Dr. Lockhart Gibson gave a convincing demonstration of optic neuritis in children due to lead poisoning. The houses in Queensland are built on piles on account of the white ant trouble; the children play on the verandahs which are elevated a long way from the ground, the sun pulverises the white paint on the verandahs and from the hands of the children the paint gets into the mouth. Some criticism was expressed respecting the theory, but as optic neuritis in children is very rare in Southern Australia, and is quite common in Brisbane, and as some of the children have the blue line on the gums, the general opinion was that the case was proved; furthermore, when de-ionization was effected by passing a current through the body from hands to feet, lead was found on the negative pole. The remedy suggested is to substitute zinc for lead as a basis for the paints.

Dr. E. O. Marks exhibited an ingenious and effective large-scale scotometer, which was provided with a self-recording apparatus.

ABSTRACTS

I.—OPHTHALMOSCOPY IN RED-FREE LIGHT


The work of Vogt and Affolter (vide review in the British Journal of Ophthalmology, 1918, p. 248) has induced Heine to contribute this short paper on the subject of Sources of Light for Ophthalmoscopy.

The use of a spectrum is, in his opinion, more valuable than any other form of red-free light, because by it one can examine the fundus in any colour that may be desired. He comments on the clearness with which the minutest changes in the retinal vessels, as well as the reflexes described and illustrated by Affolter, can be observed with the green light from this source.

He finds, however, that for the diagnosis of commencing optic atrophy, this monochromatic light is not so useful as the yellowish-red light from a carbon filament lamp, or daylight, or arc lamp with matt blue glass.

As regards the debated question of the yellow colour of the macula, Heine states, in striking contrast to the findings of Vogt...
and Affolter, that he has nowhere observed it either in normal or pathological conditions. He also takes objection to the breadth of the light reflex on the retinal vessels and the colour of the optic disc, as shown in the plates illustrating Affolter's article.

The apparatus which Vogt recommends for making ophthalmoscopic examination in red-free light, consists of a filter, containing copper sulphate and erioviridin in fixed solution, and a Zeiss lens, which are placed in a wooden box painted black on the inside: behind them a small arc lamp is set so that the centre of the crater lies in the axis of the lens and just within its focal point. The rays of light issuing from the lens are then slightly divergent.

Convergent rays are, however, useful in the examination of opacities or foreign bodies in the vitreous, a highly hypermetropic fundus, or the dome of an intraocular tumour or retinal detachment. The best amount of convergence is then easily ascertained by moving the crater slightly behind the focal point of the lens.

The relative position of the lamp and the patient's head is important. The centre of the bundle of light issuing from the box should fall on the outer canthus of the eye to be examined. It is therefore necessary to have the patient's head fixed in one position by the examiner's free hand, or an attendant, or with the help of a chin-rest.

Before commencing the examination, care should be taken that the cross section of the light bundle from the lamp forms a circle (as seen by holding up a sheet of paper before it), otherwise the carbons are not in proper position.

It is important that the centre of the light, i.e., the image of the crater, be reflected into the fundus. The area of the retina thus illuminated appears green or pale greenish-yellow; round the edge it is, in consequence of chromatic aberration, slightly more yellow. To determine a yellow tone in the fundus, one should therefore judge by the central portion, not the periphery, of the light. If the weak peripheral yellow zone of the light were reflected from the ophthalmoscope into the eye, the whole fundus would appear yellow, and in this way the yellow colour of the macula would readily be missed. Vogt points out that it is due to the insufficient intensity of light that one fails to see the yellow macula with the mercury vapour lamp.

He refers to several points in Heine's article, and suggests that the difference in the findings of Affolter and Heine may be partly due to a difference in the source of light, but more so to a difference in the intensity of the light employed.

Thos. Snowball.
II. AGE AND STATIC REFRACTION OF THE EYE


After referring to the work of Donders concerning the refraction of the eye, both static and dynamic, Landolt discusses the changes which may occur in later life in the static refraction. In a state of rest, is the static refraction of every eye less in old age than in youth? Donders showed that this is so, and there is no doubt that in the large majority of cases his findings are correct. But it is equally true that there are exceptions to the rule; the static refraction instead of being diminished may undergo augmentation with advancing years.

Landolt cites two cases: (1) an emmetrope who having become presbyopic about 50, developed myopia, reaching 6 D. in amount, by the time he was 70, and required a concave lens of 3 D. in order to see distinctly at 30 c.m.; (2) a hypermetrope of 3 dioptres who became emmetropic in the same number of years.

Examples of this kind are familiar to most ophthalmologists. Such alteration in static refraction is clearly not due to an elongation of the eyeball, but is attributable to an increase in refractive power; it is more than probable that the change to which this increase is due occurs in the lens. There is evidence to favour the view that an alteration in the index of refraction of the lens takes place in these cases, and that this, rather than any modification in the shape of the lens, is responsible for its greater refractive power.

