-discussed at the end of the afternoon session following an exhibition of coloured posters and lantern slides prepared for the Association for the Prevention of Blindness, Bengal, by Lt.-Col. E. O’G. Kirwan, Red Cross posters designed in New Delhi, and local Madras posters were also exhibited.

The final session was held in the Library Hall of the Madras Medical College. Papers were presented on:—The importance of the study of the field of vision on the prognosis and treatment of epidemic dropsy glaucoma; detachment of the retina; (26 cases); ocular complications due to focal sepsis; the effects of subconjunctival injections of guaiacol cacodylate in phlyctenular keratoconjunctivitis; asepsis of the conjunctival sac; some observations on slit-lamp microscopy; treatment of immature senile cataract; cataract extraction in Aligarh; blue sclerotics with congenital syphilis; buphthalmos and blue sclerotics; diphtheria of the conjunctiva; unilateral trachoma; a short history of incidence of glaucoma in Bengal; ophthalmoplegic migraine involving VI nerve. The subject of greatest interest was primary non-congestive glaucoma, the Calcutta members bringing forward experience in connection with the recent outbreaks of epidemic dropsy. The fact that in the excessively high tensions of epidemic dropsy glaucoma, field changes and disc changes might be absent for months elicited an interesting discussion. Decompression by sclerocorneal trephining was still employed extensively in Calcutta, hundreds of operations having been done in the last few months.

In connection with the Prevention of Blindness, it was considered by the Committee that the responsibility of governing authorities was insufficiently realized and that certain recommendations should be put before the various authorities in British India and the Indian States. These will appear in due course. About sixty members attended.

ABSTRACTS

MISCELLANEOUS


(1) Minchin reports the following case. “A girl, 3½ years of age, child of a Gurkha rifleman, was brought to hospital with the history that for the last three months whenever she cried blood and not tears came from the eyes. The child was examined
but no abnormality could be detected in the conjunctiva or lacrimal apparatus; the general health was good and no marked anaemia was present. An iron mixture was prescribed and the parents instructed to bring the child again to hospital should no improvement occur.” She was duly brought back, and cried on examination, when actual blood, mixed with tears, was observed. The writer remarks that in view of the child’s age this case can hardly be one of vicarious menstruation; but he makes no speculation as to the actual cause.

**Ernest Thomson.**

(2) Jameson, P. Chalmers (Brooklyn).—Vascularization of the anterior segment of the eye. *Arch. of Ophthal.*, April, 1933.

(2) Jameson has found, in performing peritomy for pinguecula, pannus, etc., that the newly formed corneal vessels receive blood from the ciliary as well as from the conjunctival vascular system. If a cure is to be obtained both these must be obliterated. To obliterate the ciliary contributions is not easy, since the minute vessels are covered by a prolongation forwards of Tenon’s capsule which protects them from destruction by curettage. They can be dealt with, however, by making a series of parallel incisions down to the sclera with a Graefe knife over the affected area. The result of doing this is to cause blanching of the previously engorged area, and the idea occurred to the author that the procedure might be of use in congestive glaucoma. In one case, after incising and turning back the conjunctiva from the corneal margin, the ciliary reticulum “was thoroughly sectioned by linear incisions 1.5 mm. apart by a von Graefe knife carried through the membrane in an area of about 6 mm. surrounding the limbus.” The sclera was white after spooning away clot and the conjunctiva was brought back into position by a purse-string suture. Intra-ocular pressure was reduced from 50 mm. Hg to 35 and the patient was freed of pain. In a second case, the reduction was from 40 mm. Hg to 20, and in a third, the operation was performed in conjunction with a Lagrange operation and produced satisfactory results.

F. A. W-N.


(3) For this research on the rabbit’s eye Lindberg devised an apparatus which was made to adhere to the eyeball by negative pressure, and he employed the pumping of air into the cranial cavity in order to raise the intra-cranial pressure.
He found that the pressure in the retinal veins rises and falls in direct proportion to the changes in pressure artificially produced within the skull. His experiments confirm Barmann's view that the intra-cranial pressure and that in the retinal veins is always the same, as against the results obtained by Bailliart.

