The International Congress of Ophthalmology

In a little over a year's time the Congress of Ophthalmology, which has been arranged under the auspices of various American Ophthalmological Societies, will take place in Washington. We would urge on all British ophthalmic surgeons the desirability of considering ahead, in their arrangements for next year, the possibility of attending this. We fully realize the difficulties that our American confrères will have in securing at the present time anything resembling an International representation at the Congress. The adverse rate of exchange will make it extremely expensive for all European surgeons, and almost prohibitive for some nationalities to go to the United States; but although that will affect British members, it will do so in a much less degree than others. It is only in America that it would be possible to arrange such a Congress at the present time, and we owe it as a duty to our co-workers there to recognize their energy by supporting it by an early subscription, and, wherever possible, by personal attendance. It is not needful to dilate on the hospitality which the inhabitants of the United States show to all their guests. What is of greater importance to us in this country to realize is the vast amount of good work that is being done in ophthalmology in America. We are often accused of insularity in this country, and with some justification. The spirit of provincialism is very rife, and not least so in London itself. It is good for us to get away from it for a time, and in a humble mood of enquiry, wander afield and see what other people are active about in the world. It is in this spirit that we would urge our readers to contemplate seriously the possibility of arranging a visit to Washington in April of next year. The preliminary arrangements for the Congress were published in this journal of February, 1921. The subscription of $10.00 should be sent to Dr. Walter R. Parker, 1025 David Whitney Building, Detroit, Michigan, U.S.A. At present rates of exchange, $10.00 is equal to £2 12s. 6d. (approximately).

ABSTRACTS

I.—CATARACT


In a space of less than twenty pages, Darier has written a
miniature treatise on cataract extraction. Though, doubtless, it contains nothing much that is actually new, the article forms a very excellent synopsis of modern practice and it is written in the usual lucid style which makes all the work of this surgeon so pleasant to read. One notes that Darier is a strong advocate of preliminary iridectomy in the majority of cases. As one would naturally expect, his armamentarium for the treatment of wound infection is particularly complete in the direction of serumtherapy. Nevertheless, full weight is given to the value of all the usual kinds of local treatment by which infection is combated.

Ernest Thomson.


(2) Sternberg, from his experience with twenty-three cases of intracapsular extraction, is enthusiastic over the Smith cataract operation.

In his first nine cases he made the incision as suggested by Smith, viz., ending from 1 to 2 mm. inside the cornea. Healing was slow, the wound taking from ten days to two weeks to seal tightly. In his next five cases he made a slight conjunctival flap with good results, healing taking place at from the fourth to sixth day. These eyes were inspected daily after the third day to study the healing process. Iridectomy was performed at the time of extraction.

For delivery of the lens a fairly large incision is essential (almost half the cornea). No flushing of the eye after extraction was performed.

Application of yellow oxide of mercury with atropin to the lids of the operated eye, and of the yellow oxide without atropin to the sound eye, the atropin being used to counteract iritis.

Post-operative pain is controlled by the use of sodium bromide given an hour or so after the operation.

In the later conjunctival flap operations the eye was not examined until the seventh day, although the dressing was changed on the third day in a darkened room. The unoperated eye is left uncovered at this time, and smoke glasses, No. 4 tint, provided.

Iritis occurred in almost all Sternberg's cases, but responded readily to atropin and cleared in a few days.

Emphasis is laid upon the advantage which belongs to the conjunctival flap operation, healing being more rapid. The incision should always be large enough to allow of the delivery of a possibly large lens. Proper management of the Fisher hooks by a capable assistant is essential. Inspection of the operated eye should not take place for a week.

J. Hamilton Mcilroy.
Post, M. Hayward, Jr., M.D. (St. Louis, Mo.)—Proper time for operation on congenital cataract. *Amer. Jl. of Ophthal.* April, 1920, p. 277.

(3) In reporting a case Post discusses the question of the proper time for operating on congenital cataract. Should such cases be operated upon early—say before the 10th year?

