I.—STRABISMUS


(1) The optimism of French writers is astounding. Still, there is so much of interest, whether it be sustained as accurate by others or not, that the reviewer has thought it well to translate the first part of Sauvineau's article, giving the second part in abstract.

"A. The deviation of one of the eyes is such a characteristic symptom of strabismus that it has been identified with strabismus itself. Nevertheless, it is only a secondary symptom which is capable of disappearance without modification of the affection.

Persistent attempts to straighten squinting eyes whether surgically or by the constant wearing of lenses are useless, because the causes of strabismus are situated elsewhere than in the ocular apparatus properly so called. They are of cerebral origin, as Javal and Parinaud have established. But they are still little understood and that is why so many squinters are not cured.

Strabismus, according to Parinaud, is an affection of the convergence function which prevents the visual lines from meeting on the object fixed. But the affection of the convergence function is itself only an effect, the cause being still higher up.

The very essence of strabismus is a hereditary state of the brain (un terrain cérébral, héréditaire) of such a nature that the brain only perceives through its cortical visual centres the visual image from one of the two eyes. Every squinter is blind of one eye for cerebral reasons. (Tout sujet qui louche est un borgne cérébral.)

It is not because of amblyopia of the deviating eye that the cerebral vision is unilateral. Very often there is no amblyopia and sometimes the two eyes are equally good. None the less it is always the case that visual perception remains unilateral. The brain excludes or neutralizes the image from the squinting eye.

This was noted by Javal and more recently by Remy. But neither of them grasped the fact that this exclusion by the cerebrum is constant and that it is the pre-existing cause of the strabismus. Quite the contrary, for they regard it as a consequence of the strabismic deviation. According to these authors the brain in a psychic manner excludes the deviated image in order to avoid
diplopia. But why does that never happen in muscular palsies in which the diplopia is so embarrassing? The answer is that muscular palsies occur for the most part in those whose brains do not present the defect necessary for the production of strabismus. The tendency to cerebral fusion of the visual images of the two eyes, which is so strong in normal subjects, is absent or feeble in squinters. And it is this characteristic, which we believe to be hereditary, which appears to be the true cause of the strabismus. Where it exists, the least obstacle to binocular vision, such as a nebula or ametropia, is sufficient to cause strabismus. And where, on the other hand, it is absent the most embarrassing optical obstacles are powerless to produce it.

In short, in true strabismus (for one must set aside insufficiencies of convergence with latent diplopia, which represents only a pseudo-strabismus) the fundamental idea must always be present to the mind that every strabismus represents unilateral cerebral vision."

B. The Author next proceeds to discuss treatment. The first requirement is to re-establish binocular cerebral vision. When this is done the eye will straighten itself as a consequence and no relapse will be possible. This re-establishment of binocular cerebral vision is in two stages, namely the establishment of simultaneous vision by educating the nervous centres to perceive two images simultaneously, and thus, diplopia; and, secondly, to convert simultaneous vision into binocular vision.

The first desideratum is obtained simply by means of a red glass before the deviating eye and a green glass before the fixing eye, the patient regarding a point of light. When diplopia has been established in place of suppression of the image belonging to the squinting eye the patient is taught fusion by the same means. He is instructed in the relaxation or increase of convergence as may be required, and in high degrees of squint it may be necessary to approximate the images by means of prisms. The united image has of course a mixed colour, and if the glasses could be of really complementary colours the united image would be white. All this is, of course, commonplace in detail; the author’s point being that the method by coloured glasses is the simplest method of obtaining fusion, since it neither involves complicated apparatus nor skilled science in its application. The author asserts, and this is where the optimism comes in to which the reviewer referred at the beginning, that cure is obtained in every case, since amblyopia is not an obstacle to it, after several weeks or several months at the most.

Ernest Thomson.
Kleefeld, Dr. G. (Brussels).—The correction of strabismus by a crown suture. (Correction du strabisme par la suture en couronne.) Arch. med. belges, March, 1920.

Kleefeld is not satisfied with the hold obtained by the ordinary sutures in muscle shortening for strabismus. The suture described in this paper gives a great increase to the tearing strain required to split a piece of gauze over that obtained by the usual methods. The diagram explains the method. Kleefeld finds it easier to use an ordinary spring needle, and catgut for the suture.

E.E.H.

II.—TROPICAL DISEASES


This paper is from the Manila General Hospital and deals with the ophthalmological complications of beri-beri. The literature of the eye findings in this disease is mainly from Japanese observers. Three cases are recorded; the symptoms include dimness of vision, colour sense disturbances, blurring of the optic disc and slight neuro-retinitis. Beri-beri is a deficiency disease, and McCollum found that lack of substances containing fat soluble A in the diet gave rise to xerophthalmia, and that if the water soluble B constituent were lacking beri-beri resulted. Vedder holds that the disease is due to faulty metabolism, and is directly caused by deficiency of a certain vitamine or possibly of several vitamines in the food. The author’s comments are as follows: a definite history of beri-beri was obtained in each case, the cases were walking cases, complaining of numbness of the legs, weakness and slight dyspnoea, in all the diagnosis was confirmed in the medical department. The chief eye complaints were foggy vision and dazzling in bright light; externally the eyes
were normal, there was some narrowing of the palpebral fissure to avoid glare; vision was not much impaired, but the letters of the 6/9 or 6/6 line were obviously read very slowly and with difficulty; a marked contraction of the green field has been found in all cases in which the field has been taken; one case showed a low grade of neuro-retinitis, but in most no more than a slight blurring of the disc was found; recovery was slow, the only treatment adopted was the improving of the general health with tonics.

R.R.J.


(2) The author records an interesting case of ophthalmic myiasis of unusual origin. A girl of 16 years of age complained of burning itching of one eye of two days duration, and stated that several small white objects, which she thought were worms, had been taken from her eye at home. On examination, a marked conjunctivitis was found, the eye being excessively watery, and a number of small white organisms were seen swimming rapidly across the conjunctiva; on attempting to remove any of them, they appeared to bury themselves in the conjunctiva, which made their removal a matter of some difficulty. Next morning the congestion was more marked, but it subsided in a week's time with the use of a simple lotion. The patient had felt something, which she took to be a gnat strike the eye two days before her illness began.

The larvae which had been removed from her conjunctival sac were sent to the Bureau of Entomology, U.S.A. Department of Agriculture, and were eventually classified as the first stage larvae of the common sheep-bot. The life cycle of the larva is that it is deposited by the fly, while in motion, in the nostrils of the sheep. It finds its way into the nasal sinuses, where it slowly changes into the second stage, remaining practically dormant through the winter months. In the spring development begins, the size increases, and it passes into the third stage and becomes active, causing staggering, loss of weight, and often the death of the host. On reaching maturity it is expelled and reproduces the fly, which is more prevalent during the warm months and whose movements take place only during the warm part of the day.