Accompanying such changes in the lens of old age, there are frequently slight alterations in its colour and some loss of transparency; as a clinical manifestation in addition to the altered range of vision, a halo showing more or less colour, is often noticed around points of light at night.

It may be stated, as a general rule, that when the static refraction of the eye becomes augmented, as in the case quoted (by reason of an increased refractive power and not from elongation of the globe), the retinal images are reduced in size and consequently the visual acuity is lowered.

An emmetrope who has an acquired myopia of 3 dioptres, requires a concave lens of 3 D. to enable him to see the usual test types. This lens being in front of the anterior focal plane of the eye reduces the size of the retinal images, and the man is unable to distinguish small types which he could read with the unaided eye during the stage of emmetropia. It is not difficult to adduce proof of this. If a young emmetrope looks through a concave lens, placed in the usual position of a spectacle lens, objects will appear smaller than to his
naked eye. The accommodation necessary to neutralize the concave glass has produced a myopia comparable to that which certain eyes acquire in old age. If the old patient with acquired myopia shows a visual acuity less than he had ten years previously, it is not proof that his physiological acuteness of sight, i.e., the perception of images of the retina, has become less. The lowered acuity is a result of the diminution in the size of the retinal images by the lens which corrects the acquired myopia. On the other hand, although he has the advantage of his contemporaries, who remain emmetropic, and are presbyopic, in his power to read without glasses, his near vision, other things being equal, is not as good as theirs with their convex and magnifying lenses. An axial myope of the same degree and with equal visual acuity for distance, will always see minute objects, near at hand, better than he does, in consequence of the larger images formed on the retina of an elongated eye.

The writer concludes by stating: If Donders' law, according to which dynamic refraction (accommodation) diminishes gradually as age advances is constant; his law concerning static refraction admits certain exceptions. Instead of diminution static refraction may undergo augmentation; and if this be true, the greater is the probability that it will generally remain stationary.

J. B. Lawford.

III.—RETINAL ADAPTATION


(1) Behr has studied the alterations in dark adaptation which occur in diseases of the optic nerve, and has found that the presence or absence of such changes is of value in diagnosis in affections of the basal visual path, as well as in diseases of the choroid and retina. Piper's apparatus was used, which consists of a constant source of light, a variable diaphragm, and a plate of
milk glass. The patients were taken from diffuse daylight to a
dark room, and observations were made every five minutes. The
diaphragm is opened until the light is perceived, each eye being
tested separately, and the smallest perceptible amount of light
recorded. The maximum diaphragm opening corresponds to
10,000 "light units" (0'06 metre-candles [Meterkerzen]), and the
light can be reduced to less than 1 "unit," or 0'000006 metre
candles. Reciprocally, these amounts correspond to 1 and more
than 8,764 units of retinal sensitivity respectively, the minimal
diaphragm opening being equal to 40,000 retinal units. A scale
gives intermediate values. By a combination of adaptometer and
perimeter, different parts of the retina may be examined.

Normally adaptation begins slowly, then rises rapidly, and
finally increases very slowly until the maximum is reached in about
45 minutes. The maximum may vary greatly, but should be equal
in the two eyes. Pathologically, two kinds of change may occur.
The shape of the curve may be altered by the absence of the phase
of rapid increase. The rise is slow and even, and the maximum is
reached early. Secondly, the maximum may be altered. Behr's
experience is that values under 1,500 (units of retinal sensitivity)
are suspicious, and those of under 1,000 are certainly pathological.
In certain circumstances, for instance where there is a considerable
difference between the two eyes, a value of 2,000 or more may be
regarded as pathological. The theory of dark adaptation and the
parts played by the rods, cones, and visual purple are shortly
discussed, and the author emphasises the point that his researches
are not to be interpreted as an attempt to elucidate these questions.
It is also important to remember that dark adaptation is not a
process solely confined to the retina, but is reflexly regulated by
nervous centres. This circumstance may afford an explanation of
the fact that dark adaptation and the other visual functions often
react to disease in opposite ways. Great reduction of central
vision, of colour vision, and of the visual field may be associated
with normal or relatively less reduced dark adaptation. These
considerations have led Behr to the following conclusion: "All
processes mechanically affecting the optic nerves and basal visual
paths (tumours, haemorrhages, trauma, papilloedema, hydro-
cephalus internus, etc.) influence central vision, colour vision, and
the field of vision more than dark adaptation. On the other hand,
inflammatory, and especially chronic degenerative processes strongly
reduce dark adaptation, while the other visual functions are affected
either not at all or very much less." An exception to this rule
occurs in cases in which changes are present in the retina and
choroid as well as in the optic nerves. In such cases the behaviour
of dark adaptation is uncertain. Since alterations in the earlier
part of the adaptation curve depend on the previous exposure of
the eye to light, it is sufficient for practical purposes to examine
the dark adaptation after forty-five minutes.