Variations in the intra-cranial pressure are followed almost instantaneously by corresponding changes in pressure in the retinal vein; even after the pressure within the skull has been kept raised for a considerable time the pressure in the retinal veins drops almost immediately when the intra-cranial pressure falls, provided the latter is not raised above 40-50 mm. Hg. When the pressure in the cranial cavity is 40 mm. Hg there seems to be practically no difference between the pressure in the retinal arteries and that in the veins, i.e., the circulation in the central vessels at this point is as bad as possible. At this "critical" point signs of papilloedema would, theoretically, be bound to appear. In his experiments, however, no sign of papilloedema was produced even after the intra-cranial pressure was kept at 40 mm. Hg for three hours or raised to 70-80 mm. Hg from which the animals usually succumbed.

When the intra-cranial pressure is raised above 40-50 mm. Hg cerebral anaemia is threatened, and then there is a compensatory increase in the general blood pressure and with it a rise in that of the retinal arteries; a slight rise, however, does not affect these arteries (as it does the veins) even when it is kept up for hours.

Thos. Snowball.


(4) The relation of diseased conditions of the nose and adjacent sinuses to disease of the eye has assumed a considerable importance of late years in the opinion of ophthalmologists. Giannini has tried to discover how far drugs applied to the middle turbinate bone on pledgets of cotton wool, have influence on the arterial pressure in the retina. He finds that in many cases there is some alteration of the arterial pressure, though of small degree, a difference so constant that he thinks we may fairly assume it to be the expression of an action, either direct or indirect, of the nasal stimulation. In cases of retro-bulbar neuritis he noticed that cocaine applied to the nose caused a reduction of the retinal arterial pressure and a temporary improvement of vision.

Harold Grimsdale.

(5) **Magitot** reports in detail six cases in which an operation for the removal of the carotid sympathetic plexus was performed. He goes in detail into the effects on animals and man of this procedure. The sympathetic plexus is removed from the common carotid for about two centimetres and for a similar distance along the internal carotid artery. The arterial wall so cleared is treated with carbolic acid to ensure the destruction of all nerve fibres.

In man it is found that there is a rise of general arterial blood pressure in one in ten, which persists for some months. A high blood pressure is, therefore, a contra-indication to the operation. The Claude Bernard-Horner syndrome is very slight or absent. Dilatation of retinal vessels is observed, and an increase in the colour of the optic disc. The effect on the retinal arterial pressure of a unilateral operation is (1) a transitory fall which is bilateral; (2) a bilateral rise lasting from one to five days, and very variable in amount; (3) a fall which is less marked than the initial fall, is bilateral and transient. After about eight days from the time of operation the arterial pressure is as before. Bilateral operation results in a fall of retinal arterial pressure, which is bilateral and followed by a much larger rise, and finally a slight fall. The first and third stages are less noticeable than in the unilateral operation, but the second stage is much more evident. Ocular tension shows very slight changes, either in the unilateral or bilateral operation. In general, a slight fall is noted. In eyes with a raised tension, however, there is a still further rise during the first twenty-four hours, and later a fall to the original pressure.

Six cases of operative result are reported. In one, bilateral operation was followed by definite functional improvement and increase of visual field in Leber's optic atrophy, but the benefit was lost after a subsequent operation in the region of the chiasma. Marked arachnoid proliferation in the neighbourhood was noted. A case of general paralysis, with optic atrophy of the tabetic type, had received no improvement during two years' vigorous anti-syphilitic treatment. After operation visual improvement continued for three months and was maintained for eleven months. A case of retinitis pigmentosa underwent the bilateral operation. Although no improvement had taken place in the condition for three years, definite benefit was reported after the operation.

It is pointed out that, according to Abadie, optic atrophy may be the result of vaso-constriction in arteries already diseased. The author cites two cases in which there was a remarkable degree of
obstruction of the lumen of the central retinal artery after death from cerebral haemorrhage, in patients whose vision had been satisfactory before death. The author also recalls the fact that the function of the optic nerve and the appearance in optic atrophy are not always in agreement, and suggests that, with vaso-dilatation resulting from operation, considerable benefit may result when both function and clinical appearance are bad. It is suggested that operation may benefit other conditions, such as atonic corneal ulcers, and retinal arterial spasm and ophthalmic migraine unaffected by acetylcholine.