A female fly may contain several hundred larvae, but when these are deposited voluntarily, there may be no more than a dozen.

The paper is illustrated with pictures of the fly and of the larva, the latter is very like that of the horse-bot in size and shape.

R.R.J.
III.—DISEASES OF CONJUNCTIVA


The most important paragraphs in the histological description by Alt appear to be the following:—“In this naevus the naevus cells do not seem to have been derived from the epithelium as in no section (and the whole tumour was sectioned) are the naevus cells in contact with the outer epithelium. The arrangement in this tumour gives the impression that the naevus cells have grown from the deeper connective tissue parts towards the epithelium, as there is everywhere a small amount of connective tissue between the naevus proper and the outer epithelium. Very few of the naevus cells proper contain pigment, the larger amount of chromatophores lie in this small layer of connective tissue. "While the naevi of the conjunctiva I have previously had occasion to describe seemed decidedly to speak for Unna’s opinion, according to which the naevus cells are derived from the outer epithelium, the specimen here described seems rather to support Ribbert’s view, according to which the naevus cells are of connective tissue origin.”

Ernest Thomson.

(2) Penichet.—Contribution to the general study of trachoma in Cuba. (Contribution al estudio general del trachoma en Cuba.) *Arch. de Oftal.*, *His.-Amer.*, May, 1917.

Statistics on the amount of trachoma in the island of Cuba are available from 1882 to 1915; the authors vary a good deal in their results, but it seems that roughly 3.5 per cent. of the ophthalmic cases in the Cuban clinics are trachoma. In the years 1907 and 1911 the percentage rose sharply to roughly 10 per cent. and 20 per cent. respectively, for which errors in diagnosis seem to have been principally responsible; a very large number of acute catarrhs were apparently accepted as trachoma, partly on account of the clinical resemblance of the cases to trachoma and partly because they yielded to the usual anti-trachoma treatment.

The subject of trachoma in Cuba was first investigated in 1853 by du Villards, who took only two of its provinces into consideration; he proved that trachoma was rife among the army, it being a common mode of obtaining exemption from military service to inoculate the conjunctiva with trachomatous secretion.

Penichet discusses the bacteriology of trachoma and suggests a fungus as the most probable cause.

A map of the island is appended which shows the percentages of trachoma in the various provinces of the island. It would have been
more interesting if a note of the island's population had been added. Finally the author gives his results of the treatment of ten cases of trachoma by vaccino-therapy, which line of treatment does not seem to have been very encouraging.

R. R. J.


(3) Marin records an interesting example of a somewhat rare condition, angioma of the conjunctiva, which occurred in a female, aged 52 years. The history was that 4 years previously she had unintentionally introduced the end of a cane under the upper lid of the left eye into the fornix conjunctivae. A good deal of inflammatory reaction followed and persisted so long afterwards that her doctor feared that a foreign body was left in the wound, but none was found. Shortly after the inflammatory signs had cleared up, the patient noticed a small lump between the lid and the globe, which lump had gradually increased in size.

In 1914 she came under the author's care and her condition is well shown in the photographic illustration which accompanies his paper. A lump the size of a small nut was present in the outer part of the left upper lid, the palpebral aperture was somewhat narrowed and from under the free edge of the lid projected a red almond shaped tumour, which extended inwards across the outer 2/3rds of the length of the lid edge. On evertting the lid it was seen that the two lumps were really parts of one and the same tumour, which presented all the characteristics of a cavernous angioma, its limits were sharply defined, it was slightly reducible in size by compression and its size was appreciably increased by coughing, stooping and straining efforts. The application of a pressure bandage having caused only a partial diminution in size of the tumour, it was decided to treat the case by electrolysis. Three sittings were sufficient and the result appears to have been excellent.

A bibliography is appended. R. R. J.


(4) Johnson Taylor reports a case in which an advancement and tenotomy operation was done, and was followed by diphtheritic infection of the advancement, though not of the tenotomy wound, two days after operation. Diphtheria was diagnosed clinically from the appearance of the wound and the history of diphtheria in the child (aged 11 years) and others in the family at Christmas,
1916. Bacteriological examination was not made. Taylor comments specially on the fact that the attack of general diphtheria did not confer any immunity against the local infection. It is noteworthy that before the operation on the child with squint, another child in the family had been, and still remained, at the time of writing, in an isolation hospital as a carrier of diphtheria.

ERNEST THOMSON.


(5) Shastid, thoroughly dissatisfied with the state of legislation in America in connection with ophthalmia neonatorum (see also his article in American Encyclopedia of Ophthalmology, Vol. IX, p. 7138) has gone to much trouble and study in drafting a proposed law which he earnestly brings to the attention of the profession. It is entitled "An Act for the Prevention of Blindness, imposing a duty upon all Physicians, Midwives, Nurses, or other persons having the care of infants, and also upon Health Officers, and fixing penalties for the neglect thereof." We need not give the proposed law in too much detail since parts of it are not applicable to this country, but it is right to state the principal provisions.

Section 1.—"That any diseased condition of the eye or eyes of any infant in which there is any inflammation, swelling or redness in either one or both eyes, either apart from or together with any unnatural discharge from the eye or eyes, at any time within two weeks after the birth of such infant, shall, independently of the nature of the infection, be known as ophthalmia neonatorum." Section 2 makes it incumbent upon any person in professional attendance upon a birth to instill one of the following prophylactic preparations, namely two drops and no more of a one per cent. solution of nitrate of silver in distilled water, kept in a dark amber, or dark blue bottle, and not more than three days old, or, two drops of twenty-five to forty per cent. solution of argyrol, absolutely fresh, or of protargol same strength. Sections 3 to 14 refer to the duty of reporting cases of such ophthalmia neonatorum, to official proceedings and to penalties. Section 15 runs as follows: "Whereas, about thirty per cent. of all blindness is caused by ophthalmia neonatorum, and whereas the disease may always be prevented, and almost always cured in its incipiency (its damage to the sight being therefore due, as a rule, to ignorance or carelessness); and whereas an emergency exists, therefore this law shall be in force immediately after its passage and approval."