The author proceeds to give an account of six cases of inflam-
mation of the optic nerve. They all showed reduction of dark
adaptation during the acute stage and recovery during the subsidence
of the inflammation. It is claimed that this sign is of value in
diagnosing cases in which there is "ophthalmoscopically a well
marked picture of optic neuritis with normal vision, normal field of
vision and colour-vision and normal pupillary light reaction," and is
more reliable than the vision in giving an indication of commencing
resolution. In the slightest cases changes in dark adaptation form
the sole and most delicate reaction to the inflammatory process.
This examination is also valuable in the diagnosis of pseudo-neuritis,
and in the differentiation of visual defects due to injury of the optic
nerve from those due to inflammatory conditions.

Behr cannot agree with Uhthoff's view that papilloedema may be
diagnosed if there is a prominence of the nerve head of 2 D. or more.
Disturbance of dark adaptation is not altered or only very little
in papilloedema and may even be normal in atrophy following
papilloedema with reduction of vision and extensive alterations in
the fields. The fibres which subserve the reflex mechanism of dark
adaptation are much more resistant to mechanical influences such
as pressure than the visual fibres. In extreme cases of this kind
vision may be reduced to the perception of fingers close to the eyes
and the field to a small excentric remainder without the slightest
disturbance of dark adaptation.

The second part of the paper deals with the behaviour of dark
adaptation in various forms of atrophy. In those cases this test
often affords the only evidence as to whether the primary condition
is inflammatory. It may, however, fail where a considerable time
has elapsed between the commencement of the inflammation and
the appearance of the atrophy, as during the interval, the acute stage
and with it the disturbance of dark adaptation both pass off. The
absence of reduction of dark adaptation in Leber's atrophy indicates
that this is a non-inflammatory condition. This part of the paper
is 'not very easy to follow' but the author's view seems to be that
in simple descending atrophies dark adaptation is not disturbed or
not seriously disturbed unless there is an inflammatory or toxic
origin, and then only while the inflammation or intoxication is
active. In progressive atrophy, on the other hand, of which tabetic
atrophy is the prototype, dark adaptation is very markedly affected
often before even the slightest changes can be detected in central
vision, colour vision, or the fields. This is explained on the ground
that the atrophy is due to the toxic products of spirochaetes present
in the optic nerves.

The author's investigations have led him to divide the progress
of tabetic atrophy into four phases: 1. Isolated disturbance of dark adaptation; Ophthalmoscopic appearances and functions otherwise normal. 2. Disturbance of adaptation, plus visible atrophy, other functions normal. 3. Disturbance of adaptation, visible atrophy, reduced central vision and colour vision and defects in fields. 4. Blindness.

The patients themselves appear to be unaware of the loss of adaptation and even state that they see better in dim light. This is because the amounts of light dealt with by Piper's adaptometer are far below those which occur in ordinary experience.

Though in parts a little difficult to follow and probably affording room for some controversy, Behr's paper is full of interest. His further investigations and the confirmation of his results by others will be looked forward to by ophthalmologists.

H. M. Traquair.

(2) Downey, Jesse Wright (Baltimore).—Determination of minimal light sense and retinal dark adaptation, with presentation of a new type of photometer. With three illustrations. Amer. Jl. of Ophthal., January, 1919.

(2) Downey, in an article of some length, deals with the question of visual sensation in regard to light and dark adaptation of the retina, and describes a type of photometer he has invented, in which he makes use of a radio-active substance as a standard of comparison.

First, he goes into the physiology of the visual process, all visual sensations being dependent on the power which the retina possesses of adapting itself to light variations of varying intensity, and of converting them into nerve stimuli.

The simplest example of light and dark adaptation of the retina is obtained when we pass from bright sunlight into a dimly lighted room, objects in the room being obscure until our eyes become accustomed to the dark; and conversely, when we pass from a dark room into sunlight we are dazzled for a time. The process of adaptation to different intensities of light depends on alterations that take place in the nerve cells of the retina leading to stimulation of neuro-visual consciousness. Our consciousness of light sensation may be divided into two classes, viz., colour sensation and colourless sensation. The author describes in detail the structure of the retina during the process of adaptation, and adopts the nomenclature photopic (Parsons), i.e., the eye under condition of bright illumination, and scotopic, i.e., the eye adapted for dark.

The photopic eye sees all objects distinctly, both for form and colour. As the illumination decreases, colours fade according to the Purkinje phenomenon until we are able to perceive only the form of objects. Under the conditions of complete darkness there are
no visual sensations at all, the eye having become adapted for the
dark, i.e., scotopic.

Whether one accepts the visual purple theory of Edridge-Green,
or the duplicity theory of v. Kries, the formation of visual purple is
seen to be at least the basis of dark adaptation. According to the
former, the visual purple, liberated from the rods, is conducted by a
series of canals to the sensitive spot of vision (fovea), and having
undergone photo-chemical decomposition, it stimulates the ends of
the cones with which it comes into contact. The cones receive
stimuli, varying according to the wave length of the light
experienced, and the impulse is passed to the optic nerve fibres,
therefore to the brain. The alternative theory holds that achromatic
scotopic vision takes place through the medium of the rods alone,
the cones being the organs of photopic vision. In chromatic
scotopia both rods and cones are implicated. We cannot perceive
colours unless the light stimulus is above a certain intensity (the
specific or colour threshold of Parsons). Below this is an interval
of achromatic light perception, which increases as the eye becomes
adapted for the dark. With this interval that the experiments
dealt with in the paper are concerned.

