He further subdivides these into 13 distinct types, for each of which the surgical approach is described. Valuable technical points are made with respect to AVMs in general and with respect to each type. The descriptions of the approaches are highlighted by exceptionally clear and effective three dimensional drawings, describing the neuroanatomy of each region. The book would have been further enhanced by more of these drawings and by operative photographs illustrating the anatomy and details of the approaches for AVMs in different brain regions.

The book is profusely illustrated with numerous pre and post-operative CT and angiographic studies and many could have been omitted and replaced by drawings or operative photographs.

For each of the 13 groups of AV malformations described in the book, the clinical details are tabulated. The primary purpose of these data is to document the excellence of the surgical results. The indication for surgery was haemorrhage in 78%. Sixty-five per cent demonstrated intracerebral haematomas on CT and in the majority these were small and not a source of significant disability. Forty-five per cent of the patients operated upon had seizures but in only 22% was seizures or neurological deficit an indication for surgery. Despite these relatively conservative indications for surgery, the results were excellent, even for malformations in deep central structures. The overall mortality rate in this series was 2.4%, and only 2.6% had a "poor" outcome. Many patients were improved by their surgery, according to the data tabulated. For example, for frontal AVMs 62% of patients had pre-operative seizures whilst only 13% had seizures post-operatively! Similarly, in 10% of patients with occipital AV malformations, pre-operative quadrant visual field defects disappeared after operation.

The majority of patients in this series underwent surgery when in good neurological condition (Grades 0-II on the Hunt and Hess Scale). The data presented support the conclusion that large AV malformations tend to bleed less severely and frequently, and when they do bleed their haematomas tend to be small. On the other hand, smaller AVMs appear to be associated with larger haemorrhages more often. A policy of observation and late surgery is therefore advocated for large AV malformations associated with small haematomas while small malformations associated with large haematomas are more often operated upon urgently.

The association between deep central AV

malformations and obstruction or stenosis of the straight sinus, vein of Galen, sigmoid sinus or transverse sinuses is very striking in this series. Abnormalities of these major posterior venous structures were observed in 60-80% of patients with central AVMs. Malformations of the venous system may result in increased venous pressures within an AV malformation, and reversed flow in the deep venous system. This is as a major reason for using the sitting position to deal with malformations of the posterior half of the brain and posterior fossa, in this series.

Unfortunately, the book does not detail any of the newer radiological techniques used to manage AV malformations such as pre-operative and per-operative embolisation and balloon occlusion. Similarly, this series was operated upon without intra-operative angiography.

Large malformations were operated upon almost exclusively by one stage procedures in this series, and Yasargil dismisses post-operative "normal perfusion pressure breakthrough" as a phenomenon caused primarily by occlusion of perfusion and drainage vessels in the tissue surrounding the AV malformation, leading to haemorrhagic infarction.

This volume shows that AV malformations, even those of large size involving evocative areas of brain tissue, may be resected without significant neurological deficit.

In common with the other three volumes in the series, this book, although expensive is a valuable source of reference for neurosurgeons and should find a place in the library of most larger departments.

ROSS BULLOCK

Computed Cranial and Spinal Imaging. By John M Stevens, Alan R Valentine, Brian E Kendall. (Pp 248; £35.00.) London: Heinemann Medical Books, 1987.

This book is concerned with computed tomography (CT) and magnetic resonance imaging (MRI). It emphasises in which situations one is better, and where they are complementary. Inevitably and correctly with the present disparity in availability of the two imaging methods, much more emphasis is given to CT.

There are chapters on the technical aspects of each imaging modality, on practical techniques and functional anatomy in addition to those on the demonstration of pathology. The orbit, petrous bone and paranasal sinuses are included as is the post

operative scan. All important disease entities have been covered. Of necessity the description of each is short but the significant factors have been included. Invariably reference is made to the appropriate definitive article. The illustrations are of high quality and the standard of production very good.

There are a few small points with which I take issue. MRI and NMR are used haphazardly. It would have been better to have used MRI exclusively. Some CT scans are viewed as from above and others from below, even in the same chapter. Again I would have recommended consistency. Corpus callosum injury shows on CT as haemorrhage much more frequently than as low density which has been put first. The three components of fig 5.7 have been printed upside down with the result that the legends refer to the wrong images. In some MRI sections, signals from pathological tissues are compared with the signal from CSF. As this is so long and variable it is better to make comparison with grey or white matter. To the confusion of those who may be sitting MCQs, differing statements are made in different chapters regarding the signal intensity on T2-weighted images of epidermoid.

However, these are minor criticisms in comparison with the overall quantity of the book. As a practical introduction to CT and MRI it more than fulfils its aim and as such is strongly recommended.

P MACPHERSON

Basics of Magnetic Resonance Imaging. By William Oldendorf and William Oldendorf Jr. (Pp 159; \$58.50.) Dordrecht: Martinus Nijhoff, 1988.

In their preface to this book the Drs Oldendorf indicate that it is intended as an introduction for non experts. The book is indeed a very basic text and takes the uninitiated through the principles of magnetic resonance imaging at a very basic level using a wide variety of everyday examples to reinforce their explanations. There is no attempt to take the reader into more complex principles and indeed flow is given but a brief mention in the text. The book is well illustrated with useful diagrams which complement the text and there is no attempt to describe in words or in images MRI appearances encountered in different pathologies.

The bulk of the material, however, is clearly written and concise although there are areas that are of limited value. For example, I can see no reason for including

the chapter on "The Advantages and Disadvantages of X-ray Computerised Tomography" particularly as it is separated from and not compared with the benefits and problems of MRI.

