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H. B. STALLARD.

OFFICIAL ABSTRACT OF PAPERS

"Retinal Circulation—Changes in Metabolic Disease." By DR. ALEXANDER E. MACDONALD.

The marked changes in the retina, seen ophthalmoscopically in many cases of uraemia, eclampsia and malignant hypertension, are not sufficiently explained by inflammation, toxins or arterio-sclerosis. An explanation based on hydrodynamic grounds is proposed. Lantern slides to show pathology.

"Some Observations on Katholysis in the Treatment of Retinal Detachment." By MR. R. FOSTER MOORE.

My object in bringing forward the present group of thirty-one cases of retinal detachment treated by means of katholysis is primarily to describe the technique that has been used. The cases are too few and have not been traced for anything like a sufficient period to make it possible to place the proper relative value upon the method.

"Newer Methods of Treating Retinal Detachment." By MR. J. COLE MARSHALL.

Katholysis.—Its uses as a localising agent and for closing retinal tears ; the benefit of using it in conjunction with diathermy.

Diathermy,—Improvement in the method of surface coagulation and the use of thinner and shorter needles in perforating diathermy.

A new method with fine galvano-cautery points.

A method of trephining with perforation of the choroid with diathermy.

Methods of transillumination as described by Weve with Arruga's spoon and Lindner's special marking instrument.

The method of indirect illumination and direct illumination.

"The Internal Limiting Membrane of the Retina." By MR. EUGENE WOLFF.

The internal limiting membrane of the retina is classically described as being formed by the apposition of the feet of the fibres of Müller. Evidence, histological and embryological, is brought forward to show that the internal limiting membrane is a separate structure to which the feet of the Müller are merely attached.

"The Importance of the Near Balance Test." By MISS MARGARET DOBSON.

The instrument is designed to diagnose heterophoria, to measure binocular balance and to estimate duction (fusion reserve). Binocular imbalance at the near point shows the amount of accommodational convergence in use, and indicates the amount of fusional reserve (which must be twice the amount of the imbalance) which is necessary to establish a comfortable working relationship between accommodation and convergence.

"Pathogenesis of the Melanomata." By MR. E. F. KING.

The features of the melanomata as a whole are considered and their terminology defined.

The points of dissimilarity of these tumours in the uvea from those found elsewhere in the body and the possibility that they are of different pathology is discussed, and evidence offered to suggest they are essentially similar, whatever their site.

The undoubted change of the skin melanomata from innocence to malignancy is noted. In the eye it is suggested that such changes have been followed closely in the iris and are probable in the ciliary body and choroid.

The prevailing theories as to pathogenesis of the melanomata are reviewed; in particular the neurogenic theory associated with the name of Masson. It is pointed out that the direct application of this theory to growths in the eye is of particular difficulty and at present only speculative though here, as elsewhere in the body, the conception of a nervous origin for the melanomata is the most convincing.

"Principles and Practice of Subjective Ocular Screening." By MR. G. F. ALEXANDER.

1. Definition of screening: with four varieties of screening.

2. Uniocular screening: (*a*) explanation of "seeing through" an opaque object, with formation of a "phantom" and a "bar" (*b*) proof that the width of the "phantom" equals the distance between the visual axes at the distance of the screen from the eyes, and this enabling us to (1) locate the "twins" of any point seen in crossed diplopia, and (2) ascertain the interpupillary distance in the presence of orthophoria.

3. Bilateral screening: a "phantom" and "bar" being formed on each side of the subject; and the fusion of the two "phantoms" resulting in a vertical central "bar," with dissociation of the eyes from the binocular vision of any point in the field, so that in the presence of any tendency to departure from binocular fixation, this takes place.

4. Central screening: a "phantom" being formed on each side of the screen (*a*) explains the narrowing and disappearance from view of objects seen in crossed diplopia, (*b*) forms the basis of "bar reading," (*c*) inferences from "bar reading," (*d*) the formation of a vertical central "bar" dissociating the eyes as above.

