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BOOK REVIEWS

Year Book of Ophthalmology (1960–1961 Series). Edited by WILLIAM F. HUGHES. 1961. Pp. 375, 84 figs. Year Book Medical Publishers, Chicago. ($8.50).

The "Year Book of Ophthalmology", now under the editorship of William F. Hughes, follows the same lines and maintains the same high standard as its predecessors. The usual preliminary special article, written by the Editor, treats of the management of uveitis. In it, Woods's classification into granulomatous and non-granulomatous types is discarded and a return is made to the old anatomical classification. The treatment of each type of inflammation is considered on an aetiological basis; and since a proportion varying from 10 to 50 per cent. of such cases cannot be diagnosed in this sense, much interest is attached to the author's "shot-gun" therapy. For this purpose four "chemo-cocktails" are recommended, depending on the clinical appearance of the lesions. For the rest, the articles appearing in the year's literature chosen for review are of wide interest and they are well annotated and illustrated. The result is an eminently useful small volume.

A Study of the Achromatic Visual Functions in the Congenital Sensory Anomalies of the Human Eye and in some Amphibians and Reptiles. (Studie over de achromatische Gezichtsfuncties in de congenitale sensoriële Anomalieën van Het menselijk Oog en bij sommige Amphibia en Reptilia.) By G. VERRIEST. 1960. Pp. 481, 98 figs, 56 tables. Junk, The Hague.

This is an elaborate monograph emanating from the very active clinic in Ghent which represents an unusual amount of detailed observation and experimental work. The anomalies considered in man are (in the photopic category) congenital dyschromatopsia of the protanopic, deuteranopic, and tritanopic types, and such categories of defective vision as occur with nystagmus associated with macular aplasia or vertical asymmetry of the visual fields, and (in the scotopic category) congenital night blindness, Oguchi's anomaly, and other allied conditions. In these, the foveal and peripheral thresholds were investigated, the visual acuity and fields, the critical frequency of flicker, the dark-adaptation curve, and such entoptic phenomena as Maxwell's spot, Scheerer's phenomenon, and Haidinger's brushes; electro-physiological studies including the EOG, the ERG, and the visuo-cortical time were also carried out. The mass of evidence thus accumulated is analysed in terms of the duplicity theory and the relationship of the rods and cones to scotopic and photopic functions. Corroborative evidence is derived from histological and electroretinographic studies on amphibians and reptiles, the retinae of which have an unusual population of rods or cones and are characterized by diurnal, nocturnal, or arhythmic habits. Such material is difficult to find and the author has certainly put his opportunities to excellent use.

Electroretinography (Das Elektroretinogramm.) By W. STRAUB, 1961. Pp. 200, 124 figs (including 1 table and 7 col. pl.). (*Klin. Mbl. Augenheilk., Suppl.* 36.) Enke, Stuttgart. (D.M. 29.50).

This is a useful summary of our present knowledge of electroretinography from the experimental and clinical points of view. The book starts with a discussion of the physical basis of the electroretinogram and an analysis of its normal form and those alterations seen in experimental animals during anaesthesia, after poisoning, and after the intra-ocular implantation of metallic splinters. These sections are followed by an

elaborate description of the various alterations associated with pathological ocular conditions. Many of the observations are original, derived from the author's clinic in Hamburg. Some of the conclusions reached might be considered somewhat controversial, but the monograph indicates the wide use being made to-day of electroretinographic records in clinical ophthalmology and suggests many potentialities for the future.

Visual Field Defects after Penetrating Missile Wounds of the Brain. By H.-L. TEUBER, W. S. BATTERSBY, and M. B. BENDER, 1961. Pp. 143, 55 figs, bibl. Oxford University Press, London. (38*s*.).