ERNEST THOMSON.
In spite of the fact that a large number of the inhabitants of Guatemala appear to live under very unhygienic conditions, trachoma is very rare there. The author's predecessor, Alvarez, was of the opinion that trachoma was not a disease of that country, and that the few cases which were met with in his day were imported ones; Pacheco Luna supports this view. For the last two years he has undertaken a special search for trachoma, hunting for signs of it in every eye which he has examined, and, up to date, his results have been negative. He has never seen a case in a Creole.

Pacheco Luna does not say that trachoma is non-existent in Guatemala, but that it is so rare that he insists on a strict prophylactic examination of all immigrants, in order that this happy state of affairs may continue.

R. R. J.

Darier has had three cases lately in which the contagion of trachoma was communicated in the course of a wrestling match. He refers also to a recent paper by Patton, of Omaha, in the Amer. Jl. of Ophthal. for July, 1922. It seems from what Patton and Darier say that the most probable explanation of the contagion taking place is that athletes know by very old established experience the importance of the oculo-cardiac reflex by pressure upon the eyeball, and that they purposely dig their fingers into the eyes of their opponents. Apparently, Patton thinks that the medium by which the contagion is conveyed is sweat. Darier, however, considers it more likely that the infected wrestler, finding in the heat of combat that his eyes are troublesome, rubs away the tears and mucus with his fingers, through which the contagion is transferred to his opponent.

Note.—The oculo-cardiac reflex above referred to, and which consists in a change in the heart's rate or rhythm following pressure upon one or both eyeballs, was first described by Aschner in Wien. klin. Wochenschr., XXI, p. 1529, 1908. See American Encyclopedia of Ophthalmology for further information on the subject of this reflex.

Ernest Thomson.

One almost despairs of hearing of anything new or effectual for the treatment of trachoma, yet the experience of Lacat in Egypt is so great (9,600 operations in twelve years) and mainly by means of one particular method, that one feels that at any rate here is something positive. The method employed is not new; that of brosage. It has been applied by Lacat in no fewer than 5,163 cases of trachoma. These are large figures; Lacat states that 80 per cent. of these patients have been completely cured; the remaining 20 per cent. were either greatly improved or required a second course of treatment. It is evident from the description that the treatment must make considerable demands upon the surgeon's time and the patient's persevering courage.

Under either local or general anaesthesia the upper eyelid is completely rolled outwards upon itself by means of Darier's toothed forceps. This of itself breaks up the gelatinous mucous tissues. With a keen bistoury three or four long deep incisions are made parallel to the lid margin and exposing the submucous tissue. With a carefully sterilised (ether and alcohol) fairly hard tooth brush, dipped in 1 to 500 cyanide of mercury, the mucous membrane is gently brushed two or three times, replacing the lid on each occasion and allowing it to bleed freely before turning it out again for the next application. The lower lid is dealt with in the same way, but more superficially. Moist cyanide compresses are then kept upon the closed eyelids and changed hourly, the lids being separated as well as can be done and the eye bathed out upon each such occasion. A permanent dressing is never employed. No ointment or anything of the sort is inserted within the eyelids. After 48 hours, under cocain anaesthesia, the eyelids are again everted as well as possible and the mucous membrane is rubbed "with gentle energy" with a sterilised cotton swab soaked in 1 to 1,000 cyanide, free bleeding being caused. This is done every two days for a month, and thereafter the patient bathes the eyes regularly with an antiseptic solution, the eyelids being only occasionally, at longish intervals, everted by the surgeon. "Neither cicatrix nor adhesion results from this treatment."

Ernest Thomson.


Aubaret describes a recurrent pterygium which was repeatedly ablated and then, owing to the carelessness of the patient, was allowed to grow till it reached the size of a small nut. The patient was 68 years of age. The tumour, which was deeply
adherent to the cornea, was dissected off from that membrane and removed along with the caruncle and plica. The gap in the cornea was covered with a sliding flap from the cul-de-sac. The tumour was closely adherent only to the cornea, being easily removed otherwise. The following quotation gives the essentials of the histological examination. "The tissue of the tumour itself is composed of very numerous cellular elements which suggest sarcoma, but there are also numerous typical giant cells formed by coalescence of groups of these elements. Lastly, there are mucus cells with large nucleus and granular reticulum, situated in the centre of a plasmodial mass about which it is difficult to give an opinion. The vessels, except here and there, have no visible walls."

It is difficult to know for certain, says the author, whether this is a benign or a malignant tumour. He expects to have, later on, a more detailed microscopic account which may assist the diagnosis.

ERNEST THOMSON.


(10) Coppez refers in the first place to the condition known to dermatologists as "tuberculides" in tuberculous subjects. It has long been known that these do not present the bacilli but are of toxic origin. Among the cutaneous manifestations coming under the head "tuberculide" the most frequent and characteristic is lichen scrofulosorum. Friede, Engelking and others have pointed out that in tuberculous subjects there may be observed pimply eruptions on the bulbar conjunctiva which are absolutely analogous to lichen scrofulosorum. These are often coexistent with the latter. There are small translucent prominences which are situated, preferably, in the neighbourhood of vessels. They are ephemeral and disappear without ulcerating. The evolution appearances of these tuberculides are quite different from those of phlyctens. These conjunctival tuberculides are not of common occurrence, but, possibly, in view of their minuteness, fugaciousness and indolence they may have escaped the attention of the clinician. (The reviewer has been greatly interested in this description. He has seen cases which may possibly be of this nature and which he has been unable to explain, and which his colleagues have not been able to explain either. In the last case which the reviewer saw the elevations were so extremely small that they could hardly be seen without a magnifier, they involved the cornea as well as the conjunctiva and their indolence was much more marked than their fugaciousness. Their size seems to correspond accurately with Coppez's "hardly visible to the naked eye.") Coppez proceeds to
say that these tuberculides have been observed especially in the following conditions, namely, during the epoch of the use of the ophthalmo-reaction; during the course of a certain number of frankly tuberculous affections such as scleritis, iritis and keratitis, and occasionally in eczematous conjunctivitis without obvious tuberculosis; and, finally in Miculicz’ disease. The remainder of the paper is taken up with a full description of two cases of Miculicz’ disease seen by Coppez in which these tuberculides occurred, and he comes to the following conclusion. “These two observations appear to me absolutely demonstrative. The appearance of typical conjunctival tuberculides in considerable number, in the course of uveitis complicating hypertrophy of the lacrymal and salivary glands, is a most interesting fact, and one which clears up the origin of Miculicz’ disease, or uveo-parotid fever, whichever one pleases to call it. It is a tuberculous manifestation which once more shows the protean character of infections due to Koch’s bacillus.”

ERNEST THOMSON.