As an introduction to MRI for those with no experience, this is a useful book and the simple explanations may well be of use to others who although understanding the subject in general find it difficult to conceive some of the basic principles. It would therefore be of considerable use to physicians and surgeons commencing their study of the subject and also to the paramedical sciences who need a basic explanation of this very complex technology.

DPE KINGSLEY

Cerebral Ischemia and Hemorrheology. Edited by A Hartmann, W Kutschinsky. (Pp 530; DM 188.00.) Berlin: Springer-Verlag, 1987.

International conferences abound and it has become commonplace to follow them with publications providing edited accounts of proceedings. The results vary enormously in scientific quality and all suffer from limitations intrinsic to the genre. These include repetition by different authors within the same book and the same authors within different books (there is simply not enough pressure to be original at international conferences). Many of the contributions would not see the light of day in peer reviewed journals. So conference proceedings do not make easy reading and with 60 chapters from over 200 authors *Cerebral ischaemia and Haemorrheology* is no exception. Is it worth buying?

Regretably, given the exchange rate, the answer is yes. The editors and publishers are to be congratulated on producing a useful book with a reasonable index within such a short space of time (the conference took place in June 1987). The contributions are copiously referenced with contemporary citations. Most of the important groups currently working in the contentious field of blood fluidity and stroke propensity are represented. Opinions differ as to the causal significance of elevated blood viscosity in stroke and, as might be expected, a collection such as this tends to preach to the converted.

The first three chapters (Kutschinsky, Edvinsson, Schmid-Schonbein) are the best. They are review articles on the control of the cerebral circulation and the potential role of hemorrheological disturbances in cerebral

infarction. Schmid-Schonbein concludes that "if one were to argue from the standpoint of conventional haemodynamics and oxygen delivery, there would really be no reason for proposing therapeutic hemodilution" but his caution is not shared by the majority of subsequent contributors, many of whom include within their short "journal-format" papers testaments of haemorrheological faith. A study on heparin, DVT and acute stroke concludes that treatment is mandatory in patients with paralysed limbs, despite an earlier disclaimer that comparisons between study groups were not possible because of low numbers. There is a general tendency to equate increased CBF with improved CBF, an error which inescapably leads to unqualified support for the hypothesis that haemodilution improves outcome in acute stroke. But the hypothesis has been somewhat dented by two studies, one published here (the Scandinavian Stroke Study Group) and one elsewhere (Italian Haemodilution Study Group). Both were large randomised studies and both failed to demonstrate improved outcome after isovolaemic haemodilution with low molecular weight dextran. Undaunted, the enthusiastic rheologists have now suggested hypervolaemic (to improve cardiac output) haemodilution with hydroxyethyl starch (it reduces plasma viscosity as well as lowering the haematocrit). Whether they are prepared to test their hypothesis within the context of another randomised trial of sufficient size remains to be seen.

Haemorrheology has some way to go before it can claim comparable status to the more established clinical sciences such as immunology. At present it is by no means certain what proportion of cerebral vascular events are precipitated or made worse by abnormalities of blood fluidity. New theories tend to be over inclusive, particularly when applied to conditions as apparently random and devastating as stroke, and so we should excuse many of the book's excesses. Even at around £60.00, I would strongly recommend this book to anyone contemplating or undertaking research on the rheological aspects of cerebrovascular disease.

JOHN WADE

Wolff's Headache and Other Head Pain 5th ed. Edited by Donald J Dalessio. (Pp 434; £50.00.) Oxford: Oxford University Press, 1987.

My initial reaction to this book was one of delight at its ideal size, shape and length.

The editor is to be congratulated on resisting the trend for successive editions of classic works to be longer than their predecessors; the fifth edition is slightly shorter than the fourth, which is a full 300 pages shorter than the third. The type and page format are also clearer in the current edition.

The book in some ways remains an ideal reference work on the subject of headache in that, as its full title implies, it covers the whole range of causes of head pains, in contrast to certain other headache text books which concentrate disproportionately on migraine. The basic content of this edition has changed little with the exception of chronic paroxysmal hemicrania which has gained promotion from one paragraph to a short chapter.

It is now over 50 years since Wolff carried out many of his famous clinical studies attempting to establish the underlying basis of different types of headache. This book understandably still includes many of these studies with familiar diagrams such as those showing the sites of referred pain when various intra and extracranial structures are stimulated. It is however disappointing that a new approach to the presentation of this material has not been attempted. Surely his memory would be well served by an opening series of chapters reviewing the history of headache research this century rather than making so many chapters top heavy with long historical preambles.

There are some excellent individual chapters in this edition; Lance writing on the pathogenesis of migraine elegantly summarises the changes in blood flow, platelets and vasoactive agents which occur during migraine attacks. Kudrow offers clear guidelines on the management of cluster headaches. The chapter on toxic vascular headaches brings together a wide range of different types of headache including hunger, exertional, orgasmic, altitude, decompression and ice cream headaches with useful resumés of each. As in previous editions there are useful sections on ocular, dental and nasal causes of facial pain.

Like all multiauthor works this book has its fair share of duplicated material. Cervicogenic headaches, depression in tension headache patients and giant cell arteritis appear in two different chapters, whilst the comments on mountain sickness are repeated on adjacent pages. The term "post-herpetic trigeminal neuralgia" should never have appeared in print; it is bound to cause confusion. I remain to be convinced that the chapter on the radiological investigation of headaches (an addition only found in the latest two editions) is of much value in its present form. Apart from showing some pic-