

Book reviews

System of Ophthalmology. Vol. IV. The Physiology of the Eye and of Vision. Edited by S. DUKE-ELDER. 1968. Pp. 734, 317 figs, refs. Kimpton, London. (£7).

This volume of the *System* is unlike its companion volumes as it has been written for both clinicians and physiologists. To this end the text is in large and small type, the latter covering the more experimental aspects of the subject. The volume is in two parts, for each of which the editor has collaborated with a member of the staff of the Institute of Ophthalmology. The first section on the physiology of the eyeball has been written in association with Dr. John Gloster, and the second section on the physiology of the visual process with Dr. Robert Weale.

Needless to say, the authors have produced yet another excellent text. In addition to its comprehensive cover of the subject it is still eminently readable and as usual the format is both attractive and functional. Printing errors are rare but this merely maintains the high standard of the series.

It is not possible to review this book merely as a textbook of ophthalmic physiology as it must be considered in relation to its companion volumes also. It is in this respect that its further advantage lies. There is no pharmacology section in this volume, but pharmacology is dealt with in Volume VII of the series. There is no necessity to make irritating clinical digressions; these are fully discussed in other volumes and this is noted in appropriate places. Yet the present volume is still a comprehensive textbook in itself and as such is an essential companion to anyone interested in this field. One hopes that this includes all ophthalmologists.

As usual there are the extras not to be found in the usual run of textbooks in the form of frequent biographies. The great names of ophthalmic physiology are to be found here, usually introducing a subject with which they are particularly associated. The physiologists do not have to be dead to merit inclusion, and many contemporary workers take their place with their illustrious predecessors.

Dysgenesis Mesodermalis of the Iris and the Cornea. A Study of Rieger's Anomaly and Peters's Anomaly. By P. P. H. ALKEMADE. 1969. Pp. 206, 73 figs, refs. Royal Vangorcum, The Netherlands. (*H. Fl.* 54.50).

In this monograph the author discusses two uncommon genetically determined conditions involving the anterior segment of the eye. The literature on Rieger's anomaly (mesodermal dysgenesis of the iris) and on Peters's anomaly (mesodermal dysgenesis of the cornea) is extensively reviewed and the clinical appearances of these two conditions are described in detail.

The author has demonstrated that a prominent line of Schwalbe occurs in 8 per cent. of normal subjects, is no more common among the relatives of patients with Rieger's anomaly, and does not predispose to glaucoma. It should be regarded as a normal variant in the structure of the angle of the anterior chamber. It is an invariable finding in eyes with Rieger's anomaly, being associated with adhesions between itself and an iris with a hypoplastic stroma. Rieger's anomaly, which is transmitted as an autosomal dominant trait with almost complete penetrance, is frequently associated with dental and facial abnormalities.

Peters's anomaly consists of congenital central corneal opacity with abnormalities of the deepest stromal layers and local absence of Descemet's membrane. It is often accompanied by more extensive abnormalities of the anterior segment. The author suggests that Peters's anomaly may occur in two ways: as a primary autosomal recessive trait; and as a secondary defect associated with other primary developmental defects of the eye. It is possible that posterior keratoconus constitutes the mildest degree of Peters's anomaly. More severe forms present as the classical picture, while in the most advanced cases congenital corneal leucomata occur, with or without buphthalmos.

The differential diagnosis of these two anomalies (a useful chapter) is followed by a report of the various members of twelve families upon which this monograph is based.

This is a useful book, particularly to clinicians interested in glaucoma, corneal disease, and developmental abnormalities. It is, in places, rather difficult to read because of the odd construction of some sentences, and the case reports contain several typographical errors. In spite of these minor criticisms, the author must be congratulated on clarifying several aspects of these two uncommon conditions.

Ptosis. By C. BEARD. 1969. Pp. 241, 714 figs, refs. Mosby, St. Louis; Kimpton, London. (£10 2s.).

This monograph stems from the author's experience of 450 ptosis operations, a vast experience which has resulted in an authoritative work on an often neglected aspect of ophthalmic surgery.

The opening chapters on history, anatomy, physiology, and pathology are followed by types of ptosis, examination of the ptotic patient, and choice of operation. These are succeeded by chapters on the various operative procedures available for the treatment of ptosis and on the complications of ptosis surgery.

It is difficult to praise this book too highly. The chapters on types of ptosis and examination of the ptotic patient are especially valuable, and the author's didactic approach makes the subject particularly clear. Not only should it be mandatory reading for all ophthalmic residents, but also for ophthalmic surgeons who perform ptosis operations occasionally or regularly.

