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

the authors infer that this classification is an anachronism. In their series simple glaucoma is diagnosed by a process of exclusion and accounts for only 5% of all cases. The largest percentage is congenital (55·6%), followed closely by exfoliation glaucoma (35·6%). Pigmentary glaucoma accounts for 1·2% and closed-angle glaucoma 1·7%. After their clear exposition of the importance of goniodysgenesis in most types of glaucoma the authors put forward the idea that goniodysgenesis is the real cause of simple glaucoma but the signs may be so minimal as to be difficult to diagnose with the gonioscope.

The proceed to discuss goniodysgenesis and closed-angle glaucoma, particularly of the chronic type, and make a strong case for maldevelopment of the angle as a factor in this type of glaucoma as well as in cases of glaucomato-cyclitic crises. They also suggest that the corticosteroid response is one which is probably secondary to goniodysgenesis.

The final chapter is on therapeutic considerations. Following the introduction of trabeculectomy, which is a relatively safe surgical procedure, they are of the opinion that it is unwise to withhold trabeculectomy in favour of doubtful medical control, particularly as trabeculectomy is a surgical exercise attacking the main aetiological factor in glaucoma (goniodysgenesis) by excising a section of abnormal trabecular and pretrabecular tissue, allowing flow of aqueous into the region of the canal of Schlemm.

J. B. S. Haldane states somewhere in his writings that in his opinion 'the salt of the earth' are 'those who work and think about their work'. There is no doubt that the authors of this short book on goniodysgenesis, with the subtitle 'A new perspective on glaucoma', qualify for this description. They have lived with their patients and studied them with extraordinary care. Their thesis is thought-provoking and an expression of years of devoted attention to detail. S. J. H. MILLER

Strichskiaskopie. By WOLFGANG GRIMM, CHRISTIAN UCKE, and DIETER FRIEDBURG. Pp. 93. DM33. Ferdinand Enke Verlag: Stuttgart. 1978.

Streak retinoscopy is regarded by most ophthalmologists as an art rather than a science. This comprehensive volume discusses the optics and practice of retinoscopy and includes a large number of ray diagrams and experiments with artificial eyes. Many ophthalmologists will find the information about this relatively simple technique too detailed, but the book should appeal to opticians and those studying optics. T. J. FFYTCHE

Obituary

Robert Leishman, MD, FRCP Glas, DOMS

Dr Robert Leishman, a distinguished eye surgeon, died on 1 May 1979. In active practice until his retirement in 1975, he had been consultant ophthalmologist in the Victoria Infirmary and Southern General Hospital in Glasgow and honorary clinical lecturer in the University of Glasgow, and made an international reputation following his research and publication on vascular disease in the eye and other topics.

Robert Leishman was born on 31 March 1910 and was educated at Stirling High School and the University of Glasgow, where he was an outstanding student, graduating MB, ChB in 1932. After a period as house surgeon in Glasgow Royal Infirmary he practised in London until the outbreak of war, gaining experience in the specialities of ophthalmology and otolaryngology until he volunteered for duty and served as surgeon lieutenant commander RNVR with the Royal Navy and Royal Marine Commandos in several theatres of war. He was glad to have been in active service, but with his natural talent for research he was recalled to the Government Research Department at Porton, where he worked on defence against biological warfare. During this period

he was influenced by Ida Mann, Foster Moore, and others, who stimulated his wish to enter the specialty of ophthalmology, and he was appointed an ophthalmologist to the Royal Navy serving in London until his return to civilian life in 1946.

He left the Royal Naval Establishment in Queen Anne's Mansions in London in 1946 to join the staff of the Tennent Institute in the University of Glasgow under the late Professor W. J. B. Riddell. From then until his retirement in 1975 he enjoyed a full career in ophthalmic surgery. He carried out research (graduating MD with honours in 1948) and lectured extensively, not only in the medical school but to innumerable professional bodies and lay organisations. In addition to his hospital work in Glasgow Western Infirmary and the Royal Hospital for Sick Children he built up a successful private practice based on his clinical ability and his excellence as a surgeon, supported by his sympathy for