IV.—DISEASES OF IRIS


(1) Löwenstein acting as director of the ophthalmic side of the reserve hospital at Zenica in Bosnia, after mentioning that Fialkowsky observed ocular symptoms in 3.5 per cent. of all cases with a haemorrhagic diathesis, states that in the winter of 1915-16 he examined 150 cases of articular rheumatism with subcutaneous haemorrhages and often with scurbutic gums, without finding a single conjunctival haemorrhage. He was surprised to find great turgescence of the retinal veins which were difficult to empty by pressure on the globe; in fact an arterial pulse appeared, before any alteration took place in the veins on the disc, and the arteries were apt to collapse before the veins. No fundus haemorrhages were seen. The larger portion of the paper is devoted to a case which Löwenstein describes as being intermediate between Werlhof’s disease and haemophilia. Here there were numerous petechial conjunctival haemorrhages, and a roseola-like infiltra- tion of the iris. There was no actual iritis.

T. HARRISON BUTLER.
(2) Li, T. M. (Pekin).—Primary ring sarcoma of the iris. 
(2) The case occurred in a farmer, aged 22 years, who was 
admitted to Verhoeff’s clinic in Massachusetts in the early part 
of the year 1922. The complaint was that the eye had been misty and 
bloodshot for about a month; there had been no pain but he was 
conscious that certain dark coloured spots had appeared in the iris 
of the affected eye. On examination a small deeply pigmented 
growth was found in the upper and outer quadrant of the iris, 
and the tension was found to be considerably raised, the field 
being restricted and the disk cupped. Excision was advised, but 
the patient refused to have the operation performed and left 
hospital. After a few months he returned and submitted to excision. 
Microscopical examination showed that the tumour extended 
along the root of the iris for about 7 mm., the angle was blocked 
in this region and the anterior surface of the growth was closely 
applied to the back of the cornea for a distance of 2.5 mm. The 
apex of the growth reached to midway between the root of the iris and the pupil edge; continuing the main tumour was a 
narrow deeply pigmented ring extending round the remaining 
circumference of the angle of the anterior chamber.
The growth appeared to spring from the anterior surface of the 
iris and the ciliary body showed involvement.
The author finds records of five cases of ring sarcoma of the iris 
and of five cases of ring sarcoma of the ciliary body in the 
literature and gives short abstracts of these ten cases.

R.R.J.

(3) Lloyd Mills (Los Angeles).—Amoebic iritis occurring in the 
course of non-dysenteric amoebiasis. Arch. of Ophthal., 
November, 1923.
(3) Lloyd Mills notes that in spite of the resolution of 
“rheumatic iritis” into dental, tonsillar, respiratory, genito-
urinary, intestinal and acute general infectious components of 
origin, there still remain cases of iritis, usually of the chronic 
recurring type whose origins are obscure and whose treatment is 
unsatisfactory.
Four such cases are reported. The first, a woman of middle age had intractable plastic iritis in the R.E. for ten years. Occlusion of the pupil with onset of secondary glaucoma necessitated enucleation. Three weeks later, an identical iritis started in the left eye. There were constipation, tenderness over the colon with secondary anaemia and joint pains.

It is noteworthy that no entamoebae were found until the third faecal examination was performed when they were present in large numbers. A simultaneous cure of the iritis and abdominal symptoms followed two intensive courses of treatment with ipecacuanha and emetin.

The fourth case was treated for several months with emetin in 1912. The ocular inflammation and iritis disappeared and have not recurred up to date. The second and third cases were somewhat similar but had not been under treatment for any length of time.

A long commentary on these cases follows. The principal points are:—The greatest single factor which has hindered the general recognition of the pathogenicity of the human intestinal protozoan fauna has been, that the one criterion of their capacity for harm has been wrongfully assumed to be the presence of diarrhoea. In fact, partial stasis produces the only successful incubator for protozoan parasites of any type and upon this rests the ability of otherwise harmless parasites to develop substances of pathogenic power.

Hence in all cases of chronic intractable iritis of obscure origin and especially if there is any associated gastro-intestinal disorder protozoan and particularly amoebic infection must be considered. Amoebiasis is now known to occur in practically every country of temperate climate as well as in the tropics, with this difference, that dysentery is often a more predominant feature in the tropics than in higher latitudes.

The amoebae may remain in the lesions of the colon for considerable periods and six consecutive daily specimens should be examined, including formed as well as fresh liquid stools.

The iritis arises probably by means of amoebic emboli, which enter the blood stream through the intestinal lesion, the bacteria coming on the scene as a secondary infection.

F. A. WILLIAMSON-NOBLE.
V.—OPERATIONS

(1) Lamb, H. D. (St. Louis).—Two points of controversy in magnet extraction of foreign bodies from the vitreous chamber. Amer. Jl. of Ophthal., May, 1917.

(1) The two points which Lamb discusses are, which magnet is preferable, and, which route is the most desirable? To the first he finds a definite answer, but with regard to the second, after discussing the views of authorities, says that "it seems best to evade any definite statement."

Dealing only with the first question, one may transcribe most of the writer's statement. "Selection of the magnet for our work (that is giant magnet versus small magnet) depends largely upon the size and location of the foreign body, although the route chosen will of necessity have some influence." Turk found that in general for splinters from 1 to 250 mg. in weight, when the splinter is in direct contact, the power of the Hirschberg is but little less than that of the Haab. At 2 mm. distance from the splinter, however, the Haab magnet is from 7 to 21 times as attractive for splinters weighing 1 to 250 mg. as the Hirschberg, and the more the distance is increased the more favourable become the readings for the Haab magnet. The results of experiments by Barkin, Sweet, and the Meyrowitz company seem to establish definitely the great superiority of the Haab magnet in attracting small foreign bodies at a distance of 5 mm. or more from its tip. Where the magnet tip can be brought within 5 mm. of the foreign body, it is only necessary to use a large magnet if the particle is very small—1 mg. or less. For larger particles within 5 mm. the advantages of a hand magnet are very great, in that it is more easy to handle, and the foreign body can be more gently detached, and drawn through the tissues with less disturbance. Of course, in some cases where the foreign body has been for some time in the vitreous and has become encapsulated by fibrous tissue, the small magnet, although applied within 5 mm. of the particle, may fail to extract it, and recourse should then be had to the giant magnet similarly applied. If the giant magnet fails likewise, there should then be attempted Jackson's operation with scissors and the large magnet.

Ernest Thomson.


