workers, and further mentioned the large amount of time lost with regard to these cases. Mr. Tudor Jones discussed the question of wearing glasses in coal mines. Mr. Bickerton stated he thought the Insurance Companies should be approached as regards the premiums paid in those cases where protectors were in use.

Mr. T. L. de Courcy read a paper on "The significance of vitreous opacities." He described the development of the vitreous and demonstrated its structure in the adult. The formation of opacities was due to the condition of the blood vessels, the state of the blood, and vestigial remains. It was shown that, in a series of cases, 37 per cent. had vitreous opacities, and the method of examination was described. The causation of asteroid bodies was discussed, also their treatment.

Mr. Jameson Evans read a paper on "Blindness in old age." The provisions of the Blind Persons Act were criticized and it was shown that the number of these cases was rapidly increasing. The various causes of blindness in old persons were described and it was shown that the chief one was cataract. Mr. Bishop Harman discussed the cause of blindness in old people and stated that his figures showed that the largest number was due to macular degeneration. He thought it would be unwise to have a hard and fast rule as regards the definition of blindness. Mr. Clegg asked if it was obligatory for a blind patient with cataract to have it operated upon.

ABSTRACTS

I.—TUMOURS


(1) Treacher Collins, in a paper read to the Ophthalmological Society of the United Kingdom at the Annual Congress in 1928, discussed the natural history of retinal neoplasms under the following headings:

(1) Are cases of retinal glioma on the increase?

An analysis of cases suffering from glioma at Moorfields Hospital between the years 1871—1924 shows that this disease is not increasing, for during the first 26 years of this period (between 1871 and 1897) 83 cases were examined, and during the remaining 27 years (1897—1924) 80 cases have been seen.
(2) Why is glioma of the retina only met with in the early years of life?

Retinal glioma is limited to the early years of life because it arises from cells which become highly specialised and soon lose all capacity for reproduction.

Berrisford investigated cases of glioma at Moorfields and found that sometimes the signs were present at birth, and frequently within the first two years of life; the oldest patient was 7 years. Of 135 cases examined at Moorfields 102 showed signs of this neoplasm during the first 8 years of life. Wintersteiner found that in 400 cases of glioma of the retina two-thirds occurred during the first 3 years of life, and that one third were present at birth or during the first year.

The author gave an account of 3 cases of bilateral excision for glioma. The first case was alive and well 5 years and 9 months after excision, the second 10 years and 2 months after excision, and the third 36 years after the removal of the second eye. The last case earned her living as a typist at St. Dunstan’s, swims, and enjoys life.

(3) Why do cells in metastatic growths of retinal glioma often differ from those of the primary growth?

The cells in metastatic growths sometimes become increased in size and altered in shape, due to a change in their environment, the chief alteration consisting in an increased vascular supply, in the primary growth the blood vessels being only terminal vessels. Prof. Spemann in his Croonian Lecture at the Royal Society showed how transplanted pieces of foetal tissue are capable of metaplasia, and may assume the characters of the parts into which they are transplanted. He says that there is some factor acting in the new place that dominates the definite fate of the transplanted pieces.

(4) Why do eyes containing retinal glioma sometimes shrink?

Treacher Collins suggests that the following factors play a part in the shrinkage of the globe. The invasion of glioma cells into the tissues of the globe, and particularly the uveal tract, gives rise to a specific tissue reaction; fibrous tissue is formed and this compresses the tumour cells, and by contraction causes the growth to shrink. Absorption of the growth is promoted by extension of blood vessels from the uveal tract, the degenerated parts being removed by phagocytosis.

Invasion and destruction of the ciliary body by the neoplasm diminishes the supply of intraocular fluid, the loss of which contributes to the shrinkage of the globe.

(5) Why, in glioma, do metastases occur mostly in the vicinity of the affected eye, and in sarcoma of the choroid mostly in the viscera?
Glioma of the retina arises from neural epiblast and conforms with carcinomata in other parts of the body in dissemination by centrifugal permeation of the lymphatics draining the affected area. Hence secondary growths are more frequent in the vicinity of the eye than in the internal organs. Of 22 cases of glioma examined post-mortem 17 had recurrences in the orbit, whereas out of 79 cases which died from secondary deposits following sarcoma of the choroid only 7 showed recurrences in the orbit.