5. Faults in bilateral and central screening: (*a*) due to independent movements of the screen and the subject's head, (*b*) with a vertical arrow at the zero of a horizontal scale, or a horizontal arrow pointing to the zero of a vertical scale, (1) with bilateral screening the arrow can only be brought over the scales in esophoria, drifting away from the scales in exophoria, so that from the latter, horizontal deviations cannot be ascertained, and accuracy is lost in reading vertical deviations; and (2) with central screening the reverse of this takes place.

6. Elimination of both these faults by vertical screening.

7. Demonstration of an instrument allowing, by means of vertical screening, esophoria, exophoria, hyperphoria, and cyclophoria at a near distance to be accurately ascertained.

8. Reference to Maddox's latest Wing-test.

9. Attention drawn to an error in the representation in our tangent scales for use at 25 cm. from the eyes, of 1 metre-angle of deviation, which is double what it should be.

"The Clinical and Microscopic Appearances of Experimental Grafts of Scleral Tissue on to Rabbits' Corneae." By Mr. J. W. TUDOR THOMAS.

In 1932 at the Edinburgh Congress of this Society, a paper was read describing the clinical appearances of five experimental grafts of scleral tissue on to rabbits' corneae. The present paper gives an account of eight such grafts (including the five referred to), and describes how some remain opaque, while others become nebulous or semi-transparent. An account of the histology of each graft is given, from which certain conclusions can be drawn in explanation of the various clinical results.

DISCUSSION.—"The Rarer Forms of Keratitis."

Mr. R. A. GREEVES, *Clinical Aspects.*

General remarks on superficial and deep keratitis:—the rarer forms of keratitis are lesions mainly of the superficial layers of the cornea. A suggested classification of superficial keratitis cases into certain groups, with a brief mention of some of the rarer forms of the disease belonging to each of these groups respectively.

MR. J. H. DOGGART, *Clinical Aspects.*

The rarer forms of keratitis may be divided into two groups, according to whether the superficial or the deep layers are mainly affected. From the former group superficial marginal keratitis and Fuchs' superficial punctate keratitis are selected for consideration; and deep or disciform keratitis from the latter. Keratitis due to rosacea or to mustard gas first involves the anterior surface, but shows a strong tendency to penetrate more deeply. Classification of keratitis must be elastic, because much overlapping occurs, as, for example, in some epidemics of superficial punctate keratitis abroad, where many cases progress to keratitis profunda.

MR. F. A. WILLIAMSON-NOBLE, *Neurological Aspects.*

The subject is considered under three headings.

1. Diseases of the cornea associated with disorders of sensation.
2. Changes occurring as sequelae to a known neurological lesion of the cornea.
3. Corneal changes occurring in a general neurological disease.

Brief description of nerve supply of cornea.

Examples of group 1.—Superficial punctate keratitis, disciform keratitis, epithelial dystrophies, recurrent erosion,

Examples of group 2.—Neuroparalytic keratitis, discussion of pathology.

Examples of group 3.—Kayser Fleischer ring in Wilson's disease.

MR. T. HARRISON BUTLER, *Slit-lamp Aspects.*

Alterations in thickness and contour:—Keratoconus posticus. Keratoconus posticus circumscriptus. Acute conical cornea.

Injuries:—Birth injuries. Disciform keratitis. Burn of cornea with barium hydroxide. Increase of corneal nerves near the scar of a perforating injury. Folds of Descemet's and Bowman's membrane.

Inflammations:—Rosacea of cornea. Calcification of cornea after herpes. Herpetic changes in cornea. Calcification near Descemet's membrane.

Pigmentation of cornea:—Krukenberg's spindle. Kayser Fleischer ring. Blue pigmentation of the cornea after the use of silver preparation.

MR. FRANK LAW, *Ultra-Violet Light Therapy.*

The general indications for ultra-violet therapy in keratitis are considered, with the conditions to be satisfied before good results may be expected. A few of the rare forms, including gas keratitis, disciform keratitis, superficial punctate and atypical superficial keratitis or dystrophy, are discussed in their relationship to ultra-violet light therapy.

DR. J. H. DOUGLAS WEBSTER, *X-Ray Treatment of Keratitis (156 cases).*

The X-ray treatment (by small doses) of infective and inflammatory diseases.

Technique in keratitis: direct, oblique (tangential) radiation; wave-length; dosage; reactions.

