vision is affected, is of paramount importance. The voluntary worker carefully watches the case papers of such a patient, and on the first sign of slackness in attendance, either calls upon the patient or writes a letter urging proper attendance.

The amelioration of the home conditions has a secondary but most important bearing on the cure of eye disease and, only too often, the surgeon's best efforts are nullified by the home surroundings of the patient. He cannot visit the patient's home, but the voluntary worker can remedy this deficiency in his service, and by so doing, helps to make the surgeon's work of more effect.

The certainty that treatment will be maintained in every instance when a patient with a badly diseased eye is removed to another Hospital would obviate the serious result of discontinuity which does occur from time to time.

Conclusion

1. An intelligent worker of the right type with no previous training can easily be taught to carry out the work outlined above.

2. The result of such work is of the very greatest assistance to the surgeon in his efforts to prevent blindness, and in reducing the period of convalescence of a diseased eye.

3. The discovery of the main causes of non-attendance and the possibility of eradicating them still further adds to the efficiency of the Hospital Clinic.

I am instructed by the Prevention of Blindness Committee to state that they will be only too pleased to render all the assistance in their power to anyone who is interested in the experiment.

(Signed) J. D. MAGOR CARDELL.

ABSTRACTS

I.—OPERATIONS


(1) The scanty literature on haemorrhages into the anterior chamber during and after operation for cataract is reviewed by Jensen who reports the findings in a group of 80 cases investigated on this point. In 40 alternate cases adrenalin 1 in 1,000 was instilled together with the cocaine before operation; in the remaining 40 this was omitted. It was found that in the first group there
were fewer haemorrhages at the operation itself, but more on
dressing the eye after 24 hours. The actual incidence of haemor-
raghe was practically the same in both groups; the use of adrenalin
merely brings about a different distribution as to time. These
haemorrhages occur in about 20 per cent. of cases.

ARNOLD SORSBY.

(2) Ploman, K. G. and Granström, K. O. (Stockholm).—Operations
(Elliott's, Holth's and Iridectomy) for cases of primary
glaucoma seen during 1909-1927 at the Seraphim Hospital
with special reference to post-operative function. (An der
Augenoberlung des Seraphim lazaretts in den Jahren 1909-
1927 bei Glaucoma primarium ausgeführte Sklerектomien
(nach Holth und Elliott) und Iridektomien unter besonderer
Berücksichtigung der postoperativen Funktion).

Löfgren, Signe (Helsingfors).—The results of glaucoma opera-
tions. (Die Resultate der Glaукomoperationen).

Hagen, S. (Oslo).—Comparative statistical results of Holth's
tangential sclerectomy and iridencleisis. (Holth's tangent-
tiale Sklerectomy und Iridencleisis antiglaукomatosa.
(Vergleichende Statistik).

Zelhelius, M. (Falum).—Experiences with Bentzen's modification
and 91 respectively. 1932.

(2) These papers form part of a symposium at the Eighth
Scandinavian Ophthalmological Congress, and present a mass of
statistics on the end results of various operations for glaucoma.

Ploman and Granström after laying down criteria by which the
data were judged give comparative results of Elliot's and Holth's
operations for chronic glaucoma, findings that agree closely. Of
298 operations, 201 were trephines and 97 Holth's sclerectomy
in one of its modifications, and the following figures show some of the
results:

<table>
<thead>
<tr>
<th></th>
<th>Number of cases</th>
<th>Could not be traced</th>
<th>Improved</th>
<th>Worse</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elliot's operation</td>
<td>201</td>
<td>50</td>
<td>72 (=48%)</td>
<td>79 (=52%)</td>
</tr>
<tr>
<td>Holth's</td>
<td>97</td>
<td>16</td>
<td>38 (=47%)</td>
<td>43 (=53%)</td>
</tr>
</tbody>
</table>

Deterioration in vision after a period of 3—10 years was observed
in ten cases after trephining and in six after Holth's operation. In
2-4 per cent. of all cases post-operative cataract developed though
there was no apparent trauma; two cases showed plastic iritis; in one
there was vitreous haemorrhage with subsequent retinitis proliferans.
Late infection with loss of vision was seen three times after trephining,
and in two cases there was suppurative iritis with no permanent
damage. Infection was not seen after Holth's operation.
Operations

The effect on tension was equal in the two operations; it became normal in 70 per cent. after trephine and 71 per cent. after Holth’s sclerectomy. Diminution in function in spite of normal tension was seen in 22.5 per cent. after trephine and in 25 per cent. after Holth’s operation. Age did not seem to affect the prognosis, which was found to be the better in direct proportion to the degree of vision before operation. In 20 eyes two operations had to be performed to obtain normal tension; the fate of ten is not known, in eight cases the result was good and in two vision deteriorated.