HUMPHREY NEAME.

(6) Bramwell, E. (Edinburgh)—Leaking aneurysm of the cerebral arteries as a cause of third nerve paralysis, with special reference to two cases in which the diagnosis was confirmed by arterial radiography. A note upon the aetiology of recurrent and periodic ocular palsy and ophthalmoplegic migraine. Trans. Ophthal. Soc. U.K., Vol. LIV, p. 203, 1934.

(6) Bramwell reports two cases of leaking aneurysm of the cerebral arteries which caused 3rd nerve paralysis. One of these was a married woman 23 years of age who, one hour after striking the back of her head against a mantelpiece, had severe left frontal headache and vomiting. Two weeks later she experienced intense pain around the left eye and complete left-sided ptosis and diplopia due to 3rd nerve paralysis became evident. Some neck rigidity was detected, but no blood was found in the cerebro-spinal fluid. Arterial radiography was performed by the injection of 15 c.c. of thorotrast into the left common carotid artery. This revealed an aneurysm 1 cm. in diameter in communication with the internal carotid artery by a narrow neck immediately below the point where it is joined by a large posterior communicating artery. After ligature of the internal carotid artery in the neck the retro-ocular pain passed off, and the ptosis and ocular movements recovered.

The author's other case was that of a married woman, 43 years of age, in whom loss of consciousness for half-an-hour was followed by headache and vomiting, and later, severe pain behind the left eye and in the back of the neck. These symptoms were followed by complete left 3rd nerve paralysis and later by paresis of the right arm and leg, slight papilloedema and xanthochromia in the cerebro-spinal fluid. An arterial radiograph showed two small rounded aneurysms on the internal carotid artery about the point where the posterior communicating artery joins it. The symptoms slowly cleared after ligature of the left common carotid artery, except for a slight limp with the right leg and the left pupil being larger than the right. Syphilis is an unusual factor in the aetio-
logy of aneurysm of the cerebral arteries. Sir William Church believed that nearly all cerebral aneurysms were due to embolism and associated with vegetative endocarditis; Eppinger holds the view that many aneurysms of the cerebral arteries are due to congenital defect of the medial coat of the arteries with, in some cases, subsequent degenerative and atheromatous processes. Fearsides examined 51 cases of cerebral artery aneurysms at the London Hospital and found 36 were due to medial degeneration and 15 to infective emboli. Syphilis in no case was the cause and where cerebral artery aneurysm is diagnosed in the absence of infective endocarditis it is assumed that it is congenital in type. These aneurysms are small and like a berry; sites of predilection are points of bifurcation, junctions of the circle of Willis, and the region of the termination of the internal carotid artery at the point where the posterior communicating artery joins it.

The author discusses the aetiology of recurrent and periodic ocular paralysis and migraine and states that in many instances it is probable that there is a vascular basis to account for the nature of the attacks which begin with severe pain localized to the region of the eye, accompanied by vertigo and vomiting, with nerve paralysis developing a day or two later. Subsequently the headache disappears and then the ocular paralysis after a period, though permanent paresis may persist especially when repeated attacks have occurred.

He believes that these symptoms and train of events could be explained by temporary compression of a cranial nerve such as the 3rd or the 6th by a vascular paroxysm with subsequent recovery.

He quotes instances of anatomical anomalies where the posterior cerebral artery has been found looping round the 3rd nerve (Slater) and the 6th nerve compressed by a transverse pontine artery (Cushing).

He comments that the severe pain experienced in these cases was relieved by ligature of the internal carotid in one of his cases and in a case reported by Nattrass. Afferent fibres are found in the 3rd, 4th and 6th cranial nerves but from their distribution they appear to be entirely proprioceptive.

H. B. Stallard.


(7) Birch describes 4 cases of aneurysm of the vessels forming the circle of Willis. All 4 were females, 3 died and 1 survived. Their ages were 19, 37, 47 and 59 respectively.