Do primary new growths arise from the mesoblastic constituents of the retina?

The author described cases of capillary angiomata of the retina, but said that more evidence is required about primary malignant growths of the retina before this can be regarded as proved.

H. B. Stallard.


(2) The following case history published by v. Hippel justifies its inclusion among the rare instances of spontaneous healing of a glioma of the retina.

The right eye of the patient was removed at age 5 in 1891, at Göttingen, by Schmidt-Rimpler, for glioma endophytum; and at that time the left eye was considered to be normal. He was examined in September, 1925 (aged 34 years), and the vision, although good, showed a large scotoma 20 degrees above the fixation point. The fundus showed a large vertically oval area of discolouration in the pigment epithelium, from the centre of which an uneven mass rose to a height of +6 D. with a white uneven surface. It gave the appearance of lobules and mounds arranged in several layers, and was interspersed with bright red vascularized areas. Hanging over it was a fine veil-like vitreous opacity.

From the nature of the case a dogmatic diagnosis is impossible; but v. Hippel considers that the resemblance which the history and the appearances bear to the few other published cases justifies its inclusion in this category: and he concludes that it represents a glioma which had degenerated, collapsed, and partially calcified.


W. S. Duke-Elder.

(3) Greenbaum emphasises the importance of this condition by stating that at times some of the lesions undergo epithelio-matous changes. The disease is commoner in females and develops soon after the age of 20 and shows no tendency to spontaneous disappearance. The lesions consist of multiple yellowish-white spots, two or three millimetres in diameter, most commonly placed in the skin of the lower lid. Histologically they are found to consist of cylindrical tracts of epithelium with numerous tube-like canals through them. The points in differential diagnosis are as follows:—(1) Milia disappear on puncture and expression of their contents. (2) Xanthelasma has a different appearance, affecting a larger area, being near the inner canthus and more yellow in colour. (3) Molluscum contagiosum spots are more elevated and show a minute follicular orifice through which the cheesy contents can be expressed. (4) Fibromata are usually single, hard and elevated. (5) Multiple benign cystic epitheliomata (trichoepithelioma) consist of pearly-looking lesions, elevated to a variable degree above the surface. The treatment of syringocystoma consists in destroying each lesion with a fine cautery point.

F. A. Williamson-Noble.


(4) Pack emphasises that the Curie Foundation exists for the purpose of bettering present methods of cancer treatment and of establishing a rational basis for radium treatment. Cases which have already received radiation treatment elsewhere are therefore not accepted, and all cases which are accepted are first submitted to excision of a small part of the tumour with histological examination. Dosage is all important, since if this is incorrect, the tumour may develop a radio-resistance which is permanent, an improper first treatment may thus render a neoplasm incurable by radiation. If the eye has been enucleated, the ulcer usually involves most of the orbit and is adherent to the underlying bone. Such cases are best treated by X-rays because their use permits a very great focal distance and thereby eliminates the danger of unequal radiation. More or less radio-necrosis of the bone follows this procedure, and it is dangerous to attempt surgical ablation of these areas of osteonecrosis. It is worthy of note that when a patient presents himself with neoplasm involving the eyeball it is unwise to practise enu-
cleation prior to radiation since the eye protects the wall of the orbit from necrosis. The statistics from growths in the region of the eye are as follows: the total proportion of complete cures was 66.6 per cent., and the proportion of local cures by radiation was 74.5 per cent. Ocular complications were remarkably few, being confined to transient conjunctivitis and temporary loss of lashes and eyebrows. With regard to therapeutic indications excision is indicated when the growth is small and can be totally removed with a good margin of skin. Surgical removal is also recommended if primary treatment by radiation has failed, further treatment by radiation having been found useless. In all other cases, except those where large areas are involved in the orbit, radium therapy is the method of choice. If the tumour is intraocular and radiosensitive radio-treatment is deemed better than enucleation.