The patient, aged 23 years, suffered from bilateral congenital cataract and had been seen by Dr. Post, sen., 10 years before. Operation had been postponed for various reasons and the patient was able to proceed with her education to some extent. When seen by the writer the patient urged operation, and the eye with the poorer vision was operated upon by needleling. Recovery was uneventful, but the vision ultimately attained was not satisfactory, a central scotoma being present about a year afterwards. The patient was anxious to have the other eye treated, but the writer was reluctant to interfere in view of the unsatisfactory result of the first operation. This difficulty led him to review the literature of the subject and compare the results of late operations on such cases with those of earlier operations. He found little literature, but as a rule writers held that the dangers from amblyopia exanopsia are greater in proportion to the amount of lens involved, and the consequent impairment of the function of the retina. In the case of diffuse cataract all agree that early operation is imperative, but opinions differ for the lesser degrees.

Complete absorption of the lens substance is much more likely and rapid in young subjects. Fuchs demands operation during the first year of life, and if possible at the age of a few weeks. Grod, however, holds that early operation causes arrest of growth of the eye, and less useful vision is obtained than in the later cases. Swanzy advocates treatment early in life by discission and absorption, rather than by extraction later, discission being applicable up to the age of twenty-three. The mass of evidence was in favour of early operation, too lengthy postponement leading to degeneration of the retina with loss of function. (It may, however, be possible to restore the function to some extent by means of exercise and so to overcome the disadvantages of late operation).

Post deprecates postponement from the point of view of the mental effect upon a sensitive adolescent. Mental anxiety as to the fate of the eyesight, coupled with some dread of the operation, through a number of years, is detrimental to the prognosis. The child of ten is not introspective and the operation proceeds without mental complications. In the case reported, the second eye was operated upon two years after the first operation, and the patient became hysterical and unmanageable. Recovery was not satisfactory, and within a few weeks glaucoma developed, vision being lost.
General development of the child is favoured by treatment of the cataract at an early age. The writer quotes a case in which the first operation was done upon one eye at the age of ten, at which time the child was inferior mentally and physically. Improvement in mental and physical development rapidly took place after removal of the cataract, and the child would ultimately merge with the normal children in school.

Post therefore advocates operation about the eighth year, i.e., after the eyes have had the greater part of their growth, and before retinal deterioration has taken place. Operation at this age is of the simplest type, and anxiety neurosis on the part of the patient is at a minimum. The child is thereby enabled to grow up under as nearly normal conditions as possible.

J. Hamilton McIlroy.

(4) Lowell, W. Holbrook, M.D. (Boston, Mas.).—Preliminary report on sub-conjunctival cataract operations.—Amer Jl. of Ophthal., April, 1920, p. 275.

(4) In 1918, Lowell became acquainted with the operative method described by Husain of India, and took it up. In the present paper he describes the technique of the operation, with its advantages, and gives the results of 17 cases operated upon by himself and his colleagues.

The technique of Husain’s operations is as follows:—A small opening was made in the conjunctiva about 1 cm. above the sclero-corneal margin (patient looking down), and this was enlarged laterally to 1.5 cm. in length, keeping the line of the incision equidistant from the sclero-corneal margin. Through this opening the subconjunctival tissue was cut to the limbus. Then with the scissors closed, and by lateral movements, pockets were made on each side of the central sub-conjunctival tunnel, a stage of the operation which may be attended with severe haemorrhage. The lower edge of the conjunctival incision was lifted with forceps, and with the angular keratome the anterior chamber was punctured at the sclero-corneal junction. Still holding the conjunctival flap with the forceps in left hand, one blunt blade of the scissors was passed through the keratome incision, above and along the plane of the iris, and the sclero-corneal junction was cut first on one side and then on the other to give an opening sufficiently large for delivery of the lens. Iridectomy, capsulotomy and delivery of the lens should follow without difficulty. If blood collects in the anterior chamber at any time it must be completely washed out at once, as it coagulates very quickly. Irrigation after delivery to remove cortical matter is advisable. The pillars of the iris having been replaced, the conjunctival flap was carefully smoothed back, approximating the cut edges as well as possible. One stitch placed centrally in the
flap, was removed on the third or fourth day. A drop of atropin and perchloride of mercury ointment were, applied. A double bandage was kept on for six or eight hours, after which the un-operated eye was left uncovered.

(Lowell is of opinion that many cases of dementia may be obviated by giving the patient one eye.)

