I.—COLOUR VISION


Dufour reports a case of a laboratory assistant who was colour-blind, who by much perseverance was able, with the help of colour filters, to reproduce with paints a coloured drawing almost perfectly. A preliminary attempt, made with the naked eye, is reproduced and shows confusion of reds and greens, whereas the painting produced with the help of colour filters is almost exactly like the original. The filters used were of common coloured glass, red, green, yellow, and blue. The colours of the original painting were studied and compared with the pigments used with the help of the colour filters. The principle is clear when it is understood that to a colour-blind person, who confuses reds and greens, the colour red will appear darker than the colour green when viewed through a green filter and vice versa. The coloured reproduction should be examined, in order to convince one that it is possible for a colour-blind person to reproduce delicate differences of shade, and tint of colour.

Humphrey Neame.

(2) (a) Verrey, A. (Lausanne).—Some further notes on the examination for colour perception in connection with the (Swiss) Federal railways. (Quelques notes encore sur l'examen de la perception des couleurs et les chemins de fer fédéraux.) Rev. gen. d'Ophtal., April, 1926.

(b) Koby, F. E. (Bâle).—A note on a new anomaloscope. (Note sur un nouvel anomaloscope.) Rev. gen. d'Ophtal., April, 1926.

These two articles, by Verrey and Koby respectively, hang together. In the first, certain details in the use of the anomaloscope, the apparatus selected for the investigation of colour vision on the Swiss railways, are considered, while in the second a description is given of a new anomaloscope based on the same principle as that of Nagel's well-known instrument. The latter it may be recalled depends upon the comparison of two adjacent zones of colour, one being, for instance, sodium-yellow and the other a variable mixture of thallium-green and lithium-red. By means of a prismatic arrangement these two regions of colour may be equalized by the candidate or examinee. On the mixture of colours
which the candidate selects to render the colours of the two zones equal in his opinion, depends the estimation of his colour normality or otherwise.

Ernest Thomson.


(3) In this article, complementary to the one published in the April, 1926, number of the Rev. gén. d'Ophthal., Verrey considers the making of a diagnosis of the species of colour defect by means of the anomaloscope. The article is one which should be read in the original by those interested in this instrument—which is probably in much greater use on the Continent of Europe than in this country.

II.—OPTICS AND REFRACTION

(1) Levinsohn, Prof. G. (Berlin).—Notes on the genesis of myopia. Arch. of Ophthal., September, 1925.

(1) Levinsohn brings forward an interesting theory with regard to the causation of myopia. In the first place he discards the idea that it is due to increase of intraocular pressure caused by convergence or accommodation for two reasons: (1) That experiment has failed to show any increase of pressure under these conditions; (2) that the lamina cribrosa is not cupped in myopes although it is the weakest part of the ocular tunic and should therefore be the first to yield to any increase of pressure. He is of opinion that it is the bending of the head and body which is responsible for the condition and brings forward the following reasons: (1) With the head bent forward, congestion and gravity tend to draw the eyeball out of the orbit. As the eyeball essentially represents an extensible bag filled with water, an extension of the ball must be the result of the above-named movement; (2) "the pulling of the external coat will naturally work on the place where the eye is fastened to the optic nerve." As the optic nerve runs from the nasal to the temporal side, the gravity of the eyeball mobilizes forces which (a) cause an extension of the eye in the sagittal direction; (b) affect the temporal margin of the optic nerve; and (c) tend to displace the nerve entrance to the nasal side thus forming the myopic crescent, etc. The extensibility of
the muscles is too great to allow them to work effectively against the falling forward of the eye. Now Weiss has shown that the nerve is straight during convergence, and can therefore exert this pulling effect. In proof of these suppositions, the author states that an artificial myopia can be produced in monkeys by maintaining the sagittal axis of the eyes in a vertical position, over a period of several months. The concluding paragraph of the paper is: "the proof that in cases of myopia the extension of the eye is caused chiefly by the bending of the body and the head, is so clear that it is high time to draw the obviously important hygienic conclusions from this fact."

F. A. Williamson-Noble.


In this paper Müller takes up a new attitude towards the development of myopia. His chief thesis is that all myopia is preceded by a divergence of the optic axes, this divergence being caused by an abnormality in the formation of the orbits, which results in a pressure plane developing between the two oblique muscles. He points out that the superior oblique, from the trochlea to its insertion on the globe, forms a definite tendinous band which must press upon the globe, especially when the inferior oblique is acting at the same time. He maintains that these two muscles are brought into strong action in the convergence necessary for near work, and that it is this pressure which is the main cause of the development of myopia.

He reports many cases of the higher degrees of myopia in which fundus changes were developed, which he treats by a tenotomy of the oblique muscles, and maintains that he has not only seen a diminution in the extent of the myopia, but also an improvement in the macular changes, and an increase in the visual acuity.