The focal distance of the radium from the skin depends on the nature of the lesion. The distance is obtained by the intervention of a special wax which is transparent to gamma rays. The wax softens readily at 40°C. and can be moulded over the tumour, the thickness required varies from 5 to 15 mm. The time of application is extended over four to eight days to destroy the "mother cells" which divide at successive intervals and therefore at some time pass into the phase of maximum vulnerability. The length of each application varies from 8—12 hours a day.

F. A. WILLIAMSON-NOBLE.


(5) Magnasco relates the history and describes the histology of three cases of tumour in the neighbourhood of the lacrimal sac. The first was that of a serous cyst, the size of a large hazel nut which infiltrated the floor of the orbit. The second was a very small serous cyst, immediately under the skin in front of the lacrymal sac. The third was the most interesting, and presented a problem for diagnosis. It turned out to be a pseudo-tumour growing in the subcutaneous connective and muscular tissue in front of the lacrymal sac, due to chronic myositis of the orbicularis with degeneration, necrosis, and infiltration of varying degree in the tissues involved. The author considers that it probably arose from the bite or sting of some animal. The illustrations which accompany the article are excellently reproduced, as in all papers in this book, but the gloss on the paper makes the letterpress tiring to read.

E. E. H.
II.—OPTICS AND REFRACTION

(1) Edinger, Mary (Zürich).—The blind spot in axial myopia. (Der Mariottesche Fleck bei Achsenmyopie.) Arch. f. Ophthal., Vol. CXXI, p. 126, 1928.

Edinger employed a Bjerrum’s screen to determine the size and site of the blind spot in a series of myopic eyes (a) with no changes round the optic disc or only a scleral crescent, (b) with distinct juxta- or circum-papillary choroidal atrophy. The measurements she obtained from uncorrected and corrected eyes showed that the centre of the blind spot in the uncorrected myopic eye is slightly nearer the fixation point than in the emmetropic. In the corrected eye the blind spot is moved 1°—2° further to the temporal side: this is due to the prismatic action of the temporal half of the concave lens. In the corrected eye it is, in the majority of the cases, larger (vertical diameter 6°—7°: horizontal, 5°) than in the uncorrected (vertical 5°—6°: horizontal 4°—5°): this is mainly due to the fact that the dispersion-circles on the retina are abolished in the former class by the correcting lens.

In eyes with only a scleral crescent and no choroidal changes there is no, or scarcely any, increase in the size of the blind spot, compared with that in emmetropia. There is, however, always a certain increase in eyes showing juxta- or circum-papillary choroidal atrophy, but this depends not so much on the extent of the atrophic area as on the question whether the atrophy is only in an early stage or advanced.

Thos. Snowball.