(2) Major Lancaster introduces his operation modestly, making no exaggerated claims for it, and merely suggesting that those who may not have been able to work out a satisfactory method
for themselves should try this one. The reviewer does not remember ever to have read a more clearly described and illustrated description of a squint operation, and yet it is almost impossible to describe in abstract and without the illustrations. Originality in squint operations is now almost impossible of attainment on account of the number of methods described, and it is felt that no very great originality of conception attaches to this particular one. Some details are different from those ordinarily employed. To begin with the author incises the conjunctiva longitudinally to avoid haemorrhage by keeping along the line of vessels instead of across them. He leaves a stump next the cornea in order to get a good hold for a "security stitch," which takes origin from it. The principal stitch is the "whip stitch," which in effect binds the muscle fibres together at the upper and lower margins. The security stitch passes from its fixed point at the corneal stump to behind the principal stitch in the muscle and emerges through the conjunctiva, upon the surface of which it is tied after the principal stitch has been tied, on the conjunctival surface of the stump. It secures "close and effective apposition of the muscle and sclera," and, therefore, the principal stitch does not require to be pulled right home unless the operator thinks it necessary. The principal stitch is thus adjustable. It is claimed inter alia that the conjunctival incision employed closes with the best cosmetic results, and that the stitching is so secure that prolonged bandaging is unnecessary. An extra conjunctival stitch may have been necessary and this is removed on the third day. The security stitch is removed on the sixth or seventh day, and the principal stitch not before the tenth day. For anaesthesia the author prefers to inject novocain (2 cc. at most of a 1 per cent. solution) or cocain (a smaller quantity of $\frac{1}{3}$ per cent. solution) under the capsule of Tenon. Adrenalin is always added to either solution.

The full details of this operation may well be studied in the original illustrated description.

Ernest Thomson.

(3) Dor, L. (Lyon).—The technique of the extraction of non-magnetic intraocular foreign bodies. (Technique de l'extraction des corps étrangers intraoculaires non-magnétiques.) *La Clin. Ophtal.*, March, 1919.

(3) The article by Dor is short and deals mainly with the difficulty of extracting non-magnetic foreign bodies from the interior of the eye (behind the lens). The author puts no faith in the radioscopic screen, and considers that the only chance is to work with the forehead mirror and electric illumination. One gathers that if the lens is opaque the author first removes it and
operates on the foreign body later. If the lens has already been removed one works through a sclero-corneal incision. If the lens is in place and clear an equatorial incision is employed. Dor has endeavoured to remove foreign bodies with a single instrument for penetrating and removing, but has not succeeded. He now holds that a regular forceps is essential, and has been using a forceps made by Colin in 1880, after a pattern by Dor père. It is made on the principle of urological instruments, being composed of two blades on the ends of two springs. The blades are opened and closed by means of a sliding tubular sheath. "The whole operation is carried out in a dark room, using a frontal mirror with two openings in front of the eyes of the operator; the mirror is illuminated by an electric lamp." Dor relates an interesting case of an officer wounded in both eyes, one eye being quite useless and the other cataractous. The cataract was first removed. Afterwards two minute pieces of copper were successfully removed, the second one with great difficulty. The point of the case is that the patient had been condemned as blind, but when the condition was explained to him, after removal of the opaque lens, he preferred to be operated on, saying that he would sooner be blind than have sight which might at any moment be lost by severe inflammation of the eye. Dor says frankly that he was biased in favour of operation by the result of a similar case where he had refused to operate, preferring to leave the fragments in the eye to take their chance for good or ill, and where the eye had afterwards had to be enucleated.

Ernest Thomson.


(4) Abadie says that he has for a long time studied a particular form of optic atrophy which he attributes to a vice of nutrition due to permanent vaso-constriction of the arterioles of the nerve trunk. The following are its characteristics. The fields are constricted, this constriction commencing on the nasal side as in glaucoma and passing on especially to the lower field. Central vision remains for a long time relatively good. The inner and upper fields remain long after the nasal and lower fields have gone. Finally, these latter also disappear and blindness becomes complete. The vision is characteristic in that it varies from day to day and even from hour to hour. Objectively, "the pupils, while not in miosis as in tabetic optic atrophy, are nevertheless smaller than normal, and, although the light reflex has disappeared, when one eye is more advanced in atrophy than the other, the
pupil is smaller on the more advanced side. Further, the pupil no longer acts normally to mydriatics. A moderate dilatation only is produced. Ophthalmoscopically the disc is white with sharp contours, but the arteries are manifestly reduced in size and diminish as the condition advances. The calibre of the veins is relatively well maintained.”

Having thus reached a conclusion as to the cause of this class of optic atrophy, namely, spasm of the retinal arteries, Abadie resolved to put it to the test, by operation on the fibres of the sympathetic which surround the internal carotid artery. We may leave out the detailed history of the case selected for operation: a man of 50 years, left eye already blind, inner and lower fields of right eye lost, temporal field restricted, upper intact; visual acuity = 1/3. Operation was undertaken by Abadie and Bourguet at the Hotel-Dieu, Paris, on April 4, 1917. The bifurcation of the right carotid having been exposed, the internal carotid was stripped of its sheath for about a centimetre from its origin. Vision rapidly improved till at the end of a fortnight the nasal field approached the normal. The lower field recovered more slowly and less completely. The visual acuity improved to 2/3. At the end of a month the result might be called brilliant, but, as one can well imagine, to Abadie’s enormous disappointment, at the end of two months the fields began gradually to recede again and eventually arrived at the status quo ante operation. Daunted but not despairing, Abadie determined to see what was going on at the seat of operation and again, along with Leriche, opened up the region of the carotid bifurcation. There was a dense cicatricial tissue around the bifurcation, and, in endeavouring once again to strip this off, the artery was wounded and the common carotid had to be tied. No bad symptoms developed, and, strange to say, improvement in the vision again took place, reached a certain point, and then again declined. Blindness eventually resulted. In three other cases, but more advanced than the one fully described, a similar operation was performed, with the addition of ligature of the external carotid with the view of increasing the nutrition of the optic nerve. All that Abadie says about these is that slight improvement took place. He does not mention whether it was maintained.

Ernest Thomson.


(5) In the present short paper Aubineau discusses the pros and cons of several of the ptosis operations and comes to the
OPERATIONS

conclusion that not only from the point of view of giving a good result when the eye is open and directed forwards, but from that of satisfactory voluntary occlusion, as well as during sleep, Hess's operation gives the best results and gives freedom from complications. In detailing the procedures in Hess's operation, he states that in infants there may be some difficulty at the operation in exactly locating the line of the eyebrow once this has been shaved. He illustrates the operation by four diagrams, and there are photographic reproductions of several cases before and after operation. He advocates local anaesthesia in all cases, except very young children.