This paper gives no description of the operations used, nor of the exact kind of cases which he would regard as suitable, but he promises a complete description in some ophthalmological journal.

A. H. Levy.

(3) Sedan, Jean (Marseille).—A note on the action of homatropin in the severe progressive myopia of childhood. (Note sur l'action de l'homatropine dans les myopies graves progressives de l'enfance. La Clin. Ophtal., April, 1926.

Sedan refers graphically to the number of "sterilized intellects" brought about by inability to see and understand by

The aim of Duane's paper is to emphasize certain clinical facts which invalidate the correctness of deductions from the theory of Helmholtz. The theory states that the action of the ciliary muscle is to relax the suspensory ligament of the lens, allowing the latter to expand by reason of its own elasticity. The elasticity diminishes throughout life but the contractile power of the ciliary muscle, it is believed, remains fairly constant. In other words the physical accommodation shown by the number of dioptres of manifest accommodation, continually diminishes, while the number of myodioptries or amount of ciliary energy, remains the same. Now consider three subjects, aged respectively, ten, thirty-two, and forty-five years. Each has at his disposal 18 or 20 myodioptries. The boy, aged ten years, when urged to the utmost effort can use 16 or 17 of these, and has, therefore, only two or three latent. The man of thirty-two, can at his utmost exert 9D. of accommodation so has at least 9D. latent, and the man of forty-five can exert only 3 or 4D., and thus has some 15D. latent. The boy, when using 16D. of accommodation is working near the limit of his muscular power, while the men, when accommodating to their utmost, are well within the limit. In the latter, therefore, there should never be an inability to accommodate to their manifest maximum. It is found by experiment, however, that the accommodation power fluctuates rather considerably from time to time in middle-aged subjects and

Ernest Thomson.
not much in children. Again, the effect of homatropin is to produce a gradual paresis of the ciliary muscle which usually takes an hour or more to become complete. The greater the number of latent myodioptres, the longer it should take for the production of any change in the accommodation power. It is found in practice, however, that the effect of homatropin is more quickly manifest in, say, a man of forty than in a boy of ten. These facts are inexplicable on the Helmholtz theory unless one assumes that the ciliary energy diminishes with age, and proportionally with the manifest accommodation.

If the ciliary energy be supposed to remain constant throughout life, we have to assume—from the result of experiments—that a man of 45 loses 86 per cent. of his total ciliary energy within fifteen minutes of the instillation of homatropin while a twelve-year-old girl in the same time loses only about 20 per cent. The discrepancy vanishes entirely if the power of the ciliary muscle be considered as diminishing pari passu with the manifest accommodation. An alternative explanation is afforded by Tscherning’s theory, where accommodation is said to be due to active compression of the lens, so that, the harder the lens the greater the ciliary energy required to produce a given alteration in its curvature.

F. A. Williamson-Noble.


(6) Kapuscinski contributes some personal experiments on the vexed question of the possibility of unequal accommodation in the two eyes. Donders, Hering, Schweigger, and von Graefe have denied it, while v. Hess has written strongly in the same sense. Fick and others have concluded that unequal accommodation can take place. The author of this article has devised an experimental method (which should be read about in the original) and seems to conclude that it is possible to make an individual accommodative effort with each eye, but that the process is by no means pleasant, leading to lacrimation, pain in the eyes, and headache. His experiments on himself do not touch the problem of anisometropia, but he does not think it probable that in this condition individual accommodation takes place in view of the very great difficulty of interfering with the liaison of the two accommodative mechanisms.

Ernest Thomson.
(6) Clarke, Ernest (London).—The eye as an index to age. 
The Practitioner, April, 1924.

Ernest Clarke's paper is based on about 10,000 records of
the accommodative power of patients: "Care was taken to exclude
all cases where disease was present in the eyes, and when vision
was worse than 6/9, and all had binocular vision."

The distance correction in everyone under 45 was worked out
under a cycloplegic and in consequence, the amplitude of
accommodation in these patients was found to be higher than in
Donders' series, where latent hypermetropia was not excluded.
It is interesting to note that the results in myopes are the same as
in hypermetropes, which proves that it is the changes in the lens
and not in the ciliary muscle which are responsible for diminution
in power of accommodation. Clarke regards defective accommoda-
tion as an important index of premature senility, and finds that it is
frequently associated with arterio-sclerosis, premature grey hair,
and arcus senilis. While admitting the importance of alimentary
toxaemia in bringing about this condition he has "not the least
doubt that one of the causes is eyestrain." A man of 50 whose
accommodative power and general appearance show him to be
really 67 or 68, can by wearing a suitable pair of bifocal glasses
and attending to his general health retard the sclerosis of his lens
so that ten years later he may be only a year or two older in
reality. Thus premature ageing of a patient indicated by lowered
power of accommodation may be the first and only sign that some-
ting is wrong, and becomes a valuable guide and danger signal.