Harrison Butler’s association with school clinics extends over a period of 16 years, and this paper is based upon his experiences. He emphasises the importance of correcting high degrees of refractive error, not merely from the ophthalmological standpoint, but from the standpoint of the child’s general psychical development. Defective vision may produce what the Americans call a “bad mixer,” introspective and perhaps even more selfish than the majority of his friends. Quite a fair proportion of children are brought to the clinic complaining of headaches on reading but without any ocular cause for these, and there are others in whom the most painstaking correction of refractive and muscular errors fails to cure the headache. The author’s explanation of these cases is that they do not come of a studious strain and are by heredity unfitted for the stress of brain work. He has seen native girls in
Palestine doing hard physical work and never showing any
neurotic failings, whereas the worst forms of hysteria may become
manifest when the same girls are placed in a mission school. With
regard to examination of visual acuity, it is pointed out that many
children, especially at the first examination, will not make the
necessary mental effort to read the smallest letters, although per-
fectly able to do so. In cases requiring a cycloplegic, it is found
better to instil atropine at the clinic than to entrust this duty to
the parents. The children receive three instillations of 1 per cent.
watery atropine at quarter-hour intervals, the first being given two
hours before examination. The author is not in favour of ordering
glasses directly from the retinoscopy, but prefers a subjective
examination in children who know their letters. He finds that
many of them are better at choosing the axis of a cylinder than
are some adults. "An intelligent nurse will often obtain better
results than the surgeon; she has generally more patience and the
children have more confidence in her than in an unknown man."
If there is a material difference between the subjective and objective
findings, the author performs both examinations again himself.
In ordering glasses the author carries out the usual procedure of
deducting one dioptre for the cycloplegic in cases of hypermetropia
up to 7.5D.; for higher amounts he deducts 1.5 to 2D.; myopes are
given their full correction, but if the myopia is less than 1.5D. a
post mydriatic test is performed. In his private work he refracts
many children, particularly myopes, without a cycloplegic. An
interesting observation is made about the post-mydriatic testing
of cases of compound myopic astigmatism. If the sphere is not
high enough, the child will take his cylinder at right angles to its
correct position, because he sees better with one meridian fully
corrected even if the astigmatism is doubled, than he does with
astigmatism corrected and the spherical factor under-corrected. In
cases of convergent squint, the author never operates until glasses
have been tried for a year or more and he prefers to wait until the
child is eight. The operation is generally performed under cocaine
and usually consists in advancement of the external and recession
of the internal rectus. For amblyopia he states emphatically that
the fixing eye must be bandaged up so that no light can enter, and
that this occlusion must be continuous from dawn till eve. Under
this treatment 70 per cent. of children gain full acuity and others
are greatly improved, the usual rate of improvement being one line
of test type per month. Relapses are common and it is advisable
to leave off the occlusion gradually. Fusion may be obtained when
the vision in the two eyes is equal and their axes have been set
straight by operation, but the author is very doubtful of the utility
of fusion training. His observations on myopia are that it is
commonest in mining villages when there is a lot of inbreeding,
less common in agricultural districts and least common in the towns. He is against the theory that advance of myopia is caused by close use of the eyes and advances several arguments to support his contention. Debilitating disease and close confinement in stuffy schools will, on the other hand, bring about general laxness of the tissues of the body including the sclera. He therefore advocates a normal education for ordinary myopes, but forbids music and novel reading during term as all the patient’s spare time must be spent out of doors playing games and getting fresh air. In the higher degrees of myopia, afternoon school is forbidden so that a still longer period of the day can be spent in manual exercises. The author concludes an interesting and well-written article with some general considerations, among which are the following:—The medical man in charge of a school clinic must be an expert retinoc- copist, a faculty demanding some years of training and quite impossible of achievement by merely a few weeks’ work as a clinical assistant. He should also, if possible, be on the staff of the local hospital so that he himself can carry out operative and any other forms of treatment that may be necessary. Finally, although the work of an ophthalmic school clinic has its dull side, “the child is the real refining influence in the world, and those whose privilege it is to attend a school clinic gain a reward which is not measured by material advantage.”

F. A. WILLIAMSON-NOBLE.


(3) Levy, in a brief but comprehensive paper, gives an account of the history of telescopic spectacles and also of their more modern forms together with an account of the optical principles involved. The chief difficulties involved in designing telescopic spectacles are the deformation of obliquely incident light, and the amount of chromatic aberration. He points out that the first difficulty can be partly overcome by adopting a series of measures, the most important of which are (1) suitably bending the optical elements in the telescope, (2) by limiting the field of vision so that only tolerable distortions of the images are evident at the edges of the fields, and (3) by varying the separation of the two elements. The chromatic aberration was a great difficulty because it was impossible to make the object glass achromatic on account of the weight; this problem was only solved when Gullstrand showed that the chromatic correction would be sufficient if the chromatic difference of magnification of the principal rays entering the eye was removed—that is to say, the chromatism would be sufficiently corrected for practical purposes in such a low-power telescope by making the eye lens of a combination of a flint and crown glass.
Telescopic spectacles can be made to give a magnification of about two diameters and are chiefly of use in cases of high myopia. For details of the optical principles involved in prescribing such glasses the original paper should be consulted. The accompanying diagrams are of great assistance in following the text instructions. Levy concludes his paper by insisting on the great care necessary both in prescribing and in fitting such glasses, if they are not to be discarded as worse than useless.