Acute Glaucoma. 42 cases were treated by iridectomy. The fate of 10 is unknown; in 21 tension and vision were good after a period of 3—10 years. The remaining 11 did badly: in two, operative complications developed, and in eight subsequent rise in tension occurred. Of 12 cases treated by Holth’s operation, the results were bad in four in which no iridectomy was carried out; in the remaining eight, only four showed a good result. Of four cases treated by trephining, the fate of two was unknown; vision was good after 11 and 18 years respectively in the two others.

Löfgren deals with 240 glaucoma cases treated by different methods. Of 95 cases trephined the immediate results were good in 86 per cent. of glaucoma simplex, in 73 per cent. of acute glaucoma and in 76 per cent. of chronic inflammatory glaucoma, but lasting benefit occurred in only 62 per cent., 25 per cent. and 39 per cent. respectively. Iridencleisis was performed in 31 cases for glaucoma simplex; 23 (74 per cent.) gave a good immediate result but this was maintained in 17 cases only. Iridectomy was performed 47 times for acute glaucoma with a good immediate result—81 per cent.; of 18 cases followed up only 12 showed lasting benefit. Other figures are given but they cover small numbers. The author concludes that

(1) In glaucoma simplex trephining gives the best after-results—62 per cent. successes against 57 per cent. with iridencleisis.
(2) In acute glaucoma iridectomy gives 67 per cent. successes.
(3) In chronic inflammatory glaucoma a filtering operation is best.

Hagen sums up in favour of iridencleisis as against Holth’s sclerectomy, from an analysis of 175 cases treated by the first method and 493 by the second; of these cases 81 and 215 in the respective groups were followed up for more than one year. Though sclerectomy acts more satisfactorily than iridencleisis in reducing tension (81.9 per cent. as against 75.3 per cent.) the cases treated by the latter method are more amenable to after-treatment by miotics, by the use of which in 93.8 per cent. of cases the tension could be kept down to normal. Furthermore the vision was maintained or improved in only 59.3 per cent. after sclerectomy as against 86.3 per cent. after iridencleisis. Cataract followed in 20 per cent. after sclerectomy and only in 7.5 per cent. after iridencleisis, and
hypotension in 15.4 per cent. and 2.2 per cent. respectively. Late infection was seen three times after sclerectomy and once after iridencleisis.

Zethelius reports on 74 cases of trephine operation in which the conjunctival flap was dissected upwards from the limbus and at the end of the operation drawn over the trephine hole. He advocates the operation as easier, safer and as giving better results than the classical method. (This method which in recent years has been known in Scandinavian countries as Bentzen’s modification of Elliot’s operation has been practised independently for many years with satisfactory results by Mr. T. W. Letchworth at the Royal Eye Hospital. Reviewer).

ARNOLD SORSBY.

(3) Vollaro (Milan).—A method of obtaining relaxation and temporary paralysis of the orbicularis palpebrarum during operations on the globe. (Di un metodo personale semplificato per ottenere il rilasciamento e la paresi transitoria dell’orbicolare delle palpebre (acinesi palpebrale) negli interventi operativi sul globo oculare). Rass. Ital. d’Ottal., March-April, 1932.

(3) Vollaro uses a solution of cocaine 4 per cent. and adds to each c.c. of solution one drop of 1 in 1,000 adrenalin. He injects about 4 drops of this solution near each canthus, going deeply into the muscle. He states that in about ten minutes the orbicularis is almost completely relaxed.

HAROLD GRIMSDALE.

II.—MISCELLANEOUS


(1) In ophthalmology, as also in pathology generally, subjective symptoms are seldom conclusive. Their analysis is difficult; some patients are unable to describe them while others exaggerate. The medical man generally attaches greater importance to objective evidence. Subjective symptoms nevertheless may be of great utility, and any extension of our knowledge thereof is welcome. This communication by Weekers concerns a single example, retro-bulbar neuritis. The aetiological diagnosis of this malady is often
impossible, the objective signs are insufficient, and the most thorough examination fails to determine the cause. An additional perplexity to the surgeon is the almost complete impossibility of pronouncing any other than a very uncertain prognosis. Acute or chronic, unilateral or bilateral, certain forms of retro-bulbar neuritis progress to complete recovery with or without treatment; others pass into blindness. In ignorance of the cause the surgeon is unable to forecast the result.