It is claimed that there is no danger of the wound opening a few hours after this operation. Husain found the average time of patients in hospital was 4.84 days; Lowell found about six days represented his own average.

The chief advantage claimed for the operation is the quick healing of the conjunctival wound. The eye being thoroughly cleansed before the operation, and collargol being dropped in after the operation, the conjunctival opening being at a considerable distance from the sclero-corneal wound, the likelihood of exogenous infection in this operation is reduced to a minimum, and the internal wounds heal remarkably quickly. Husain claims that suppurations are reduced to 0.4 per cent. of ordinary cases of cataract. His operation is based on the work of Czermak and Hari Shanker in the same field, but his modifications make his operation a distinctive one.

J. Hamilton McIlroy.


(5) Although the co-existence of senile cataract and glaucoma is infrequent, the problems attendant upon the double condition are very grave, and Morax contributes to the subject with the history of two typical cases in which glaucoma was the earlier condition, and cataract the complication. He suggests that reports from other surgeons in regard to individual experience would be helpful when the following questions come to be answered, viz.:

(1) May we and must we operate?

(2) At what time of the evolution of the cataract is it most suitable to operate?

(3) In what manner shall we intervene for the extraction of the lens, and for the maintenance of the fistulous scar which prevents the loss of the retinal function?

(4) What will be the functional result, and how long will the function last?

Morax has adopted the method of treating all such cases as primarily cases of cataract when it is a matter of visual urgency. He urges that extraction should not be shirked in these glaucomatous eyes if there is reasonable prospect of improvement in vision from the operation.
A brief summary of his two cases, with his comments, may be given.

**CASE 1.—Woman aet. 61.** History of cataract with glaucoma in the mother and glaucoma in a sister.

1910. (When first seen) R.E. V. = $\frac{5}{10}$. L.E. V. $c - 5$ D. sph. = $\frac{1}{3}$. Tension increased. Use of miotics for 2 years controlled tension. Carelessness in use, however, led to increase of tension. Iridectomy performed by another surgeon.

1913. L.E. cataractous. Tension increased in both eyes. Use of miotics was not carried out by patient. R.E. sclerecto-iridectomy.

1916. R.E. V. $c - 5$ D. sph. = $\frac{1}{3}$. L.E. V. $c - 9$ D. sph. = $\frac{1}{3}$. (Nasal contraction of visual field).

1918. R.E. V. = $\frac{7}{10}$ (due to lenticular opacity); filtering scar active; tension low. L.E. V. very defective. Lens extraction. (Scleral section placed peripherally resulted in a small filtering scar). Tension remained fairly good, and vision (corrected for aphakia) became = $\frac{1}{10}$.

**CASE 2.—Man aet. 60.** R.E. Well-marked glaucoma with almost complete loss of vision (cupping and atrophy of disc). L.E. V. = $\frac{1}{3}$. Peripheral opacity of lens; slight cupping of disc. Pilocarpin prescribed, but patient was negligent in carrying out treatment.

Two years later.—Tension increased; lens opacities more marked, visual acuity diminished in miosis. Patient refused sclerecto-iridectomy.

Four years later.—L.E. V. = $\frac{1}{3}$. Tension much increased; nasal contraction of visual field. Pilocarpin failed to reduce tension. Sclerecto-iridectomy (with wide iridectomy) was performed. Recovery normal, but no filtering scar ensued.

Four months later.—Tension still high. Vision = $\frac{1}{3}$.

Three months later.—Anterior sclerotomy. Tension did not fall.

One month later.—A second sclerecto-iridectomy resulted in a good filtering scar. Tension remained low for a year.

One year later.—Extraction of lens (sclero-corneal incision on side between XI—IV o’clock). Filtering scar was no longer protruding, but tension improved for a time.

Two months later.—Tension rose in spite of pilocarpin, and a third sclerecto-iridectomy was performed. No filtering scar was left, and the tension rose again. Sight was lost in less than a year.

**Comments** given by author.

**CASE 1.**—Operative interference had nothing to do with the lens myopia, as this condition had begun before operation, and was slow
in progress. The results in the two eyes may be tabulated thus:

In one eye (L) simple iridectomy did not relieve tension in spite of miotics. Field of vision contracted nasally. Extraction of lens (immature cataract) was performed without difficulty or adverse incident, and had a beneficial effect upon the tension.

