Book reviews

Handbook of Clinical Ultrasound. Eds. MARINUS DE VLIEGER, JOSEPH H. HOLMES, ALFRED KRATOCHWIL, EKKEHARD KAZNER, ROBERT KRAUS, GEORGE KOSSOFF, JACQUES POUJOL, and D. E. STRANDNESS. Pp. 970. £42·50. John Wiley: Bognor Regis. 1978.

This book is divided into 8 sections, each containing several chapters. The first, entitled 'Basic Principles', contains a historical account of the use of ultrasound in medicine and the basic physical principles of ultrasonic diagnosis. Features of transducers are covered with great clarity, followed by a discussion of some pulse-echo techniques together with technical considerations in design of diagnostic equipment. A very worthwhile chapter is then devoted to the principles of grey scale echography, together with its applications; the best quality ophthalmic B-scans in the book are to be found in this chapter. Artefacts and standardisation techniques are described in the following 2 chapters. Next, transducer arrays and the relatively new application of computers to diagnostic ultrasound are discussed in a way the ophthalmologist can understand. Interesting chapters are then devoted to the principles of Doppler ultrasound together with scattering and attenuation of ultrasound by tissue. Finally, the biological effects and safety of ultrasound are considered. Thus, the first section of this book provides a comprehensive guide for the ophthalmologist working in ultrasonic diagnosis.

Other sections are devoted to Doppler techniques and ultrasonic diagnosis in obstetrics and gynaecology, internal medicine, cardiology, neurology, and orthopaedics. The penultimate section of the book deals with diagnostic ultrasound in ophthalmology. This section begins with a lengthy article on so-called 'specialised' techniques, and many statements are controversial. It is hardly surprising, however, that the author feels grey-scale B-scanning is inadequate for observing echo amplitude when we see the very poor quality of the grey scale on B-scans presented in the third and fourth chapters of the section. These chapters are devoted to retinal and choroidal detachment and intraocular tumours, respectively. The authors of chapter 3 refer only to their own work in the list of references, while the author of the chapter on intraocular tumours states that macular melanomas are very rare (claiming to have seen only 3 cases in 14 years). In contrast, biometric studies are comprehensively covered in chapter 2, while the fifth chapter contains a practical and objective discussion of the role of diagnostic ultrasound in injuries due to foreign bodies. In the chapter on orbital disorders the author strongly advocates the use of A-scan rather than B-scan and make other controversial judgments. It is claimed, for example, that the A-scan technique should be used to measure the true diameter of the optic nerve and extraocular muscles. Anatomically, however, it is impossible to direct the sound beam so as to strike these structures perpendicularly and permit such measurements (even with deviated gaze). The author also claims that by his method an experienced examiner can expect to detect or eliminate an orbital lesion in 98% of cases, and in 99% of cases the diagnoses made are correct. Finally, the ophthalmology section closes with an interesting chapter on the use of Doppler techniques in diagnostic ophthalmology.

Overall, the ophthalmic section of this book is disappointing. However, the ophthalmologist will benefit from reading the first section of the book. MARIE RESTORI

Microsurgery of the Vitreous. By RICHARD M. KLEIN and HERBERT M. KATZIN. Pp. 153. $27·50. Williams and Wilkins: Baltimore, Maryland. 1978.

The authors' stated intention was to create a book quite different from others on vitreous microsurgery by comparing critically the latest surgical techniques, instrumentation, and philosophy. Unfortunately the first section, which considers the normal and pathological vitreous and previtrectomy evaluation of cases, conforms to the pattern of other recent vitrectomy manuals but falls well below their standard. The selection of material is arbitrary and fails to orientate the 'vitreous neophyte' meaningfully to the practical material which follows. The short chapter on the normal vitreous, for example, concentrates on biochemical rather than microanatomical aspects of structure, and left the reviewer in some bewilderment by claiming that it is the central part of the gel, rather than the cortical gel, which is the most viscous and has the highest collagen content. Similarly, in the chapter on vitreous pathology animal models of vitreous disease, some of which have dubious or unproved clinical relevance, are emphasised to the virtual exclusion of essential surgical pathology; we are given no clear statement, for example, as to the nature of the various types of vitreoretinal traction.

By obtaining the views of surgeons experienced in the use of several vitrectomy instruments the authors attained a qualified measure of success in section 2, which is designed to help the aspiring vitrectomist answer the question, Which instrument shall I buy? The authors concede, however, that there is no ideal instrument, and what is an advantage to one surgeon is a fault to another—witness the view that the Ocutome is 'too small'. Nevertheless, the interviewing technique allows the views of some of the most experienced and innovative surgeons, whose opinions otherwise seldom appear in print, to be given an airing. The chapter on ancillary modalities in vitreoretinal surgery is also quite useful, though ophthalmologists in the United Kingdom cannot fail to be amused by summary dismissal of liquid silicone injection despite the fact that combined vitrectomy and silicone oil injection procedures are likely to assume a greater and greater importance in the management of the severest vitreoretinal problems.

By the third section, which deals with the indications and complications of vitreous surgery together with published results, the authors' style of reporting tends to irritate, the same emphasis being given to anecdotal observation and hard statistics. This section does, however, provide a useful bibliography of material published up to 1977. The final section, which considers the future of

vitreous surgery and current controversies, was rather more readable though the questions asked were somewhat naive and the answers proffered generally unimaginative. All in all this book is disappointing. DAVID MCLEOD

Eye Movements and the Higher Psychological Functions. Ed. JOHN W. SENDERS, DENNIS F. FISHER, and RICHARD A. MONTY. Pp. 394. £21·00. John Wiley: London. 1978.