The radio-active substance used for luminous watch dials
becomes constant in luminosity at the end of a year, and seemed
to furnish an ideal light stimulus of constant value and low
intensity. Several discs of uniform size, impregnated with the
commercial substance, were kept in the author's possession for a
year. At the end of this time the discs were calibrated.

The standard taken was that disc which just gave the sensation
of light to the author on passing from a well-lighted room at mid-
day into a photographic dark room, i.e., the disc which proved to
be the minimum light stimulus for his light-adapted eye. A series
of discs of similar intensity was covered with successively increasing
layers of celluloid. The author found that the disc, covered by five
layers of celluloid, represented the minimal light sense for his dark-
adapted eye (the experiment being carried out at night, after he had
spent two hours in an absolutely dark room).

In the photometer described, six discs were mounted on a circular
plate, the luminosity of the discs, ranging in series from the
uncovered substance, to that covered by five layers of celluloid.
Thus he obtained a series of six light-stimuli of different degrees of
intensity, necessary for retinal adaptation whether in the photopic
or the scotopic eye. The plate carrying the six luminous discs is
contained within an upright box, and is rotated by a handle so as to
bring the discs in turn opposite the eyepiece. The eyepieces are
fitted with slides which can be removed as desired, a leather cuff
being attached to render the apparatus light-proof when fastened
tightly over the observer's face by means of tapes. The discs are
7 mm. in diameter, and the distance from the eye is 10.5 cm. The retinal image is, therefore, 1 mm., and subtends a visual angle of 4 degrees. At the beginning of the test an opening in the plate is placed opposite the eye; the first disc (uncovered by celluloid) is then rapidly rotated into place, when the observer should at once see it. The "blinders" are then closed, and the observer sits with his eyes darkened for ten minutes, at the end of which time the test is repeated, and the time at which the first disc becomes visible is noted. The wheel is then rotated so that the discs of weakest intensities are seen first, and the observer proclaims the exact moment at which he sees the luminosity. The number of this disc is recorded in the fraction—the numerator being the observer's minimum light sense, and the denominator that which is taken to be the normal. After ten minutes in complete darkness the disc, covered by four layers of celluloid, should be seen, and for the normal eye ten minutes should be sufficient to produce full scotopia.

Numerous supplementary experiments were performed to establish the reliability of the test under varying conditions, e.g., the first disc always represented the minimum light stimulus not only for the eye adapted to ordinary conditions of illumination, but also for conditions of excessive light. In the latter case, however, there was a delay of 30 seconds, corresponding to the extra strain put upon the re-formation of the visual purple in the light-exhausted eye. To obtain uniform results the observer should sit in a moderately lighted room for a time before the test is made. Delay beyond 60 seconds in seeing the first disc indicates slow dark adaptation. The disc, covered by four layers of celluloid, should be seen by normal eyes after full dark adaptation. If the power of dark adaptation be less than normal, the eyes should be submitted to a second period of dark adaptation (10 minutes), and the result recorded in the form of a fraction as described.

Dark adaptation occurs in each eye independently, the condition of the other eye being found to have no influence on that of the eye under examination. The retina was found to react whether tested in whole or in part—the experiments being successful with a small aperture in the same way as with the ordinary eyepiece. The experiments went to show that there is marked adaptation at the macula, and in the rod-free area thereof. At the exact fovea there is very slight adaptation.

Downey presents his findings as in a large measure confirmatory of the work of others, and modestly alleges that his instrument and experiments are elementary.

J. Hamilton McIlroy.
IV.—EXOPHTHALMOS IN GRAVES'S DISEASE

Lancet, October 2, 1920.

In this short article Foster Moore leans to the conclusion that exophthalmos and limitation of movement of the eye in Graves's disease are due to excess of orbital fat. He points out that there have been three explanations, namely: (1) Irritation of the sympathetic; (2) engorgement of the orbit with blood; (3) increase of the orbital fat. The first two receive support from the statement that after death the proptosis disappears. On the other hand, the statement may not be true, and also the anatomical proof of the existence of the requisite muscle tissue appears to be wanting. The orbital fat theory is supported by Moore's experience on two occasions. On the first, a dissection of the orbit in a patient dead of this disease, the diminution of the exophthalmos was merely such as might be accounted for by the draining of blood from the orbit after death, while undoubtedly the orbit was "full to overflowing" with fat. The second case was one in which the exophthalmos was so extreme that something had to be done to save the cornea of one eye, the proptosis being less marked on the other side. Through an incision extending the whole length of the inferior fornix, Moore removed an amount of fat estimated as equivalent to a heaped-up teaspoonful. On exploration with the finger nothing but soft fat was felt. In addition, however, the fat was oedematous, as were also the bellies of the recti muscles exposed. After the removal of the fat the lids could be approximated, and were stitched together, and the cornea saved. The author is aware of the statement that proptosis may develop very rapidly, which would militate against the fat theory, and suggests that this is really due to sudden development of retraction of the upper lid simulating proptosis, or unmasking a proptosis hitherto unnoticed. Limitation of movement Moore considers to be mechanically produced by the pushing forward of the eye, oedema of the muscles being a factor in that it impairs the muscular functions.