The authors studied two groups of cases: one consisting primarily of patients tested long after trauma, the other of patients tested soon after receiving a brain wound. Systematic descriptions in the report are limited to the first group, and the cases from the second group are adduced for purposes of additional illustration, and for comparing early and late effects of trauma to the visual pathways. Visual fields and visual performance were recorded for 46 men with visual field defects resulting from penetrating gunshot wounds of the brain. All were drawn from a series of 232 men who had sustained battle wounds of the brain, so that the 46 patients with field defects represented an incidence of 22 per cent. Examination consisted of routine perimetry, central field plotting, flicker perimetry, and evaluation of colour vision, dark-adaptation, depth perception, perception of tachistoscopically presented forms, recognition of hidden figures, and perception of apparent and real motion. The fundi were also examined and the status of the oculomotor system was assessed.

There was a unilateral field defect in 27 cases and bilateral involvement in nineteen. The missiles producing the injuries were shell fragments in 39, and small-calibre projectiles in seven. The wound of entrance was charted on standard diagrams of the skull. The injury was in the occipital region in eleven cases, in the parieto-occipital in fourteen, and in the parieto-temporo-occipital in six. In two cases all lobes were involved. The remaining thirteen cases were distributed as follows: four fronto-parieto-temporal, four parieto-temporal, two bilateral parietal, and one each fronto-parietal, temporal, and parietal. Probably all the field defects described in the present monograph reflect lesions of the supra-geniculate pathways. The fundi were normal throughout the period of observation with few exceptions. There are no autopsy reports.

All the findings are carefully analysed, and some interesting conclusions are drawn. The defects in the visual fields were found to be unchanged for decades. Many of the findings supported work which has been done in the past, but careful analysis reveals discrepancies in our present knowledge of the optic pathways. The varied shapes of field defects after penetrating wounds of the optic radiation may require a revision of current views regarding the intrinsic organization of this part of the central visual pathways. Evidence is presented which suggests that the macular fibres cannot form a distinct bundle coursing at intermediate height between ventral and dorsal bundles representing, respectively, the upper and lower peripheral quadrants of the visual field. At least in the anterior parts of man's optic radiation, the macular fibres seem to overlap with these peripheral representations.

The principal finding at variance with the majority of previous reports is the lack of congruence of homonymous field defects. One factor in the production of incongruent field defects was the tendency for defects in the nasal field to appear larger or denser on perimetry than the corresponding (homonymous) defect in the temporal field of the other eye. In addition, there was found a general lack of congruence (as to detail) in the outlines of homonymous field defects. The most probable interpretation of this incongruence would be that corresponding elements in the visual system are not perfectly aligned, even at the level of the striate cortex. In hemianopic defects, the division between the blind and the seeing field rarely forms a straight line. Irregularities appeared

in the course of the dividing line and these were different when the two uniocular fields were compared.

Nearly all of the scotomata were negative, although their existence was not denied after the fashion of denial of blindness in diffuse cerebral disease. In everyday activities, the patients' awareness of their scotomata was further diminished by the occurrence of completion effects.

The shape of colour fields was generally found to duplicate the outline of fields for form and motion, but with a much shorter diameter. This seemed to indicate that, while different areas of the visual field are projected to approximately corresponding loci in the higher visual pathway, the various levels of visual function are not so represented. In support of this interpretation, the results obtained by means of flicker perimetry were interesting. In the presence of circumscribed field defects, there were subtle but significant changes in other visual functions, even in those parts of the field which seemed intact according to the perimetric plot. The seemingly intact half of hemianopic fields showed a significant reduction in the fusion thresholds for flickering light; dark adaptation was likewise impaired. Similarly, in scotomatous fields, remote effects of seemingly focal lesions may mean either that the lesions are more diffuse than the circumscribed scotomata indicate, or that the functions in all parts of the field depend upon the integrity of every individual part. It is impossible to decide between the two views, diffuseness of lesions or diffuse representation.

The monograph represents careful and detailed work over many years, and although there is no all-embracing philosophy put forward to explain every finding, the authors believe that any theory of vision will have to take them into account.