This volume reports the proceedings of a conference held in February 1977 in Monterey, California. The conference was the second on this subject, the proceedings of the first having been published in 1976.

It is in some ways refreshing to relate the cerebral control of ocular movements to the higher visual functions for which they have been developed. This also introduces a practical element which some of the recent volumes on eye movements have omitted in their concentration on the neurophysiological, neuroanatomical, or biomedical aspects of the control of eye movements. Thus the reader who does not possess an up-to-date account of eye movement control is gently introduced by Robinson and Goldberg to the visual substrate of eye movements. This platform enables him to delve deeper into saccadic suppression, the role of eye position in space perception, and the co-ordination of eye movements in perception.

A whole section is devoted to eye movements in the process of reading, and this is followed by a section on eye movements in looking at static and dynamic displays. Searching for NINA (after Hirshfeld) emphasises the pattern of eye movement search when the subject is asked to find the word NINA camouflaged in a picture. The final section discusses recordings of eye movements to assess patterns of search used in driving a car and analysing a chest *x*-ray.

This volume provides ophthalmologists with further information on the complex motor and sensory integration occurring in the brain and subserving the visual organ, whose function he strives to maintain. It is worthy of perusal by those interested in broadening their knowledge, and the extensive bibliography provides an opportunity to delve more deeply. M. D. SANDERS

Goniodysgenesis: A New Perspective on Glaucoma. By TORD JERNDAL, HANS ARNE HANSSON, and ANDERS BILL. Pp. 212. DK300. Scriptor, Copenhagen: 1978.

It is the authors' hypothesis that the fenestration of the primitive endothelium lining the anterior chamber and the subsequent development of the angle recess may be arrested or disturbed by either genetic or environmental agents, thus producing a condition of goniodysgenesis and creating the mechanical prerequisites for a block at the pretrabecular level. They are led to this conclusion from a study of the embryology of the normal angle, on which there is a chapter, and by consideration of the physiology of the healthy iridocorneal outflow. Their method of investigating eyes with glaucoma is by correlating gonioscopic findings with those from the scanning electron microscope, examining tissues removed at trabeculectomy and sometimes post-mortem specimens of whole eyes. They recommend gonioscopy with the Haag-Streit 900 slit lamp, using a distinctly narrow slit with extra eye pieces (× 16).

Congenital glaucoma is regarded as a rare and maximal expression of goniodysgenesis with the presence of a Barkan membrane. They believe that the true genetic trait in congenital glaucoma is goniodysgenesis, resulting in a dominant (sometimes markedly irregular) hereditary pattern. The close association of infantile congenital glaucoma and juvenile and adult open-angle glaucoma in the same family is to them a clear indication that a similar aetiology is probably at work in all three, and their aim is to convince the reader that this is proved.

Since dysgenesis of the iridocorneal angle is the primary cause of congenital glaucoma, it is only natural to find other signs of maldevelopment in many of these glaucomatous eyes, particularly in the anterior segment. All these anterior malformations have an autosomal dominant inheritance. In this light the authors discuss various keratodysgeneses such as opacification of the cornea and sclerocornea, ruptures of Descemet's membrane, anomalies of the corneal diameter, and embryotoxon; iridodysgeneses such as aniridia, colobomas, persistent pupillary membrane, and hypoplasia of the iris stroma; phacodysgeneses such as cataract and congenital dislocation of the lens; and complex dysgeneses of the anterior ocular segment, including Reiger's and Peters' anomalies.

In their study of exfoliative glaucoma they point out that its hereditary pattern cannot be assessed in a simple manner. The 2 factors goniodysgenesis and exfoliation are genetically separate. Goniodysgenesis is thought to be dominant, whereas the hereditary pattern of exfoliation is still unknown. In patients with exfoliative glaucoma the authors describe a membrane blanketing the angles stretching from the iris root and passing up to the line of Schwalbe. In many cases there is a pronounced dehiscence at the 6 o'clock position, where there is an accumulation of pigment. Within the coloboma the true recess of the angle with the scleral spur is visible and at times the anterior rim of the ciliary band. It seems likely that the main stream of aqueous is trained through this port, so that the filtering pores of the outflow channels become increasingly clogged to produce at first a slow elevation of intraocular pressure. Sooner or later this moderate rise is abruptly changed into severe hypertension. Inevitably exfoliative glaucoma becomes a surgical problem.

In their study of pigmentary glaucoma they point out that pigmentary blocking of the pores cannot be the only factor, since the full pigmentary dispersion syndrome is encountered in many eyes without glaucoma. The authors introduce the dysgenetic sign into the picture of pigmentary glaucoma and agree with Malbran, who found in nearly all cases of pigmentary glaucoma gonioscopic evidence of a maldeveloped angle with anterior insertion of the iris. He concluded that pigmentary glaucoma may be classified as a true congenital glaucoma with a blanketing of the uveal meshwork corresponding to the membrane of Barkan. The hereditary pattern of pigmentary glaucoma is bifactorial and similar to that of exfoliation glaucoma.

In the chapter on simple chronic open-angle glaucoma