ERNEST THOMSON.
V.—REMEDIES


(1) In cases of dacryocystitis, where the anterior wall of the sac is intact, and where it is specially desired to avoid as far as possible the making of a visible cicatrix and subsequent lacrimation, Jocqs employs a method by which all the mucous membrane, except that at the very bottom of the sac, is destroyed with chloride of zinc, 50 per cent. The minute details of the method should be sought in the original. The only disadvantage of the method is that it occupies 15 days altogether, whereas excision, if immediate healing takes place, is much shorter.

ERNEST THOMSON.

(2) de Peyrelongue, Prof. (Beyrout).—The treatment of trachoma by the new method of Dr. Abadie. (Le traitement du trachome par la nouvelle méthode du Dr. Abadie.) *La Clin. Ophtal.*, June, 1920.

(2) On page 424 of the *British Journal of Ophthalmology* for September, 1920, will be found an abstract of Abadie's method for treating trachoma. In the article now under consideration, de Peyrelongue relates the treatment by this method of forty cases of trachoma of various types. It is only necessary to state the conclusion of the author, that Abadie's method has given in these cases excellent and rapid results.

ERNEST THOMSON.

VI.—EYE COMPLICATIONS OF MALARIA


Manson, when on service, passed through his hands not fewer than 12,000 cases of malaria. He briefly relates the ocular conditions found. Practically every attack is followed by a slight icteric tinge of the conjunctiva. It is a suggestive symptom in cases of pyrexia of uncertain origin. Ulceration of the cornea was the most frequent sequela as regards the eyeball. It was an
accompaniment of relapses, not of the primary infection, the infecting parasite being of the benign tertian variety. The ulcers tend to be of the dendritic type, usually affect the centre of the cornea and may extend to the deeper layers. They cause marked diminution of vision, are painful and heal slowly, and are often accompanied by iritis. They are liable to recur with each subsequent attack of malaria. Douching with normal saline and the instillation of atropin was found to be the best local treatment. Except as a complication of ulcer, iritis did not occur. Intraocular haemorrhage (subhyaloid) occurred in two cases where the infection was by the malignant tertian parasite. Ocular paralyses occurred in three cases as sequelae. Wassermann was negative in each and there was no reason to suspect syphilis. These three cases were respectively: paresis of external rectus greatly improved under anti-malarial treatment; paresis of accommodation which recovered completely; and total ophthalmoplegia of one eye ten days after an attack of malaria. In the last case there was no recovery, as regards the paralysis. Neither quinine toxic amblyopia nor quinine optic atrophy occurred but there were two cases of quinine amaurosis. One recovered completely. The other became totally blind. In both cases a minimum of 80 grains had been taken in one dose.

ERNEST THOMSON.

VII—DIURNAL CURVE OF INTRA-OCULAR PRESSURE


Pissarello finds that under conditions of normal health, the ocular tension remains constant in any one individual, but differs greatly in different individuals. On the other hand, it varies very greatly from time to time in the same individual when suffering from glaucoma. He finds that there is a definite tidal periodicity in the rises and falls of tension in glaucomatous eyes, the highest records being met with about midday and the lowest in the evening. There is a subsidiary rise in the afternoon. The tension tends to fall after meals, and is therefore influenced by the hours at which these are taken. The curve of the tensions tend to show a rise from day to day. It is influenced by miotics, but much more strongly so by derivative treatment. He lays stress on the necessity of taking the tension at intervals during the day and of charting the results on the same lines as those on which we chart temperatures. He gives the following advice as to treatment: (1) Divide up the
meals of glaucomatous patients as much as possible; (2) Fix the hour for operation at a time when the tension of the eye is found to be lowest as judged by daily observation; (3) Regard miotics as impotent to cure glaucoma; of these drugs pilocarpin is to be preferred, its use should be uninterrupted; its action in lowering tension is not in constant relation with that in contracting the pupil. He is in favour of iridectomy, which has served him well, rather than of irido-sclerectomy.

R. H. ELLIOT.

VIII.—KERATOCONUS CONSECUTIVE TO VERNAL CONJUNCTIVITIS

Gonzalez, Dr. José de J. (León, Guana Juata, Mexico). Amer. Jl. of Ophthal., Feb., 1920.