W. C. SOUTER.


(6) Bettremieux as the result of his long experience, has come to the conclusion that it is wrong to operate on the squinting eye. "When the fixing eye is correctly operated on there is no change in the external appearance or motility of this eye, since the desire for sharp vision easily keeps it in correct position in all directions of fixation." The alteration of convergence innervation falls upon the squinting eye, and in a manner favourable to the cure of the squint. Bettremieux considers that from the theoretical point of view nothing better could happen. On the other hand, when we operate on the squinting eye we do not know exactly what we are doing and may cause over-correction. In young squinters, operation on the fixing eye gives the maximum of security against this. The author makes no special reference to the actual operation, whether tenotomy, advancement or combined.

ERNEST THOMISON.


(7) Kleczkowski gives the history of this operation which, owing to its tendency to cause complete cicatrical atrophy of the superior fornix with consequent entropion, has been largely abandoned during the past 25 years. The author's experience is that this is quite unjust to the operation, which he has practised successfully for 20 years. The main point of the article is that it is necessary to obtain very accurate union of the conjunctival edges, that if this is obtained by interrupted suture the large
number of knots is a very great disadvantage, and that this disadvantage is abolished by the use of the continuous suture. The author uses no knots at all, leaving a long end at each extremity of the palpebral fissure.

Ernest Thomson.


Valois and Lemoine have already strongly advocated irrigation of the anterior chamber after extraction, and now they urge the advisability of using for the purpose an artificial aqueous humour made up to Mestrezat's formula to resemble as closely as possible normal aqueous. It is only in specially suitable cases, notably where the corneal incision has been easy and clean, and so the lips of the wound have come together well, that one gets this artificial re-formation of the anterior chamber but, when obtained, it leads to a more rapid cure, almost without reaction or post-operative pain. The authors discuss the various changes in the eye that have been noted after abstraction of the aqueous, and those in the aqueous that is then formed, to show how important it is to aim at an immediate restoration of the anterior chamber with artificially prepared normal aqueous used to irrigate the anterior chamber.

W. C. Souter.


Torok after stating that iridectomy is the safest operation in glaucoma proceeds to discuss the drawbacks to this operation in chronic glaucoma. The principal one is, of course, adhesion of the root of the iris to the posterior surface of the cornea, this adhesion not being broken down at the time of operation. In order to overcome this defect, he has worked out the following technique:—The eyeball is fixed with double fixation forceps in the limbus at the end of the horizontal meridian of the cornea. Incision is made with a Graefe knife, puncture and counter puncture in the sclera, the incision being behind the limbus with a conjunctival flap. This flap is then grasped with dissecting forceps and pulled forwards so that the wound gapes. With an iris spatula held in close contact with the sclera the root of the iris is detached throughout the whole length of the incision. Iris forceps are then introduced parallel with the wound, grasping the
DISEASES OF ORBIT

Iris near its root; they are drawn slightly forwards and downwards and the iris excised with two sweeps of the scissors held parallel with the wound. The operation has been performed during the last 18 months on 27 cases, and the results obtained are quite satisfactory.

F. A. WILLIAMSON-NOBLE.

VI.—DISEASES OF ORBIT


(1) Knapp records five cases of orbital derangement after radium treatment for malignant disease of the upper jaw, and concludes that the orbital involvement following the use of radium is quite different from that which is met with when radium has not been used. He finds that the swelling anteriorly, when radium has been applied, is different from the usual tumour growth and presents definite inflammatory symptoms, such as redness of the lids, with palpebral oedema, an involvement of the ocular muscles, especially of the inferior rectus, ciliary congestion, detachment of the retina and optic neuritis. A necrotic process may extend in the orbit to the eye, causing sloughing of the sclera and panophthalmitis. Infection is undoubtedly a factor and is especially liable to occur when radium is used near bone; this being easily devitalized, necrosis ensues, and infection cannot then be prevented. It has to be remembered that the effects of radium, viz., of the gamma rays, are long deferred, for weeks or even for months.

In view of the increasing use of radium in the treatment of malignant disease, the possible ulterior effects on the orbit and the eye should be borne in mind; they do not contraindicate the use of radium, as Knapp finds that the results of radium treatment combined with operation are better than those obtained by surgery alone.

R. R. J.


(2) A girl of sixteen years of age was affected with ptosis of one eye, and when the drooping lid was raised, a purplish mass, reminiscent of placental tissue, protruded through the palpebral fissure. The growth had been noticed soon after birth and had increased in size. It
extended from above the upper border of the internal rectus, near the cornea, over into the external rectus and forward into the lid. The great volume of the mass was accommodated by an absence of the orbital ridge in the middle third and by a hole in the external orbital wall, while on deep digital examination the roof of the orbit was found to be lacking in the middle portion. Approximate measurements of as much of the mass as could be seen, made while the girl lay flat on the bed, showed a circumference from the outer to the inner scleral border of 55 mm., directly across of 40 mm., antero-posteriorly 30 mm., and vertically 16 mm. Deep pressure on the jugulars increased the volume of the tumour, and pressure on the carotids diminished it. No pulsation or bruit was present. The tumour extended as far back as the anterior wall of the sphenoid, but was not connected with the frontal, maxillary, or sphenoid sinuses. Aspiration of the mass withdrew about 20 cc. of blood. A diagnosis of cavernous angioma was made. The growth was removed by dissection, and the conjunctiva which covered it was sutured. When examined microscopically, the tumour presented the characteristics of erectile tissue. A few weeks later, exuberant conjunctival granulations were snipped off and shortly after that tenotomy of the internal rectus was performed.

S.S.


(3) After a short summary of the recorded cases Peters describes his own. A male child, eight weeks old, showed at birth a small spherical tumour at the inner and upper aspect of each orbit. These tumours increased in size until eventually the left eye could not be seen. When examined the following condition was noted: on the right side below the lacrymal sac there was a fluctuating swelling the size of a pigeon's egg. The normal eye was pushed outwards and backwards. On the left side there was a tumour the size of a small apple which distended the lids and forced the eye forwards and outwards. On puncturing the tumours clear liquid escaped which contained a few red blood cells, some large round cells, and many lymphocytes. Albumen was present up to 20 on the Esbach scale, but no sugar. Three days later the child died of meningitis. The condition found at the post-mortem examination is described and illustrated by photographs.