The new clinical sign to which the writer directs attention he believes will assist materially in the diagnosis of the aetiology and in the prognosis of the attack.

In general, cases of retro-bulbar neuritis do not exhibit positive scotomata. Nevertheless in certain, but not all, forms of the disorder, it is possible to demonstrate a positive scotoma, hitherto undescribed, probably because it is necessary to "prove" it, and also because it is relative and fugitive. Without recourse to laboratory equipment, it is possible by clinical methods to demonstrate this transitory scotoma in diffuse daylight, but more easily in a dark room with artificial light. The methods of examination and the charted results of the author should be studied in the original, where they are fully described.

Weekers has examined all the cases of retro-bulbar neuritis which have come under his notice and determined the presence or absence of the sign here described. These cases, 71 in number, are given in tabular form showing the number of cases in each of the several groups, and the proportion in which the sign was positive or negative. Although the totals are small, the results in some of the groups are striking. Thus of 18 examples of tobacco-alcohol intoxication the sign was positive in 14, negative in four. In all the cases of retro-bulbar neuritis in insular sclerosis, five in number, the result was negative, and the author suggests that in a given case the discovery of a transient scotoma would justify the exclusion of insular sclerosis from the diagnosis. In the cases ascribed to influenza and to active syphilis, also, the sign was invariably negative.

The following is the author's résumé of this suggestive communication (slightly abbreviated):—

If the observations which I have related are confirmed, the clinical conclusions to be deduced therefrom, are

1. This new sign is positive, with few exceptions, in the neuritis of tobacco and tobacco-alcohol intoxication.
2. A positive sign excludes, almost certainly, insular sclerosis from the diagnosis.
3. A positive sign implies generally, and this is a point of no little interest, a favourable prognosis concerning vision. Cases of retro-bulbar neuritis in which the sign is positive are amenable to complete cure.
As already stated there are exceptions to these generalisations but they are rare and do not imperil the practical value of the sign.

4. This sign may lead to the identification, among cases of retro-bulbar neuritis of undetermined cause, of a special type associated with some special malady.

J. B. Lawford.

(2) Sanna (Bari).—Clinical notes on the symptoms of retro-ocular neuritis of nasal origin. (Contributo clinico alla sintomatologia delle neuriti ottiche retrobulbari di natura rinogena). *Ann. di Ottal.*, August, 1931.

(2) Opinions differ as to the importance of disease of the nasal sinuses in the causation of so-called retro-ocular neuritis. Sanna examines ten cases in which examination by X-rays showed lesions of the sinuses. He draws attention to the varying both in severity and form of the signs and symptoms, dividing them under five heads; the changes in the fundus, the side affected, the visual field, the acuity of vision, and lastly the radiographic findings.

He concludes that it is not possible to decide from the ocular condition whether the sinuses are normal or no. "At present the problem of the polymorphism of the ocular symptoms in disease of the nasal sinuses awaits solution, in order that we may be able to arrive at a more exact valuation of the varying signs and symptoms whence we may draw conclusions as to the seat of the lesions, independently of the evidence of the radiograph."

Harold Grimsdale.


(3) Plowman reviews exhaustively ocular palsies seen in diphtheria and gives his own observations. He concludes that the more severe the diphtheria, the more it is likely that ocular palsies will be present. The frequency is least in cases treated early with serum. The commonest lesion is paralysis of accommodation but extra-ocular palsies are by no means rare. All types of palsies have been recorded barring reflex rigidity of the pupil, but a case of transient anisocoria is reported by the author. Paralysis of the levator palpebrae and of the superior oblique are the rarest, whilst that of external rectus is the most common affection of extra-ocular muscles. Nystagmus and conjugate palsies have not been recorded. A few cases of optic neuritis and retrobulbar neuritis have been observed. Differential diagnosis from post-encephalitic palsies is a problem; diphtheritic palsies are distinguished by their mild course and tendency to spontaneous cure.

Arnold Sorsby.

(4) **Spackman** points out the difficulty of diagnosis by X-ray methods of a double perforation of the eyeball associated with retention of a foreign body.

The injection of air into Tenon's capsule produces a layer of altered density of sufficient contrast to demonstrate the posterior outline of the sclera on an X-ray plate. The author anaesthetizes the eye, directs the patient to look down and passes a curved cannula through the conjunctiva and subconjunctival tissue for 4-5 mms., and then into Tenon's capsule at a point mid-way between the superior oblique and external rectus muscles. Six to eight cubic centimetres of air are injected, the injection being discontinued when the eye is proptosed or increased resistance is felt on the piston of the syringe.