E. E. H.

III.—MISCELLANEOUS


(1) It seems quite appropriate that Ramsay, the first recipient of the Mackenzie Memorial Medal recently instituted, should devote his address to general methods in ophthalmic treatment rather than to any special ophthalmic subject. For Mackenzie was physician first—a general practitioner—and oculist afterwards; and it is Ramsay’s text that sound medical, especially sound physiological, knowledge should antecede specialism. He reminds us that Mackenzie, “one of the greatest clinicians who ever lived,” possessed neither instruments of precision nor bacteriological nor biochemical equipment. (Mackenzie died in 1868 at the age of 77; the ophthalmoscope was described by Helmholtz in 1851, so that Mackenzie was already 60 years old when the instrument was first mentioned, to say nothing of being in general use.) Yet, at the age of 40 years he produced a treatise on eye diseases which remains to this day one of the foundation stones of our tabernacle of modern ophthalmology, or, as Ramsay put it, the work was “monumental.”

“In clear and correct language Mackenzie described eye diseases as he saw them, and has given us word portraits which are faithful reproductions of Nature, and as true to-day as when they were written. In the great majority of instances the colours are as vivid as when the picture was painted.” Nowadays general practice and specialism cannot be simultaneously engaged in, the field is too wide, “the day for admirable Crichtons is past.” Nevertheless, says the author, “the whole is always greater than the part, and the functions of the eye in the animal economy cannot be fully grasped unless they are studied in their relation to the body as a whole.” It is not feasible in an abstract to make reference to all
that Ramsay has to say in support of his argument for general methods. Two sentences only will be given. " 'The young man in a hurry', who thinks he knows all about his special subject, runs a great risk of being a danger both to himself and to the community among whom he practises. His enthusiasm, so praiseworthy in itself, stands in need of direction, and can only lead to disaster if permitted to have full scope within the narrow and cramping boundaries of his speciality." And again: "'When dealing with young patients suffering from squint, diplopia, or asthenopia and headache, tenotomy is sometimes performed, or a rectus muscle is advanced, whereas it would be better treatment to delay considering the question of operation until every opportunity had been given for the recovery of the balance of muscular power by promoting an improved condition of general health.'"

Ernest Thomson.


(2) Under the bald and—to the specialist—somewhat uninviting title "Tobacco Amblyopia" Traquair contributes to the Lancet an original and informative article which is perhaps of more value to the specialist than to the general practitioner. It is based on a statistical investigation of all the cases of tobacco amblyopia which occurred at the two eye clinics (designated by the author A and B) at the Edinburgh Royal Infirmary during the years 1913 to 1926. The rather curious fact emerges that there is a decided difference in the incidence at the two clinics; since the staff in one clinic was constant during the period while that in the other was not, it would seem easy to explain the difference as due to difference of observation, but the author appears not to think that such difference of observation is the cause of the variation in incidence. He gives us no clue as to which clinic is which, though it is not difficult to make a shrewd guess.