Clinical indications and results in superficial keratitis (recurrent abrasions, acne rosacea keratitis, etc.); in interstitial keratitis; in corneal ulcers.

MR. O. GAYER MORGAN, *Superficial Epithelial Dystrophy.*

A report on a series of cases of superficial epithelial dystrophy of the cornea. One type occurring chiefly in the lower half of the cornea, giving rise to very few symptoms or signs and very resistant to treatment and a second type occurring over the centre of the cornea producing some blurring of vision and symptoms rather suggestive of a recurrent abrasion.

MR. G. G. PENMAN, *Keratitis Associated with Rheumatoid Arthritis.*

Filamentary keratitis occurring in this disease has been described by Houwer and others. Another form of keratitis occurs, occasionally very severe and leading to perforation and loss of the eye. Loss of corneal sensation is a feature of this condition, even in the less severe cases.

"The Aetiology and Treatment of Atropine Irritation." By MR. FREDERICK RIDLEY and DR. IAN MACLEAN.

The paper deals with the general problem of atropine irritation and reports the results of immunisation by various methods in some fifty cases. Methods of estimating the degree of sensitivity and the correlation of this with the management of the case are described.

"The Innervation of Ocular Muscles and the Mesencephalic Root of the Fifth Nerve." By PROFESSOR H. WOOLLARD.

The proprioceptive innervation of the ocular muscles, as well as of other muscles in the head region, still remains an unsolved problem.

Attempts to solve this problem have been made by histological investigation of the nerve terminations in these muscles. Experiments have been performed, such as sections of these various nerves close to the brain, destruction of the central nuclear origins electrically by means of Clarke's stereotaxic instruments and destruction of possible sources in the mid-brain.

Clinical cases in which the fifth and other cranial nerves have been destroyed by surgery or by disease have been investigated.

Some progress has been made in the case of the ocular nerves and in the cat for instance it is believed there is a special sensory innervation which arises from a cellular accumulation near to but perhaps not identical with the mesencephalic root of the fifth. The fibres of these cells from each side are distributed to the ocular nerves (the third) of both sides.

"Spontaneous Cure of Retinal Glioma." By MR. MONTAGUE L. HINE.

Reference is made to the few cases previously reported, mainly in Germany, of spontaneous cure of early retinal glioma, all but one of which occurred in the remaining eye of patients who had had one eye excised for glioma. Particulars are given of a "glioma family," some of whose history was recorded by Griffith in the *Trans. Ophthal. Soc. U.K.* for 1933. Father, now aged 42, had left eye excised in infancy for retinal glioma, and right eye was recently examined and found to contain, on nasal side of fundus, an atrophic area of retina and choroid on which was superimposed a shrunken slightly raised, cystic mass of retina, which, in view of condition found in son's eyes, is presumably a regressed and cured patch of old glioma. Fundus painting is shown. Eldest child died in infancy, at age 6 months. Second child, now aged 19, found to have cystic masses in each retina, during a routine examination, that in right eye being typical of previously described spontaneous cures of retinal glioma. Fundus paintings are shown. Third child died of retinal glioma, bilateral, at age 21 months; fourth child had one eye excised for same condition when aged 3 months, the remaining eye being healthy; the fifth child (all were males) died of bilateral glioma aged 4 years. No spontaneous cure of bilateral retinal glioma has previously been reported.

"Photochemical Processes in Vision." By DR. R. J. LYTHGOE and DR. C. F. GOODEVE.

The paper describes (1) recent work on the application of modern photochemical conceptions to visual processes; (2) recent work on the chemical constitution of visual purple and the complicated reactions which occur when visual purple is bleached by light.

"Exophthalmic Ophthalmoplegia." By DR. W. RUSSELL BRAIN.

A syndrome distinct from exophthalmic goitre. Analysis of 29 cases. In this syndrome exophthalmos and ophthalmoplegia occur in one or both eyes. Symptoms of thyrotoxicosis may be present and if so are usually mild; but the disorder may occur after partial

thyroidectomy in patients with a normal or subnormal basal metabolic rate.

Age and sex incidence.

Mode of onset.

Ocular manifestations.

Pathology of ocular muscles and thyroid.