It is very difficult to diagnose an aneurysm before it ruptures or gives rise to pressure signs. Rupture is characterized by sudden
and severe occipital pain, neck rigidity and loss of consciousness. Paralysis of the oculo-motor nerve on the same side as the aneurysm and bilateral papilloedema with retinal and subhyaloid haemorrhages are later events. Coma and death terminate the clinical picture in a number of cases.

In two of the author’s cases the aneurysm was about the size of a pea and situated at the junction of the middle cerebral and the posterior communicating arteries and the oculo-motor nerve was adherent to the aneurysm; in another case the aneurysm affected the middle cerebral artery near its origin and blood clot surrounded the oculo-motor nerve. Hemiplegia of the opposite side was present in 3 cases. In some of these cases Weber’s syndrome, a lesion of the crus cerebri with complete nuclear oculo-motor palsy and hemiplegia of the opposite side, is evident.

The signs of pressure on cranial nerves come on some days after the initial symptoms. The papilloedema is believed to be due to blood in the arachnoid space compressing the central retinal vein.

In a few cases radiography is helpful in the diagnosis as showing erosion of bone, calcification in the wall of the aneurysmal sac and arterio-radiography.

In discussing the aetiology the author favours the conception that aneurysms of the circle of Willis occur at anastomotic junctions and at sites where there is some congenital defect in the tunica media of the vessel wall. Syphilis plays little or no part. Some cases may be due to embolism associated with subacute bacterial endocarditis and in rare instances to periarteritis acuta nodosa and arteriosclerosis.

H. B. STALLARD.


(8) As the result of many experiments the following conclusions were reached.

1. Retinal venous pulsation synchronous with carotid pulsation occurs at that moment when the intra-ocular pressure equals the retinal venous pressure.

2. The measurement of the amount of the retinal venous pressure gives a sufficiently accurate measure of the intra-cranial pressure.

3. In all cases of increased intra-cranial pressure, diastolic arterial pressure was raised whether papilloedema was present or not. This fact can only be used to estimate the actual intra-cranial pressure when the vascular system generally is normal whereas the measurement of the retinal venous pressure can be used directly as the expression of intra-cranial tension.
Based upon these measurements of the intra-ocular, venous and arterial pressures, after the manner of Bailliart, Lauber comes to the conclusion that the determining factor in the development of swelling of the optic discs and the accompanying phenomena is the raised diastolic retinal venous pressure and its increase in relationship to the diastolic retinal arterial pressure.

In all cases of increased intra-cranial pressure where the relationship between the minimal retinal venous and arterial pressures was as 1:1.7 and 1:1.26, there was no swelling of the discs. In those cases where the relation of these two pressures lay between 1:1.7 and 1:1.5 there was always hyperaemia of the discs and blurring of the edges. In those cases where the relationship was lower than 1:1.5 papilloedema invariably occurred.

Paton and Holmes have called attention to the fact that papilloedema is more marked in the eye with the lower intra-ocular pressure where a difference in this respect exists between the two eyes. In this connection the author quotes a case where papilloedema occurred in an eye as the result of low intra-ocular pressure alone. A patient with bilateral glaucoma had a cyclodialysis done on both eyes. In one eye tension became normal and the disc remained unaltered. The other eye had its tension much lowered and a swelling of the disc of about 2.5 D. developed together with fine haemorrhages. Gradually the tension increased and the disc became normal. A second glaucoma attack occurred for which an iridectomy was done and immediately the swelling of the disc recurred.

A. H. LEVY.

BOOK NOTICES

The Relation between Illumination and Industrial Efficiency.
By Mr. H. C. Weston. H.M. Stationery Office. 1935. Price, 4d. This is the title of a publication by the Department of Scientific and Industrial Research, a Joint Report of its Illumination Research Committee, and the Industrial Health Research Board.

The research was undertaken at the National Physical Laboratory, where 18 members of the Photometric department have sat in relays in whitewashed cubicles of measured size, marking off on 6 cards, which contained a series of 256 broken rings of Landolt, those rings in which the break was at a particular point on the circumference. The size of the rings varied on each of the six cards and the cubicles had different degrees of illumination which ranged from 0.16 ft. candle to 500 ft. candles. The speed and accuracy at which the task could be done were measured.