Gonzalez in a modest note makes a useful contribution to the subject of vernal conjunctivitis, where he points out the possibility of the disease being followed by astigmatism (irregular) or keratoconus, complications which are very serious in youth. Ametropias occurring in patients who have suffered from protracted vernal conjunctivitis, in his opinion, are certainly due to the conjunctival disease. He has had a large experience of this condition over consecutive years, and is able to make observations in regard to the progressive nature of the ametropia. One case, a child of 10 years, had been under treatment for vernal conjunctivitis since she was five years old. Refraction had been normal until recently, when she was presented not on account of the conjunctivitis (which had disappeared), but for failing vision. In one eye there was myopic astigmatism (−3 D.−4 D.) and in the other high myopia (−13 D.) with some irregular astigmatism. The high myopia was accompanied by keratoconus. Gonzalez urges brisk treatment of vernal conjunctivitis in the early stages, in order to avoid the danger of ametropia and corneal deformities.

J. HAMILTON MCILROY.

IX.—OPERATIONS


(1) Under this somewhat cumbersome appellation, Falchi describes his operation for after-cataract. He makes a keratome incision at the limbus, introduces a cystotome, and with it cuts the after-
cataract away from the pupillary margin of the iris. He then removes the membrane with a pair of forceps, provided that it does not sink into the hyaloid body, and that there has been no vitreous loss at the first operation. The second operation was attended by loss of vitreous in two cases out of twenty-one. Details are furnished as to the best cystotome to employ. The operation seems to the reviewer to be needlessly complicated and dangerous.

R. H. Elliot.


(2) von Hippel's patient had been shot in the face sixteen years previously. The left eye had been removed. In the right eye could be seen a round band in the vitreous passing back to a point outside and below the papilla. There was also an extensive detachment of the upper half of the retina extending down to the papilla and the macula. The detachment increased rapidly and in a few days was almost total. It was decided to divide the vitreous band with scissors rather than by the method of Deutschmann. The conjunctiva was divided below the tendon of the rectus internus and the sclera by a meridional incision. The wound edges were separated by hooks, and with the aid of concentrated electric light the band was easily seen and divided without any traction. In three days the field of vision had become normal for hand movements in reduced light, and on the sixth day the retina was adherent all over. A fortnight later the patient was about again; vision with $-8.0$ D.=5/20, field normal, retina everywhere attached. The divided ends of the vitreous band could be seen. At the end of a year the condition remained unaltered.

In another somewhat similar case this procedure was not successful. Elschnig concludes that, especially in late detachments after perforating wounds, such cases should receive careful consideration as to their suitability for this type of operation.

H. M. Traquair.

(3) Landolt, Marc.—A simple method of suturing the sclerotic with a conjunctival cover. (Un procédé simple de suture de la sclérotique avec recouvrement conjonctival.) *Arch. d'Ophtal.*, March-April, 1916.

(3) Marc Landolt points out the necessity for a rapid and simple form of suture for wounds of the sclerotic. He uses a, fine suture of silk armed with two fine needles. He first frees the conjunctiva for a considerable distance and then passes the two needles through
the conjunctiva some 8 mm. from the wound. The amount of separation between the two needles obviously depends on the length of the wound. After passing under the conjunctiva the needles are passed through the substance of the sclerotic on both sides of the wound and then turned back once more under the conjunctiva of the original side of entry and brought out about 4 mm. from the wound in the sclerotic. The needles are then removed and the silk knotted, thus at one and the same time closing the wound in the sclerotic and sliding the conjunctiva over it. A diagram that accompanies the paper makes the method quite clear. E. E. H.

(4) Bourguet (Toulouse) and Ronnaux (Paris).—Double optic neuritis cured by puncture of the corpus callosum. (Double névrite optique guérie par la ponction du corps calleux.)

(4) Bourguet and Ronnaux record a case of double optic neuritis cured by puncture of the corpus callosum. The patient was a prisoner of war, aged 24, who had an attack of influenza in the beginning of February, 1916, and was transferred to the care of the authors on the 28th of that month with vision: R.E. (?) ; L.E. 1/8; frontal headache, slight vertigo, and double optic neuritis. There were no other symptoms of intra-cranial tumour, and syphilis, rheumatism, albuminuria, and glycosuria were excluded. In the absence of any other cause the authors came to the conclusion that the foramen of Majendie was blocked from inflammation resulting from the influenza leading to accumulation of fluid in the ventricles and producing a sort of tension which caused the optic neuritis, headache and vertigo. With a view to reducing this tension by re-establishing communication between the ventricles and the sub-dural space, they made an opening through the corpus callosum. Two days after the operation the vision had improved to 1/6 in each eye and two and a half months later it was R. and L. 1, and the optic discs were normal. On the evening of the operation the patient developed loss of sensation in the whole of his body below the umbilicus. The motor power of his lower limbs was unimpaired. In ten days sensation began to return and when the article was written it was normal except on the soles of the feet where there was a slight defect.