The best account of these tumours has been given by Stedfeldt (Ueber die Enceph. der Orbita, Nord. Med. Arch. 24—1906) in a monograph which is quite unknown to ophthalmologists.
According to the situation, we can divide encephaloceles into occipital, sagittal, and sincipital. Rarely we find a basilar and lateral form. The sincipital are the commonest, followed closely by the occipital. The encephalocele escapes through a smooth-edged hole between two or three adjacent bones. Spring states that an encephalocele always passes through a defect in the bone itself and never through the sutures. The tumour is never a simple hernia with extension of the dura; the dura takes no share in forming the sac, but is merged into the bone at the edge of the opening, and only stretches for a short distance over the sac. The latter is covered by the thickened and cystic arachnoid, the subcutaneous tissue, and the skin. If brain tissue be present in the tumour, this is always connected by a canal with the ventricle. If actual brain tissue be absent, the inner surface of the sac is covered by a thin layer of nerve tissue. It is not certain whether the tumour formation or the bony defect is primary. In any case the disease commences before ossification of the membranous skull.

T. Harrison Butler.


(4) The operation for the removal of this bullet, 0.38 calibre, which had been lodged ten years in the orbit, was undertaken on account of constant headache and irritability of temper, with ptosis and convergent strabismus. Radiograms showed that the bullet, which had entered at the temple, had stopped at the upper part of the orbit about two-thirds of the way back from the margin. The bullet turned point downward and the upper part was embedded in the bone. An incision was made at the external orbital margin, similar to the anterior part of a Kronlein incision and the periosteum of the orbit was separated with nasal submucous elevators back towards the apex, keeping well in the superior part of the orbit. A solid bony obstruction was encountered above and to the nasal side and back of the eyeball. A Metzenbaum nasal retractor, which is soft and pliable, was shaped to conform to the eyeball, and the periosteum with the eyeball was drawn in and down and forward as far as possible, exposing the field “to a surprising extent.” The bony obstruction was chiselled away leaving the bullet exposed. The latter was very tightly embedded, and the getting of it into position for removal was the only difficult part of the operation. There was prompt recovery with entire relief of pain, but the ptosis and squint persisted until relieved by operation later on. Regarding this operation the author says: “While it is hardly possible that so simple a method
of exposing the orbit for the removal of foreign bodies is original, I fail to find it recorded. If it should be considered too common to be worthy of a place in ophthalmic literature, I am certain that the use of a soft pliable retractor possesses wonderful advantages over any other kind, and this one feature alone is worthy of merit and justifies me in calling attention to it."

Ernest Thomson.


(5) This condition according to Drs. Benedict and Knight would appear to be rare, only six cases having been reported since the publication of Birch-Hirschfeld's paper in 1910. It is characterized by limitation of mobility of the eye, proptosis, usually with lateral displacement, swelling of the lids and increase in the bulk of the retrobulbar tissues. Though focal infections can generally be found, the patient is not usually suffering from them and the absence of fever, leucocytosis and local pain differentiates the condition from the common inflammatory orbital processes.

There are six cases reported and in all of them the syndrome of benign or malignant tumour was present. Apart from pathological examination of the orbital contents, the differential diagnosis of pseudo from real tumour of the orbit would not seem possible. In one case, for instance, a radiograph of the orbit revealed destruction and some repair of bone in the region involved. Indeed the authors themselves state in the early part of their paper that the onset is slow, whereas later on, they say "the disease was sudden in onset or there was exacerbation of symptoms in most cases."

The aetiology of the condition is not known. Some cases may be due to recurrent haemorrhages of unknown origin stimulating the formation of fibrous tissue, and one of the reported cases agreed with this hypothesis.

In general, however, the findings were in accord with what one would expect in chronic inflammatory change. In the cases of long duration there was a ring of plasma cells and the tissue was studded with groups of lymphocytes resembling follicles. In cases where symptoms had been present a relatively short time, plasma cells were absent and polymorphonuclears with in some cases, eosinophiles, were present in considerable number.

The condition is possibly not so rare as the authors would think. The writer of this abstract had submitted to him a short time ago the contents of an orbit which had been exenterated under the impression that it contained a tumour. Pathological
examination failed to reveal any signs of a neoplasm, and demonstrated the presence of chronic inflammatory changes. In a second case where an eye was excised on account of a supposed intraocular tumour, the mass inside the eye was found to consist of a blood clot which had become largely organized into fibrous tissue. There was also an extraocular mass of fibrous tissue, formed in the same manner. Had this case been allowed to go on, it would have formed—in all probability—one of the haemorrhagic type of pseudo-tumour.

F. A. WILLIAMSON-NOBLE.

VII.—PERIMETRY AND VISUAL FIELDS


(1) Walker, of Boston, describes his somewhat elaborate arrangements for perimetry in his neurological clinic. The perimeter is suspended from a crane and can be moved vertically or horizontally, rotated and tilted to suit the requirements of a patient in bed or in a reclining or upright chair.

The illuminating device consisting of sixteen frosted electric light bulbs arranged in horseshoe form is hinged to a sliding sleeve on the upright portion of the crane and can also be raised or lowered and tilted so as to conform to the position of the patient and perimeter.

He has also devised a portable Bjerrum screen which is mounted on a frame made of 3/4 inch pipe having 18 inch projections at the bottom to give it a firm upright position. The same illuminating arrangement is used to light up the screen.

J. JAMESON EVANS.


(2) Peter first premises the advisability of obtaining a standard of illumination as near to daylight as possible. With this all will agree. The cost of installation of arrangements to give the nearest approach to daylight is an important item. An absorbing screen, from the standpoint of economy and efficiency, has proved the most practical method of obtaining artificial daylight. The author has been well satisfied with the Corning "Daylite" screen, made by
the Corning Glass Works, of Corning, N.Y. The only objection to the use of such screens is that the light furnishes only 15 per cent. of efficiency, the balance being absorbed by the filter which reduces the blue, red and yellow to normal daylight values.

ERNEST THOMSON.


(3) Conlon gives an account of a case of bitemporal hemianopsia in a man of 26. When first seen there was some swelling of both upper lids and tenderness on pressure of the left eyeball. Vision R. 20/30, L. 20/60. Right fundus normal, left disc slightly hyperaemic. No central scotoma. His previous history was unimportant and he had complained of headache for three days only. Rhinological examination showed a deviated septum with some enlargement of lower turbinates. Two days later there was an absolute central scotoma in the left eye and vision was only 2/60. The left disc was swollen 2 D. and the right disc looked a little engorged. The right field was full and vision normal. Radioscopy showed no affection of the sinuses. Three days later vision in right was only 6/200 and in left fingers at three feet. Operation was proposed but not accepted. During the following week the vision in both eyes fell to finger counting at two feet and both discs showed neuritis. Some pus was now found in left middle meatus. The nasal septum was now submucously resected and the posterior ethmoid and sphenoid exenterated. There was an acute inflammation of the cells on both sides. A fortnight later vision was 20/100 in each eye. The visual fields showed a typical bitemporal hemianopsia with the dividing line vertical. Ten days later the fields showed considerable improvement, the white field now showing only a large scotoma in connection with the blind spot, but colour perception was not recovered for several months and then was a little defective. Seven months later the vision in both eyes with correction was normal. The discs were then greyish white and the fields showed concentric contraction for white and colours with some enlargement of the blind spot.