Bulging of the conjunctiva indicates that the needle is not in Tenon's capsule or there is a leakage. Radiographs are made from several angles and the position of the opaque foreign body to the layer of decreased density, represented by the air in Tenon's capsule, is estimated.

In four or five days the air disappears producing no untoward symptoms or complications. Three cases are described and illustrated by reproductions of radiographs which show the importance of making these at several angles before coming to a definite conclusion about the site of the foreign body.

H. B. STALLARD.

(5) **Kiehle, Frederick A.** (Portland, Ore.)—The aftermath of cases of intra-ocular foreign body. *Arch. of Ophthalm.*, February, 1932.

(5) **Kiehle's** paper may at first sight appear rather pessimistic since he protests against excessive optimism in cases where a foreign body has been removed from an eye by use of an electro-magnet. The immediate result is gratifying and dramatic alike to surgeon and patient but the ultimate result is only too often disappointing. Survey of records of cases seems to show that the longer the period of time elapsing since removal of the foreign body, the greater the diminution of vision. Parsons is quoted as saying, "The tracks through the vitreous often become filled with fibrinous tissue, as this organises or contracts the retina is pulled up and total detachment destroys vision. Or more severe irido-cyclitis may be set up and the eye shrinks." Figures giving results more than six months after operation are very scanty and the author suggests that these
should be compiled. He also advises that in compensation cases, at least two years should be allowed to elapse before a final decision is made as to the damage done.

F. A. W-N.

(6) Nardi (Bologna).—The tolerance of the eye to retained foreign bodies. (La tolleranza dell'occhio per i corp i estrani endobulbari). Ann. di Ottal., June, 1932.

(6) Nardi records 56 cases in which a foreign body had penetrated the eye; in the large majority this was steel or iron and could be extracted by the electro-magnet. In the others the foreign body was of varying nature, some metallic, some glass and stone, and three vegetable (thorns). In 13 cases only was it found necessary to remove the eye. In the remainder the globe was preserved often with a useful amount of sight.

Removal of the eye is indicated when the foreign body remains fixed in the ciliary region, both on account of the pain which is often severe, and of the risk of sympathetic ophthalmitis in the other eye. In such cases the ciliary body rapidly degenerates and this is soon followed by large detachments of the retina and choroid, destroying the possibility of recovery.

Harold Grimsdale.


(7) Magitot's aim in writing this paper is to review the present knowledge of tonoscopy, a method which aims at evaluating the blood pressure in the vessels of the retina by tonometric readings combined with an estimation of the systemic blood pressure. It has been pointed out by several observers that it is the "average pressure" in the systemic circulation which is required to be known, and that this is not the mean between the systolic and diastolic pressures. It can be best determined by the oscillometric method (using Pachon-Boulitte's sphygmo-oscillometer) in which the reading is taken when the oscillations of the pointer are at their maximum. The importance of this lies in the fact that the tonometric reading is taken when a steady pulsation is seen in the retinal artery, so that the two methods are strictly comparable. With increasing pressure on the globe the observer first sees a tremor in the central retinal artery, followed by a slight pulsation and then a steady beat, and finally with increasing pressure, it remains completely empty. The first tremor corresponds to the diastolic pressure, the steady beat to the average pressure, and the pulsation just before complete collapse, to the systolic pressure. In taking tonometric readings of
the retinal arterial pressure, it is important to make compression fairly rapidly, since a slowness in doing this, causes a reflex rise in retinal blood pressure. The importance of these observations lies in their relationship with increased intracranial pressure. In this condition there is a dissociation between the general arterial pressure and the pressure in the central retinal artery, in the direction of increase in the latter. This may be manifest before papilloedema has developed, so the importance of the phenomenon is obvious. Although the pressure in the central retinal artery and in the spinal fluid show a remarkable parallelism, the correspondence is not sufficiently exact to enable one to estimate in figures, the value of the intracranial pressure. In the presence of papilloedema a peculiar series of pressure relationships is found, since with the appearance of this condition, the retinal arterial pressure suddenly collapses, without any concomitant variation in the spinal pressure.

Magitot is inclined to ascribe this to vaso-motor disturbances. In systemic high blood pressure the following may occur:—(1) No increase in the retinal arterial pressure. (2) Increase in this pressure without any retinal lesion, but accompanied by a low intra-ocular pressure—a sign of a peripheral spasmotic state. (3) A moderate increase of retinal arterial pressure with the presence of ocular lesions. The latter two types of change are attributed by Magitot to an increase in the amount of spinal fluid, consequent on vascular changes. In the earlier stages of retinal arterio-sclerosis the vessels show an increased rigidity. This is diagnosed by the fact that it takes a pressure greater than 10 grammes (the normal) to pass from the stage of initial arterial contractions to that of an established beat. In the later stages of this disease, there is a diminution of retinal arterial pressure.