The operation was performed as follows: Under local anaesthesia a trephine opening was made 1½ centimetres outside the middle line, the dura mater was incised, a canula 9 cm. long was passed under the dura mater to the cerebral cortex tangentially towards the middle line until it struck the falx cerebri then rotated into a vertical position and passed downwards along the falx until it struck the corpus callosum. This was perforated by pushing the
canula through it to a depth of 1.5 cm., and the opening was enlarged by backward and forward movements. The canula was then withdrawn and the skin wound was sutured.

W. C. SOUTER.

(5) Wieden.—Complete restoration of the orbital cavity by means of skin grafts, for the artificial eye. (Restauracion total de la cavidad orbitaria por medio de injertos dermicos para la próteris ocular.) Arch. de Oftal. Hispano-Amer., January, 1917.

(5) In this paper, read at the tenth assembly of the Spanish-American Ophthalmological Society, held at Valencia, Wieden relates the case of a young girl who was injured in the right orbit by a revolver bullet. The eye was so badly damaged that it had to be removed at once, and the bullet, which was lying at the back of the orbit, was removed at the same time. The patient made a good recovery, with complete ankyloblepharon as a result of her injury.

Subsequently operations in two stages were undertaken under local anaesthesia to remedy the existing deformity, and to allow of an artificial eye being worn.

The first stage of the operation consisted in dividing the cicatricial tissues between the two lids, and in separating the lids from the underlying scar tissue, the conjunctiva was found to be folded up and it was unrolled, so as to cover about 12 mm. in depth of the posterior surface of the upper lid, and about 8 mm. of the lower lid. The graft was cut from the skin of the inner side of the arm, and was fixed in position to cover the top part of the cavity by numerous fine points of suture. Once in position, the cavity was packed with pledgets of iodoform gauze steeped in scharlach red, and a pressure bandage was applied over all; while the patient was kept quiet in bed. On the fourth day the superficial dressing was removed, and on the eighth day the graft was seen to be healthy; six days later the sutures were removed, while the pressure bandage was maintained till the end of the month, when the graft was found to have taken completely, and the socket was already of sufficient size to allow of a small eye being worn.

About two months afterwards the lower lid and the lower part of the socket cavity was dealt with in a similar manner. Photographs of the patient during the various stages of this treatment show the results very well. The final result appears to be excellent.

Wieden's conclusions are shortly as follows: "These cases are long ones and much patience is required. One must not try and
begin too soon after the original injury. Rigorous asepsis is necessary. The grafts must be one-third larger in size than the surface to be covered, the skin must be fine, free from hairs and from fat. Most perfect adaptation of the graft to the underlying tissues is essential.

Rapidity in operating and complete haemostasis are necessary. The operation should be done in two stages, a few months interval between the two. Finally, it is possible to restore completely the socket by these means, even when the conjunctiva has completely disappeared."

The immediate result in this case seems to be excellent, and we see no reason why the cure should not be permanent. Contracted sockets are not very easy cases to deal with. At the present time there must be a fair number of wounded soldiers who are in very much the same state as Wieden's patient was after her initial injury, and it seems to us that this method of treatment might well be given a trial in suitable selected cases, to remedy their deformity.

R. R. James.


(6) Green comments on the very unsatisfactory results that have attended various methods for the treatment of detachment of the retina. The method most in favour with American ophthalmologists would appear to be scleral puncture. Schreiber's scleral trephining, which was accompanied by incision of the protruding button of choroid, is described first. Tiffany and Parker both independently employed trephining. The former excised the protruding button of choroid, whilst the latter contented himself with incising the uveal tissue, and, if necessary, the retina as well. Curtin cut out a disc with the trephine, replaced the conjunctiva, waited for ten days, and then removed the effused fluid by aspiration with a hypodermic syringe. Thomas and Curtin found that "the evidence on all sides is in favour of some operative procedure which withdraws the subretinal and suprachoroidal fluid." Finally, Holth has introduced the operation of "pre-equatorial sclerectomy," which consists in making a meridional incision in the sclera, and excising one lip of it with a punch-forceps. Five case-reports of eyes trephined for retinal detachment are furnished. Green thinks an operation for the withdrawal of the subretinal and suprachoroidal fluid is the rational treatment, and that, if this is admitted, then the sooner it is done the better.

R. H. Elliot.

(7) White and White describe some of the causes of failure in the operation of canthoplasty, and draw attention to the necessity of cutting the fibres of the external lateral ligament in a vertical direction upward and downward from the initial horizontal incision as described by Casey Wood. The author's operation consists in freely separating the skin from the underlying tissues above and below the horizontal incision; these skin flaps are then carefully sutured so that the edges are evenly inverted. The canthal ligament is now cut vertically upwards or downwards and some of the fibres of the levator palpebrarum are cut at the same time. Then the conjunctiva at the apex of the wound is loosened from the underlying tissue and also for a short distance from the upper and lower lids, in such a way as to reach the fornix conjunctivae so that when the conjunctiva is put on the stretch the mobility of the globe is not interfered with. The conjunctiva is then sutured to the skin above and below near the fornix and at the external angle of the wound.