In the other eye (R) sclerectomy with peripheral iridectomy was performed. Filtering scar produced relief of tension for the last seven years.

CASE 2. One must not despair of obtaining reduction of tension even although the first sclerectomy has failed to produce the desired result. In the case cited, a filtering scar was obtained only after the second operation.

Extraction of the cataractous lens proceeded normally, the incision being well outside the filtering scar (of previous operation). The filtering scar, however, became obliterated during repair, and tension rose. No matter how careful our technique may be, we can never be sure of obtaining a good filtering scar, and the third sclerectomy in this case was a failure.

J. Hamilton McIlroy.

II.—THE JUDGMENT OF DISTANCE


In this paper Howard gives the results of investigations made by him at the Medical Research Laboratory, Hazelhurst Field, Minneola, N.Y.*

The investigation was undertaken with the object of finding a satisfactory test for the examination and classification of applicants for the aviation service. The only test referred to in the aviation manuals was that for stereoscopic vision, a hand stereoscope with special aviation charts being used.

Errors in judgment of distance, whether in rising from the ground during flight or in landing, may be taken as accountable for the great majority of deaths among aviators.

Howard goes into the subject of the judgment of distance somewhat minutely.

* This paper was read at the American Ophthalmological Society, 16th June, 1919. In the discussion which followed other workers on the same subject took part, among these being Dr. Blaauw, of Buffalo, Dr. Spearman, of London, and Dr. F. H. Verhoeff, of Boston. Captain Howard was congratulated on a very valuable piece of work.
The factors involved in judgment of distance are:

(a) Those which are common to both monocular and binocular vision, viz.:

1. Size of the retinal image.
2. Accommodation.
3. Motion parallax.
   (a) Linear perspective.
4. Terrestrial association.
   (b) Overlapping of contours.
   (c) Light reflections and shadows.
5. Aerial perspective, i.e., changes in colour, brightness, etc., which distant objects undergo on account of variations in the clarity of the intervening atmosphere.

(b) Factors which operate only for binocular single vision:
1. Binocular parallax.
2. Convergence.

For classification purposes all factors, except those which represent differences in individual ability among the observers, are eliminated, and the following factors therefore are excluded in the test: (1) Motion parallax (being produced by movements of the observer, or of objects in his field of vision, are not related to innate individual ability). (2) Terrestrial association, and aerial perspective (being factors which are not directly related to the individual and are common to all observers). (3) Accommodation and convergence (being factors which operate for short distances only, and therefore negligible in a test which is carried out at 6 metres or over).

The factors to be made use of in this test are therefore:
1. The size of the retinal image.
2. The binocular parallax.

Apparatus.—The apparatus employed was a slight modification of that devised by Brooksbank James ("Measurement of Stereoscopic Visual Acuity," The Lancet, June, 1908, p. 1,783). It consists of a three-sided box, the open side being placed uppermost. In the front of the box there is an opening which can be closed by means of a shutter. A board passing from the front to the back attached to the floor carries a scale, the lines of which are 0·5 cm. apart. The markings of this scale are crossed at right angles by two parallel lines placed 6 mm. apart. Holes are bored at the points of crossing, and into the holes can be fitted rods with pointed ends, the length of each rod being 26 mm. and the diameter being 1 cm. The interior of the apparatus is black, with the exception of the back wall which is of dead white cardboard. A strong light is fitted in the interior in such a way that it illumines the white wall, and is out of the direct line of vision of the observer. All parts of the apparatus are made to exact measurement. The apparatus stands on a table which is placed at a distance of 6 metres from
the observer, who sits at another table, his head being kept steady by means of a forehead rest, which is clamped to the table. The room is completely darkened except for the light within the box.

The operator stands beside the box, and when everything is in readiness he raises the shutter suddenly and the observer has practically an instantaneous view of the rods, which are thrown into strong relief against the white background. He is asked to state whether the right or the left rod is nearer to him, and is told that at no time are the rods equidistant from his eyes.