The Aqueous Humour and the Blood-Aqueous Barrier. (L'humeur aqueuse et la barrière hémato-camérulaire). By J. MICHELS. 1968. Pp. 242, 50 figs, 44 tables, bibl. Compagnie Belge d'Editions, Brussels; Maloine, Paris. (Belg. Frs. 490).

After a preliminary discussion of the anatomy of the anterior chamber and the composition of aqueous humour, the author describes his experiments concerning the blood-aqueous barrier and the transfer of substances from the blood to the aqueous. There follows an account of experiments concerning the formation and resorption of hyphaema, from which it is concluded that although the coagulation of blood can take place normally in the anterior chamber, the dilution of fibrinogen by the aqueous usually prevents clot formation. Clinical studies of aqueous in uveitis confirm many of the findings of previous workers: *i.e.* the cytology is sometimes helpful and locally produced antibodies can be detected in the aqueous in some cases. Neoplastic cells were found in cases of retinoblastoma and lymphosarcoma and the levels of transaminases may be raised in the aqueous in cases of intraocular malignant melanoma and secondary neoplasia.

This book provides a useful survey of recent work on the diagnostic value of aqueous puncture and, if the results are still of limited value in such conditions as endogenous uveitis, it should serve to stimulate research into new micro-methods of analysis and immunology from which further advances are likely to come.

The book is well produced and contains an extensive bibliography.

Evaluation of Drug Effects on the Eye. Edited by P. V. PIGOTT for the Association of Medical Advisers in the Pharmaceutical Industry. 1968. Pp. 129, plates, figs, tables. Trust for Education and Research in Therapeutics, Horsham. (45s.)

These papers form the proceedings of a symposium organized by the Association of Medical Advisers in the Pharmaceutical Industry. Two main topics were discussed: the evaluation of the effectiveness of drugs applied to the eye and the recognition of adverse ocular effects due to therapeutic agents. The comparative anatomy of several animal species and the techniques of ocular examination in

animals were discussed, and experimental procedures for measuring the penetration of drugs described. The evaluation of the effects of adrenergic-blocking agents on the pupil and intra-ocular pressure of human eyes and the therapeutic value of anti-inflammatory drugs in human ocular disease were also presented. Finally, the toxic effects on the eye of a wide selection of drugs were described.

The descriptions of methods of examination and evaluation of drug effects on the eye should be of considerable interest to those concerned with the development of new drugs, and ophthalmologists should certainly be aware of the large number of agents which may cause iatrogenic disease. The papers are on the whole concise, readable, and up to date, and the discussions have been well edited and add materially to the value of the book.

Fine Structure of the Developing Avian Cornea. (Monographs in Developmental Biology, Vol. 1). By E. D. HAY and J.-P. REVEL. 1969. Pp. 143, 48 figs, refs. Karger, Basel. (64s.).

This monograph, based on the authors' personal studies on the electron microscopy of the developing chicken cornea, gives a detailed and lucid account of their findings.

In a short review it is not possible adequately to summarize the contents of this monograph, but the authors have produced a considerable body of evidence for the following suggestions:

- (a) The lip of the optic cup is first reached by the primary vascular mesenchyme at stage 22 which forms the corneal endothelium but does not invade the primary stroma.
- (b) The stromal fibroblasts are derived from invading secondary mesenchyme of the neural crest at later stages (27 to 28).
- (c) The primary acellular stroma is produced by the epithelium which can synthesize both mucopolysaccharides and collagen during the stages 18 to 22.
- (d) After stage 28 the invading fibroblasts lay down the fibres of lamellae of the secondary stroma whilst the anterior region of the primary stroma is subsequently converted to Bowman's membrane.

The proposal that basal layers of the epithelium may retain their capacity "to contribute to the underlying connective tissue" (p. 122) is of interest to those concerned with the repair of accidental or surgical injuries to the cornea, and the monograph as a whole would prove stimulating to anyone working in the field of keratoplasty.

The electron micrographs are well reproduced and those of the stroma are of excellent quality, but the material from endothelium suffers in many cases from fixation artefacts (*e.g.* Figs 4 to 7, A, B; 5 to 9). Whilst the embryological background of this study is well documented one might complain that some other aspects have been dealt with less adequately: thus the views of Maurice on the structure and transparency of the stroma have been summarized and discussed much more recently than the reference citation "Maurice (1957)" on p. 14 would suggest.