F. A. W -N.

(8) Pereyra (Florence).—The value of the measurement of the retinal arterial pressure in the diagnosis of rise of intracranial pressure. (La misura della pressione arteriosa retinica; importanza per le diagnosi di ipertensione intracranica). Boll. d'Ocul., November, 1931.

(8) The measurement of the arterial pressure of the retina (tonoscopy) gives in certain cases information of great value, and Pereyra holds that it should be generally used by ophthalmic surgeons. When the pressure in the arteria centralis is from 15 to 20 mm. Hg higher than half the pressure in the brachial (the patient being seated) it frequently points to high intracranial pressure, before this gives rise to papilloedema.

HAROLD GRIMSDALE.
(9) Ferraris (Brescia).—The intra-ocular and arterial pressure during pregnancy and after. (Tonometria e tonoscopia in gravidanza, travaglio e puerperio). Arch. di Ottal., December, 1932.

Not much attention has been paid to the intra-ocular pressure during pregnancy, and observations have seldom been extended after delivery. Ferraris has made observations on these points during, before and after delivery and finds, that the intra-ocular tension is generally below normal. There was seldom any great difference in any one case during the time of observation. There is also a slight diminution of the pressure in the retinal artery. The arterial pressure was estimated by ophthalmoscopic examination during pressure on the eye after the method of Bailliart.

As to the cause of this condition, it is known that the blood during pregnancy, is in many ways altered; thus, for example, there is generally a hyperglycaemia; healthy women during pregnancy often show glycosuria. Towards the end of term there is over-action of more than one endocrine gland, and the resulting increase of hormones in circulation must have effect on the blood pressure. Any or all of these may be the exciting cause of the changes observed.

HAROLD GRIMSDALE.


The use of a local anaesthetic facilitates tonometry; but both cocaine and holocaine have disadvantages. Tutocaine has no effect on the size of the pupil and causes less congestion of the conjunctival vessels than holocaine. Gennaro has tested the relative anaesthetic effect of the two drugs and concludes that three drops of a 5 per cent. solution of tutocaine give as good anaesthesia as two drops of 1 per cent. holocaine. Tutocaine seems to have no deleterious effect on the corneal epithelium.

HAROLD GRIMSDALE.


The essential points of a local anaesthetic demanded by ophthalmologists are (1) low toxicity; (2) absence of irritation in the tissues to which it is applied; (3) ready solubility in water and stability if sterilised by heat; (4) compatibility with adrenalin; (5) diffusibility through mucous surfaces to allow superficial anaesthesia.
In a previous paper Federici showed that the power of cocaine could be increased by the addition of a small quantity of phenol. Thus a weaker solution could be employed and the toxic action of cocaine avoided to some extent. In the present paper he gives the results of some experiments which had an aim to attempt to increase the activity of novocaine in a similar way. He concludes that the addition of phenol in the amount of 3 per mille, increases the power of novocaine without irritating the tissues into which it is injected. Its power as a local anaesthetic of surface absorption is, also, greatly increased and prolonged.

Harold Grimsdale.


(12) Sir James Barrett has worked on the optical characters of the eyes of monotremes and marsupials, and especially on the range of accommodation. The method adopted was to examine the eyes by retinoscopy and then, if possible, perform a single or double iridectomy. Later the refraction was estimated with the eye quiescent and also during the application of a faradic current to the corneal margin. This method was satisfactory in the case of monkeys.

In the echidna, the wombat and the koala no accommodation could be detected by the methods employed. The echidna has no ciliary muscle and the marsupials (wallaby) have a small longitudinal strip.

Sir James Barrett stresses the importance of further work on the methods of accommodation occurring in the animal. His general impression is that, from an optical point of view, the eyes of the animals named were very imperfect. It is possible that the eyes of the wallaby and kangaroo may be better developed.

H. B. Stallard.


(13) In a letter to the Editor of the Lancet, Alexander refers to the fatigue experienced by sighted teachers of Braille, very few of whom read by touch alone. The embossing, of whatever kind it be, is very trying to the normal reader. He has found that the following method helps greatly in the deciphering:—Over the Braille embossed page spread a sheet of pencil or soft typewriting carbon paper and gently press with the fingers and palm of the hand so that the dark pigment may cover the tops of the prominences, causing the bosses to stand out distinctly, thereby making deciphering easier and thus relieving eyestrain.

Ernest Thomson.