Correction of Subnormal Vision. By N. BIER. 1960. Pp. 231, 133 figs, bibl. Butterworths, London. (50*s*.).

This book offers a comprehensive account of the problems of partial sight and its amelioration. The various representative appliances are described together with their respective uses and efficiency.

The second half of the book is devoted to clinical procedures, which are well described important points are stressed, but no amount of description can replace practical experience. The illustrations are numerous and of good quality. There is an extensive bibliography and list of references and the index is reasonably full.

This book is written by an experienced ophthalmic optician, and is based on lectures to opticians, but it could be usefully studied by all ophthalmic surgeons before they say to any partially sighted patient "nothing more can be done".

Biomicroscopy of the Human Conjunctival Blood Vessels and Its Clinical Value (Die Biomikroskopie der Bulbusbindehautgefässe des Menschen und ihre klinische Verwertbarkeit). By V. KITTEL. 1960. Pp. 80, 46 figs, 73 refs. Thieme, Leipzig. (D.M. 19).

This monograph is based on the slit-lamp photography of more than 1,300 eyes. The camera used was the Kolpofot of a Dresden firm. No colour films were used. The normal and pathological anatomy of the conjunctival vessels is discussed. Spasms and atony of the vessels are considered as the essential primary disturbance, pathological granular current, aneurysms, and haemorrhages are sequelae. These changes can be due to an ocular condition, *i.e.* injury, corneal herpes, glaucoma, or a systemic disturbance. It is interesting that in herpes corneae the conjunctival vessels of the clinically healthy fellow eye show a similar vascular behaviour. There are different opinions about the value of photographs compared with drawings. The conjunctival vessels do not always run exactly in one plane, they may dip for a short course into a deeper plane

or rise to a higher level, and this three-dimensional behaviour may appear in the two-dimensional photograph as a narrowing or dilatation. Fundus photography is different, as the retinal vessels run more or less parallel to the surface. The author reports a case of hyperpiesia in which changes of the conjunctival vessels were present, while the retinal vessels appeared to be normal. This is not very remarkable, as the retinal vessels are more likely to give information of the condition of the internal carotid system, and it is known that the latter enjoys some degree of independence from the general circulation. It is not mentioned whether the ganglion-blocking drugs, which often have a beneficial effect on the retinal vessels in hypertensive retinopathy, also influence the conjunctival vessels.

The author points out that biomicroscopy of the conjunctival vessels is more easily done, and gives the same results as microscopy of the cutaneous capillaries. The changes are not pathognomonic for a definite disease, they indicate only (in the same non-specific way as an increased erythrocyte sedimentation rate) that there is something wrong. This would be quite a valuable diagnostic help. One should, however, keep in mind the cautious statement in Duke-Elder's text-book that "most of the changes are not in themselves sufficient to establish a diagnosis, and all of them may be absent when the general condition is markedly present".

Colour Vision. Edited by R. C. TEEVAN and R. C. BIRNEY. 1961. Pp. 214, 67 figs. D. van Nostrand, London. (11*s.* 6*d.*).

This volume contains seventeen reprints of papers or parts of papers or of books, published on this topic during the last 160 years. It is one of a series, designed to enable the student to get the "feel" of experimentation by ready access to original sources. According to the editors, it may be of use in seminars, but they also think that the book "taken alone will give a student a good idea of the problem being covered and its historical background as well as its present state and the direction it seems to be taking". Better acquaintance with the subject would reduce the editors' pessimism. A paper-back at 11*s.* 6*d.*, the book is hardly fair to some of the quoted authors who may have changed their views since their papers appeared, and less so to the reader because of some of the work included and omitted. How useful the book might have been if an attempt had been made to separate the wheat from the chaff! Hardly any comment is made to guide the student, no effort to induce him to inquire why, if colour vision is as cut and dried as some of these papers suggest, the topic is as controversial as the editors believe. When the splendid achievements of contemporary American experimental psychology are remembered, we have to ask ourselves why this book was published. Charity demands brevity. The book is without parallel—and without an index.

