory techniques for the experimental study of nerve injury.

This book will clearly provide a useful and comprehensive survey of an expanding field. In a work with a large number of authors, there must inevitably be a certain lack of uniformity as to the quality of the contributions. In general, the standard is high, although