Problems of aetiology: the rôle of the thyrotropic hormone of the pituitary and of the thyroid.

Treatment: with special reference to Naffziger's operation of transfrontal orbital decompression.

"Exophthalmic Ophthalmoplegia; Effect of Prostigmin in Two Cases." By PROFESSOR F. R. FRASER.

The similarities of exophthalmic ophthalmoplegia and myasthenia gravis, and the recent successful treatment of the latter by prostigmin suggested its trial in exophthalmic ophthalmoplegia.

A female patient who first showed signs of toxic goitre 15 years ago, at age of 26, developed diplopia a year later. The ophthalmoplegia increased in severity and showed fatigue as in myasthenia gravis. Partial thyroidectomy was performed in 1925. Periods of hypothyroidism and of thyrotoxicosis followed and the ophthalmoplegia improved somewhat. Following prostigmin 25 mg. by subcutaneous injection, muscle power commenced to return in 4 minutes, was maximal in 17 minutes, and the effect was passing off in 20 minutes. This result shows the presence of a disturbance in the balance between acetyl choline and esterase activity.

The second patient, a female, showed signs of toxic goitre 9 years ago, at age of 32, and developed diplopia three years later. After subtotal thyroidectomy in 1930 the ophthalmoplegia remained stationary till 1935, when exophthalmos increased and it became worse. She was receiving treatment with thyroid at the time. Fatigue was absent and prostigmin had no effect.

The different results in the two cases suggest that the pathology is different or that if due to one disease process the stage in the process can affect the response to prostigmin.

"A Case of Exophthalmic Ophthalmoplegia." MR. H. B. STALLARD.

A case of exophthalmos with unilateral partial ophthalmoplegia affecting the inferior rectus and inferior oblique muscles associated with a basal metabolic rate of —4 per cent. and mild general symptoms of thyrotoxicosis in a male, aged 31 years, is reported. The effects and significance of 3 injections on successive days of 600 organon units (1,200 Schoeller units) of the thyrotropic hormone of the anterior lobe of the pituitary gland are described.

"A Case of Syphilitic Optic Atrophy with Remarks on the Pathogenesis of the Condition." By DR. J. G. GREENFIELD, M.D., F.R.C.P., and DR. S. H. EPSTEIN, M.D. (From the laboratory of the National Hospital, Queen Square.)

A male patient, aged 57 years, had lost the sight of the right eye 20 years, and that of the left eye 2—3 months before admission. He had also had shooting pains and paraesthesiae of tabetic type for 7 years. Occasional unsteadiness in walking and standing had been noted.

On examination, the right eye was blind and the pupil dilated and fixed. With the left eye he could see fingers in front of him but had no peripheral vision. The perimetric field with 4° white objects was limited to the macula and the nasal half of the field internal to 30°. Pupil typically Argyll Robertson.

The legs were ataxic and hypotonic but the knee and ankle jerks were present.

The cerebrospinal fluid contained 12 cells, and gave positive globulin, Lange and Wassermann reactions.

Post-mortem examination showed slight greyness of the posterior nerve roots in the lumbo-sacral region but no degeneration of the posterior columns.

Examination of the optic nerves and tracts showed the atrophy to be superficial both in the nerves and in the tracts. The optic nerves were less affected near the disc than more proximally and loss of myelin sheaths was much greater than loss of axis cylinders. These observations support the view that the optic atrophy was in this case secondary to syphilitic meningitis and was not primarily parenchymatous.

"A Dissection of the Lower Half of the Optic Radiation." By DR. T. PURDON MARTIN.

If the calcarine fissure in a suitably fixed brain is widely opened and a blunt instrument pushed in at the bottom of the fissure the outer half of the hemisphere splits easily, exposing a band of fibres running back to the lower lip of the calcarine fissure from the temporal lobe. By gradual dissection it can be shown that this band is formed by fibres which, emerging from the region of the external geniculate body had passed upwards through the posterior portion of the thalamus and then forwards and outwards into the temporal lobe, where they form a series of loops spread out over the roof of the inferior horn of the lateral ventricle, as originally described by Meyer; the fibres collect together again in a band on the outer side of the inferior horn and thence pass backward.