The Eye and its Function. By R. A. WEALE. 1960. Pp. 209, numerous figs, bibl. Hatton Press, London. (55*s.*).

This book does not pretend to be a comprehensive treatise on ocular physiology for the ophthalmologist but is an introduction to the function of the eye for orthoptic students, illuminating engineers, and others whose work is connected with visual function. In spite of this the trainee ophthalmologist will find the contents an excellent foundation in ocular physiology. The main part of the book is concerned with the physiology of vision, and contains much original work, presented lucidly in considerable detail and well up to Final F.R.C.S. standards.

After chapters on the development and nutrition of the eye, the visual functions are described under the headings of visual pigments, the visual pathway, the retinal image, the stimulated eye, spectral sensitivity, colour vision, the function of the intra- and extra-ocular muscles, and binocular vision. The protective mechanisms of the eye and the effect of some drugs are also described.

The chapters on the retinal image, the effect of visual stimuli, and visual acuity are particularly valuable, and it is refreshing to read a chapter on colour vision which dispenses with the usual emphasis on theories of colour vision and concentrates on experimental results and the physiological explanation thereof. The description of the muscles and their action is perhaps a little too brief for orthoptic students, but depth perception is clearly explained. Stereopsis again is not discussed quite fully enough for orthoptics students but the basic factors are clearly described. The physiological sections are enlivened throughout by an originality of approach, but the anatomical chapters are conventional (incidentally, the fibres to the lacrimal gland do not pass through the trigeminal ganglion).

The reader may be lulled into a sense of false security by the simplicity of the wording at the beginning of many of the chapters only to be rudely awakened by mathematical and graphical formulations which require a good deal of prior knowledge to be understood.

The style of writing is clear, although some of the more light-hearted analogies may be irritating to some readers. The diagrams are good and the book is clearly printed and well produced.

Evaluation of Drug Therapy. Symposium on Evaluation of Drug Therapy in Neurological and Sensory Diseases. Edited by F. M. FORSTER. 1961. Pp. 167. University of Wisconsin Press, Madison, Wis. ($4).

The report of a Symposium held in Wisconsin University in May 1960. Pharmacological aspects of testing and clinical trials are first dealt with and then specific conditions and their therapies. This book in itself is a pilot study and the main aim is not to discuss treatment in detail but to point the way in which greater co-operation amongst all those dealing with drugs from a technical and clinical basis could be achieved.

NOTES

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

The 81st Annual Congress of the Ophthalmological Society of the United Kingdom was held at the Royal Society of Medicine on April 13, 14, and 15, 1961, with a gathering of 200 guests including many distinguished visitors from abroad.

This year's Bowman Lecture was delivered by Ida Mann, who spoke on "Climate, Culture, and Eye Disease". Her thesis was relationship of disease to the varying habits of climates and peoples who had been separated by the accidents of geography—a study that had been far too long neglected, and was becoming ever more difficult as geographical barriers receded and as man's energies were being directed more and more to cope with his cultural rather than his physical environment. The naked influence of climate, which determines the nature of the food (such as the proportion of animal to vegetable matter) and of parasites (influencing the various insect vectors) is generally over-ridden by that of culture. Thus the incidence of infectious diseases like trachoma is greater in Muslim communities, where it is furthered by the use of cosmetics and by seasonal pilgrimages to Mecca through the most highly-infected countries of the world, and has relatively little dependence on climatic factors as such. In the same way, religion may promote genetic diseases by restricting inter-marriage, by encouraging eccentric habits, or by imposing taboos on rational treatment which are found alike in primitive tribes and in sophisticated Christian Scientists. Underlying anatomical factors are probably exemplified in the incidence of convergent squint, which is found in about 2 per cent. of the