In cases of advanced trachoma with shrinking of the conjunctiva it is difficult to draw it into the skin wound and suture it there. In these cases the tarsal plate and the palpebral conjunctiva are removed. The fornix conjunctivae is stretched toward the outer canthus and the suture is now placed somewhat to the inner side of the outer canthus, thus giving the conjunctiva at the outer canthus a little more play. After the removal of the tarsus and conjunctiva there will be no apparent shrinking of the conjunctiva at the outer canthus and it can be sewed very easily to the wound. In xerotic cases—shrinking of the conjunctiva without trachomatous tissue, the tarsus alone without the conjunctiva need be removed. The removal of the tarsus or tarsus and palpebral conjunctiva should be done at least one month before the canthoplasty, as the results are better than when the two operations are done at one sitting.

J. Jameson Evans.


(8) Woodruff remarks on the comparative infrequency of the operations for tendon transplantation by ophthalmic surgeons, who generally prefer to attempt the restoration of the function of a paralyzed muscle by its advancement, and a tenotomy of the contracting opponent—a method which may have good results in incomplete paralysis, but in complete paralysis the writer has never secured a satisfactory result by these means.
He advocates that the action of a paralyzed muscle be replaced by substitution of one or more of the normal muscles in its proximity. In the case of a paralyzed external rectus, the outer halves of the superior and inferior recti were sutured to the tendon of the paralyzed muscle, whilst the internal rectus was freely tenotomized. Two cases are reported but in neither case was there any movement outward beyond the median line; in one case he claims a cosmetic improvement.

J. Jameson Evans.


(9) The authors of this article are to be congratulated on their enterprise and thoroughness for going to India to study Smith’s operation at first hand, introducing it whole-heartedly in their practice up to the number of 196 extractions on American patients, and, finallysubjecting the operative steps to the cinematograph. While it is impossible to reproduce the photographic record, the authors have done extremely well in portraying the operation by means of 18 selected negatives from the record. The reproduction on glazed paper of enlarged prints from these negatives is everything that can be desired in all but two, which are hardly so good. Accompanying the prints is a minute description of the steps of the Smith operation commencing with the examination and preparation of the patient. The only modification, the authors say, which they have made is in regard to the actual speculum used. For a minute description of the operation readers who wish to study it could hardly do better than consult this article. Ernest Thomson.


(10) In the Archives d’Ophtalmologie, Jan.-Feb., 1918, Terrien published an article on advancement of ocular muscles in the treatment of strabismus, in which he advocated the employment of a complementary suture intended to counteract the loosening of the newly attached muscle from tearing of its cut end by the stitches. Landolt now writes that, in his experience, this second suture is unnecessary, and that he guards against a diminution of the effect of the advancement by an initial over-correction of the squint. He lays emphasis upon the expediency of this over-correction, and also upon the advisability of keeping both eyes bandaged for a week after the operation.

J. B. Lawford.
Van Lint (Brussels).—Muscular advancement with reinforcing suture at its insertion. (Avancement musculaire avec suture de renforcement à l'insertion du muscle.) Bull. et Mémoires de la Soc. française d'Ophtal., 1919.

The author begins by stating that a successful advancement operation must fulfil two points; it must involve no danger to the eyeball and must insure firm union at the new insertion. In the above operation the first point is assured by making use of the tendinous insertion close to the globe instead of penetrating the sclerotic, and the second is fulfilled by making use of two different sets of suture, one uniting the muscle belly to its old insertion, the other its cut end to the conjunctiva.

The operation, which is illustrated by diagrams, is as follows: a horizontal section is made of the conjunctiva over the muscle and the latter is laid bare for a full centimetre and placed over two strabismus hooks. A catgut suture (No. 0) armed by two needles is passed from behind forward through the tendinous insertion as close to the sclera as possible and then passed through the muscle belly as far back as considered necessary, also from behind forward. The muscle is now seized with advancement forceps about 5 mm. from its insertion and divided; it is drawn forward while the eyeball is rotated to meet it so that the belly of the muscle is brought over the site of insertion and the catgut suture is then tied and cut short. The cut end of the tendon now lies, of course, close to the limbus and is secured by two silk sutures, one through the upper and one through the lower border. These are doubly armed and brought out through the conjunctiva at the 7.30 and 10.30 position of the globe. A third suture brings the cut edges of the conjunctiva together.

A binocular bandage is applied, glasses are worn on the sixth day and on the eighth the sutures are removed. The dressings should be changed every day and over-correction should be the rule. No tenotomy should be done at the time and is rarely necessary afterwards.

CHARLES KILLICK.

CORRESPONDENCE

"TROPICAL OPHTHALMOLOGY"

To the Editor THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—In his all too generous review of my book on "Tropical Ophthalmology," Colonel Herbert draws attention to the fact that in the description of the Madras cataract operation, no reference