Every effort is made to deceive him in regard to the position of the rods, in order to test his judgment severely. A pack of 20 blank playing cards, 10 of which are labelled right and 10 left, are shuffled before the test, and used to determine the position given to the rods.

Twenty judgments are taken at each of the five stations. Usually 30 mm. is taken as the first depth difference, i.e., the nearer rod is 6,000 mm. and the further rod 6,030 mm. from the eyes of the observer.

(a) If the 20 judgments are correct, the depth distance is reduced to 20 mm., 15 mm., 10 mm., and 5 mm. respectively until the observer begins to show faulty judgment.

(b) If the 20 judgments are not all correct, he is tried at 40 mm., 50 mm., 60 mm., and 90 mm., until his judgments are all correct.

The difference in distance between the near and the far object is termed the depth difference, and the angle subtended by the depth distance is the binocular parallactic angle.

The binocular parallactic angle is taken as 1°803" when the interpupillary distance is 63 mm. (i.e. the smallest), the depth distance 5 mm., and the nearer object being at a distance of 6 metres from the observer.

On this basis the b. p. angles were worked out for interpupillary distances ranging from 57 mm. to 72·5 mm., and for depth distances ranging at regular intervals from 5 mm. to 360 mm.

The smaller the interpupillary distance, the smaller the b. p. angle. The smallest i. p. distance (viz. 57 mm.) represents a b. p. angle of 1°80." The longest i. p. d. (viz. 72·5 mm.) represents a b. p. angle of 2°07." There is thus a difference of 0°27" in the b. p. angle, or, in other words, the man with the longest i. p. d. enjoys a physical advantage of 15 per cent. over the man with the shortest i. p. d. apart from any question of individual ability.

106 observers were examined, 75 of whom were aviators. Classification was made according to the shortest depth distance at which the observer is still at or within his threshold, i.e. at which at least 75 per cent. of his judgments are correct (a small number of wrong judgments being allowed as guesses).
Classification fell into 12 groups according to the depth difference thresholds of the observers.

Class A contained 26 observers, the depth distance being 5 mm., 14 of these were practically perfect; the remaining 12 had b. p. angle averaging 1.89°. The i. p. d. averaged 66.14 mm.

Class B contained 30 observers with threshold of 10 mm. and b. p. angle averaging 3.67°.

Class C contained 15 observers with threshold of 15 mm. and b. p. angle averaging 5.5°.

Class D contained 23 observers with threshold of 20 mm. and b. p. angle averaging 7.3°.

Of the remaining 8 classes the thresholds ranged from 30 mm. to 360 mm., and the b. p. angle from 10°6" to 136°2".

Broadly speaking, those in Class A had perfect or almost perfect visual acuity, with normal refraction, muscle balance, convergence, etc.; the other classes showed a gradual downward tendency in regard to these points, and the i. p. d. averaged about 2 mm. less than those of Class A. For an observer to exhibit poor judgment as evinced by a depth distance of over 20 mm. there appears to be a physical explanation in respect of asymmetry, refractive error, fatigue, etc. The great majority of flying men fell into the first four groups.

Howard recommends as normal those who show a b. p. angle of not more than 8°0". Thus tested, he emphasizes the value of giving an instantaneous view of the rods by means of the shutter.

The secret of successful aviation lies in making instant decisions, and he suggests that the test might be amplified so as to make record of the reaction time for depth perception. The aviator who possesses very short reaction time as well as a small b. p. angle should be most successful in his profession.

Monocular judgment of distance.—In order to discover how far the loss of an eye should disqualify for aviation, ten men were examined for monocular judgment. This faculty depends on two factors, viz.: (1) terrestrial association and (2) the size of the retinal image. The result showed that the monocular depth difference threshold was only a twentieth of the binocular; in other words, the binocular parallactic ability is twenty times more valuable in judging distance than the discrimination furnished by the perception of the retinal image, which is all that the monocular vision has to go upon. The reaction time required for monocular judgment is very slow, binocular judgment is practically instantaneous. In monocular judgment we must either recognise the object fixated, or be able to associate it with some well known object. Monocular vision is liable to "reversal deception," e.g., a valley may appear in perspective as a hill, or vice versa. This defect would be a serious matter in aviation.
Binocular single vision, on the other hand, may be deceived only when the depth difference is less than that subtending the observer's least b. p. angle. Difficulty in binocular judgment might arise in the case of a perfectly flat surface with no objects for comparison within the field of vision, e.g., in judging the distance of an aeroplane from a perfectly calm sea, in which case it is a question of absolute rather than relative, distance. Judgment of absolute distance is the chief problem of an aviator, and correct judgment depends on the summation of a series of judgments for relative distance. It is the untrained aviator who commits error in judging distance on the water.