Taking both clinics together the percentage of tobacco amblyopia comes out at 1 per cent. of the total patients as against 0.2 to 1.4 per cent. recorded elsewhere. Nearly all the patients consumed from 2 to 4 ounces of tobacco per week. Four cases used only \( \frac{1}{3} \) ounce, 28 used 1 ounce, while 74 used 5 ounces or more. In Table 1 the highest consumption is given as 12 ounces, but in the text 9 ounces "in only one case." In four males and one female the tobacco was in the form of cigarettes, from 130 to 280 per week. Two males and two females took snuff from \( \frac{1}{3} \) to 1 ounce weekly. There were only six females in all. The details of the monthly incidence may here be omitted. The age incidence corresponds with that found by others, the peak being at age 50 to 54, 199
patients out of the total of 1,051. Occupations are classified in 21 groups. "A preponderance of about 14 per cent. in favour of indoor occupation was found, but as a large proportion of the industrial population is engaged in indoor work, this does not seem to be enough to indicate that indoor occupation *per se* especially favours the production of amblyopia. . . . On the whole the figures suggest that sedentary and confined occupations are apt to provide suitable conditions for the development of the disease." Light, in the author's opinion, has no influence (*vide infra*). Traquair enters fully into the much-disputed question of the influence of alcohol in the causation of the disease. This matter was discussed at the Ophthalmological Society U.K. in 1887 when very definite opinions were expressed against the importance of alcohol as a factor, yet much difference of opinion still prevails. In order to obtain light on this subject the author undertook an investigation of the police statistics of drunkenness for the period 1913 to 1926. Considerations of space prevent the reviewer from discussing these statistics in an abstract, especially in view of the author's very definite conclusion:—"A relationship was found between crime, drunkenness and poor relief, but none between tobacco and any of these factors. I am informed that all (no doubt an exaggeration) French polishers drink methylated spirits and, curiously enough, in the whole 1,088 patients there is not a single French polisher." The clinical picture of alcohol poisoning is different from that of tobacco. Three cases are mentioned. "It is evident that the rôle of alcohol varies according to locality and is dependent not so much on the amount of alcohol consumed as on its purity. . . . In Britain, and certainly in the Edinburgh area, the amount of wood spirit is minimal and the part played by alcohol may also be regarded as minimal—that is to say we have here to deal with a pure tobacco amblyopia." Under the heading "Clinical Features" the author gives a close description of various subjective symptoms and points out the circumstances which influence the onset, the diminution or the aggravation of these symptoms. His attitude towards the patient who will not obey the instruction to stop tobacco appears to the reader as somewhat sympathetic: "No case ever progresses to complete blindness." Previously in this abstract it was stated that according to Traquair light has no influence on the disease. As the macula is the part of the retina most exposed to light one might expect light to be a factor. But the author explains why it is not so in a paragraph which deserves full transcription, more particularly since the author is a well-known authority on perimetry. "The characters of the field defects have been frequently described, but appear still to be incompletely realised. Although the true incidence of the disease upon the visual nerve elements was
demonstrated many years ago (Bär, Groenouw, and Nelson), the macular fibres or cells are still often regarded as those primarily concerned. This misconception has led in the past to unjustifiable theories of causation and still produces much confusion of thought both in diagnosis and in aetiology. It cannot be too strongly emphasised that the macular elements, whether cells or fibres, are never either the first or the most severely affected, but are always involved after other elements of the papillo-macular bundle. If the scotoma in a case of moderate severity is carefully examined, the densest areas will be found near the blind spot, or between it and the fixation area, not at the fixation area itself. Only when the diffuse margin of the scotoma begins to invade the fixation area does the patient complain of symptoms, and indeed the scotoma may have existed and cleared up without the fixation area itself ever having been perceptibly affected. The scotoma of tobacco amblyopia is therefore not a central scotoma in the true sense, but a temporo-caecal defect which, by extending over the fixation area, becomes a centro-caecal scotoma.” The diagnosis is not as a rule difficult. What the author has to say about chiasmal interference due to pituitary disease or other causes, and about Leber’s disease had better be read in the original. When mentioning the good prognosis in most cases the author remarks that “cases in which serious visual incapacity remains appear to be rare in relation to the frequency of the disease.”

The article includes two statistical tables and four charts. Eight references are given.

ERNEST THOMSON.

BOOK NOTICES


This collection of papers, edited by Prof. di Marzio, bears some resemblance to the Reports of the Royal London Ophthalmic Hospital now merged in this journal, in so far as it consists mainly of original papers contributed by workers in the clinic. The actual clinical work done is summed up at the end by Prof. di Marzio in some 25 pages. As an illustration of the amount of work covered we may note that no less than 129 cataract cases were operated on. As we propose to publish abstracts of the papers, a task facilitated by the fact that the authors have appended a summary of their