As a bitemporal hemianopsia of this type can only arise from a lesion of the chiasma the author points out that his case supports Traquair's views as to the correct anatomical position of the chiasma as opposed to the usual statement of the text books.

A bibliography of some value and illustrations of the field accompany the paper.

E. E. H.
(4) Fradkine, S. (French Army).—Two cases of non-hysterical concentric contraction of the visual field. (Deux cas de rétrécissement concentrique du champ visuel non-hystériques.) La Clin. Ophtal., March, 1919.

Fradkine draws attention to the necessity for not labelling as hysterical every case of concentric contraction of the fields without ocular lesion. He gives the histories of two cases in detail. The first case had apparently concentric contraction in one eye only and was soon proved to be a mere liar. When exposed he at once returned to his army work. The second case had bilateral concentric contraction with absolutely no fundus appearances to account for it. The man was not malingering, and could not be "caught out." He had symptoms of retinal asthenopia and was incapable of any sustained visual effort. All eye conditions to account for the symptoms having been investigated and ruled out, the patient was sent to the neuro-psychiatric department of the medical service. It was then reported after investigation of the urine, Wassermann test and examination of the cerebro-spinal fluid, that the patient was suffering from a chronic meningitic condition (état méningé fruste), of six months' duration, possibly due to influenza. After mentioning various theories as to how the meningeal affection acts in producing the symptoms in such cases as this, Fradkine supposes that sometimes a papillitis is produced and sometimes a simple compression and inhibition of certain fibres of the optic nerve not detectable with the ophthalmoscope. In the latter case it is not the retina but the conducting axis cylinder which is at fault. The diminution of visual acuity and the concentric contraction of the peripheral field constitute a sign of transitory papillary stasis dependent on the meningeal state.

Ernest Thomson.


The title of Sauvineau's article gives principal place to early diagnosis of hypophyseal tumours, but the results of treatment by X-rays—not mentioned in the title—seem about equally important. The patient was an unmarried woman aged 40 years who consulted Chauvineau for almost complete loss of vision of the left eye. She made no complaint of the right eye and therefore there was nothing in her statement suggesting hemianopia. When Chauvineau found that there was optic atrophy (grey-white without signs of neuritis) of both eyes, that there was divergent strabismus of the left eye of
paralytic type and that, with this there was equality and activity of the pupils which pointed away from tabes: and when also the patient stated that for two months her hands and feet had been becoming thickened while her face had increased in size and that there was amenorrhoea, he expected to find bitemporal hemianopia, and he did, including the hemianopic pupil reaction. At this time the V.A. of the right eye was 4/10 and of the left 1/50. There was nothing further to note in the bodily or mental health and the Wassermann reaction was definitely negative. The patient was treated by pituitary extract for a month but the vision continued to fall. At this time radiography (which had been unavoidably delayed) revealed an enlarged sella turcica, the enlargement being especially in the antero-posterior direction. Radiotherapy was decided upon, one séance per week. At the end of seven weeks the vision had improved to R.E. 7/10; L.E. 1/37, and there was slight "recolouration" of the disc. Next, the catamenia reappeared and the face became smaller while the vision of right and left eyes improved to 8/10 and 1/25 respectively. This was at the end of 18 weeks and 18 séances. The patient felt solid on her feet and stated she had experienced a "resurrection." After 23 weeks and séances the visual fields had slightly enlarged. There were 27 X-ray séances in weekly series, after which they were stopped. Two years after the patient was first seen by Sauvineau the right V. was 8/10 and the left 1/37 but there was no change in the fields. The patient had recommenced her occupations. The X-ray treatment had caused no inconvenience other than a slight loss of hair at the temples.

Chauvineau's article is illustrated by a reproduction of the radiogram, and, in general, contains a full account of a very instructive case.

ERNEST THOMSON.


(6) History, W. R., 30 years old, a miner. Good health previously. Headaches three months getting worse. Deterioration of vision in left eye for three weeks, and shortly after in the right eye.


Ophthalmological Examination. Papilloedema both sides, swelling 3D, V. L.E.—fingers at 1/3 metre, V. R.E.—1/2.
Movements free, R.E.—proptosed 3 mm. in front of L.E. Pupils show a hemianopic type of light reaction.

Fields, R.E. A semi-circular area of vision remains in the temporal half, the boundary of which is the 20° circle. The vertical dividing line is sharply marked off, and spreads only 2° to the inner side of the fixation point.

L.E. A similar but smaller semi-circle in the temporal half, bounded by the 10° circle and the vertical meridian. X-ray shows considerable widening of sella turcica.

Diagnosis. Tumour in region of hypophysis with proliferation into right orbit through the sphenoidal fissure. Forward growth of the tumour has pushed the chiasma forwards causing damage to its front portion and lateral angles, thus producing the field changes described.

F. A. WILLIAMSON-NOBLE.

BOOK NOTICES


In the preface Mr. Alexander tells us that he has made "simplicity the primary consideration," and nothing could be simpler than his method of obtaining the formula for refraction at a single spherical surface. It is all that is required for his purpose, and deserves the highest praise. But his use of symbols is confusing: the index of refraction is denoted by the usual symbol in the figures, but in the text it is denoted by $u$, which in mathematics is used for a variable such as a velocity; if Greek letters are shunned $n$ is the symbol employed for this constant. On p. 2 the capital I is a point, the conjugate of the point O, but seven lines lower down I is the angle of incidence; small English letters $c$, $d$, and $e$ denote other angles, yet $o$, $i$, and $r$ are used for distances. There is no reason why the ordinary conventions prevalent in mathematical books should not be followed; it is usual to use Greek letters, or the first three or four English capital letters for angles, and $p$ and $q$ for the distances of the object and image to the principal plane. These points though trivial should be noted for later editions. No explanation of the difference between the first and second focal distances is given, and the number of formulae to be memorized is far too great.

It is most important to reduce this number as far as possible;