Similarly for night landings; there is here a lack of the necessary visual and depth difference contrasts. The American Navy has devised an apparatus to overcome this in the shape of an indicator which consists of four spot lights, the rays of which are projected downwards in such a way that at an altitude of 50 feet the beams meet and form a single spot on the ground, whilst at a lower level the rays diverge.

J. Hamilton McIlroy.

III.—SYPHILITIC INFILTRATION OF THE CONJUNCTIVA

Weekers, L. (Liège)—Syphilitic gummatous infiltration of the conjunctiva: a contribution to the pathological anatomy of nodules of the iris. (Infiltration gommeuse syphilitique de la conjonctive: contribution à l'anatomie pathologique des papules de l'iris.) Arch. d'Ophtal., July-August, 1919.

Syphilitic lesions of the conjunctiva are uncommon; of all the mucous membranes the conjunctiva is that most rarely attacked by syphilis. Fournier stated that he had seen only three cases of undoubted syphilitic lesions of the bulbar conjunctiva; on the other hand, Wilbrand and Staelin noted conjunctival lesions (papules) in 10·5 per cent. of 200 cases of recent syphilis. Weekers has on many occasions diagnosed as probably syphilitic, conjunctival lesions (small red papules) occurring in the subjects of syphilis and disappearing quickly under general treatment.

The case he now records (with four illustrations) occurred in a woman, aged 59, in whom the Wassermann reaction was strongly positive. Her right eye had been inflamed for one month, and painful and dim for ten days. The upper lid was red and oedematus; the bulbar conjunctiva was much thickened, especially at the limbus, which it overlapped; under the upper lid a rounded swelling the size of a pea could be felt; in consequence of the swelling it was
impossible to evert the lid. There was extensive superficial haze of the cornea with punctate deposits on its posterior surface. No view of the iris was obtainable. The patient refused treatment in the hospital and disappeared for ten days. She then returned to hospital with right-sided pneumonia and died in three days.

The right eye was removed for examination. The swelling in the upper conjunctival cul-de-sac had the anatomical characteristics of a gumma. No tubercle bacilli were found. The ocular conjunctiva was the seat of changes identical with those of the gumma beneath the upper lid, but the cell infiltration was more diffuse and the vascularity less intense. The corneal stroma showed very moderate infiltration, but on the posterior surface there was an extensive and thick cellular deposit. There were other collections of cells free in the exudation filling the aqueous chamber.

The anatomical examination revealed some lesions which could not be observed clinically. In certain localized areas in the ciliary body and in the root of the iris there was cell infiltration identical with that in the ocular conjunctiva, and resulting in much disorganization of these structures. In the rest of their extent the ciliary body and iris showed signs of a moderately severe diffuse inflammation. The other ocular tissues were free from pathological changes. As a result of the anatomical examination, the author calls his case one of "gummatous infiltration of the conjunctiva, the iris and the ciliary body." Nodules of the iris co-existed with a gummatous infiltration of the iris and ciliary body, and with sharply defined gummata, notably the solitary gumma of the conjunctiva. The case was one of untreated syphilis in an old patient; in such instances, as in malignant syphilis, it is not unusual for the delimitation of the various stages of syphilis to be wanting and to find gummata co-existing with lesions of the secondary stage.

J. B. Lawford.

CORRESPONDENCE

THE TREATMENT OF MIGRAINE

To the Editor of the British Journal of Ophthalmology.

Sir,—As ophthalmic surgeons are as liable as other mortals to attacks of migraine, I should like some of my fellow sufferers to try the effect of hot fomentations to the back of the head when the attack is beginning, or if the headache stage has already begun, cold or iced applications to the same region.