F. A. Williamson-Noble.

(7) Landolt, Marc (Paris).—The visual axes in fish. (Les axes
visuels des Poissons.) Arch. d'Ophtal., January, 1925.

In his remarkable work on "accommodation in the eyes of
fish," published in Pflüger's Archives in 1894, Beer advances his
hypothesis as to the way in which this is effected. Landolt dis-
cusses the question and, believing that Beer's explanation is
incorrect, suggests another which in his view is more probable.
No proof of the truth of either can be adduced. In this short
paper Landolt reproduces some of Beer's original illustrations and
they help the reader materially. The lens in fish is approximately
spherical, and accommodation by alteration of its curvature is
impossible. Accommodation is effected by displacement of the
crystalline lens backwards towards the retina. The process is the
converse of that occurring in animals who live in air; instead of
focusing for near objects an eye adapted for distance, accommodation
in fishes focuses for distance an eye which is myopic when
at rest. The retraction of the lens during accommodation is not
directly backwards, it is also drawn to the temporal side. In Beer’s opinion the lateral displacement of the lens renders possible the focusing of rays reaching the eye in different axes, on the central portion of the retina, the situation, he thought, of a centre for orientation. Landolt suggests that this is an erroneous hypothesis. He argues that when the lens is displaced laterally the rays reaching the eye in one axis only are undeflected: they pass through the displaced lens and are brought to a focus on a part of the retina situated far on the temporal side. The image formed here enables the fish to become cognizant of objects directly in front, the position in which it is most important for the animal to see, for both commissariat and defensive purposes. The opposing hypotheses are readily intelligible by the aid of the illustrations reproduced from Beer’s original paper.

J. B. Lawford.


Although it has been known for many years that chronic irritation plays a part in the localization of malignancy, little attention has been called to the mechanical injury caused by spectacles. Morton has reported three cases of basal-cell cancer caused by ill-fitting spectacles on the temples or behind the ear. They were all cured by the application of radium.

A. F. MacCallan.

### III.—PATHOLOGY


This article is supplementary to a paper written by Fuchs some twenty years ago in which he first proposed the term endophthalmitis: he here confines his observations to inflammation of the ciliary body, and shows from a study of enucleated eyes how its situation varies according to the point of origin of the active toxins.

The inflammatory changes in the ciliary body are classified into three groups:

1. Where the ciliary body is affected throughout.
(2) The ciliary processes are either exclusively or mainly the site of inflammation.

(3) The orbiculus shows greater changes than the ciliary processes, which often escape entirely.

Group (1) comprises the majority of the eyes with acute endophthalmitis that come to enucleation, because, even in the cases where the inflammation involves only a part of the ciliary body, it ultimately invades the whole as it increases in intensity. Among the eyes that are excised for a past endophthalmitis the greater number are those in which the remains of the inflammation affect only the anterior, or the posterior, portion of the ciliary body of this class. The cases forming group (2) are the least numerous. In them the inflammation is due to toxins coming from the region of the anterior chamber. These toxins can pass into the posterior chamber only through the pupil, which forms a mechanical obstacle to the diffusion backwards even when there are no posterior synechiae, while another obstacle is provided by the flow of aqueous from behind forwards. In the posterior chamber the inflammatory exudation diminishes when traced from before backwards because the further diffusion of the toxins backwards is rendered more difficult by the diminished size of the orbicular space and the closer union between the vitreous and ciliary body. In cases of corneal ulcer the anterior chamber is always the starting point of the toxins, but Fuchs shows why this does not hold good in the majority of perforating wounds of the cornea.

Two examples are cited showing the action of copper salts from aseptic foreign bodies on the ciliary body—a proliferation, rather than inflammation, in the orbiculus more than in the ciliary processes—an action the reverse of that seen in septic cases.

Group (3)—In traumatic cases the foreign bodies infect the vitreous where the toxins are generated. These spread to the most superficial layers of the vitreous and thence pass readily into the orbiculus owing to the intimate union of the vitreous and the orbiculus posteriorly.

The anterior surface of the iris is, as a rule, affected simultaneously with the orbiculus even though the ciliary processes are not involved, but apparently independently, due to the fact that the endothelial layer of the anterior surface affords less protection than the double layer over the posterior surface and the ciliary processes.

Only in exceptional cases of metastatic ophthalmitis where the embolism has occurred in the posterior part of the retina or choroid, is the orbiculus alone affected: the inflammation is usually so intense that the whole ciliary body is involved.

THOS. SNOWBALL.
(2) Landman, Dr. Otto (Toledo, Ohio).—A case of tubercular irido-cyclitis with fatty degeneration and infiltration of the anterior segment of the eye. Arch. of Ophthal., May, 1925.

(2) Landman's paper concerns the pathological investigation of an eye excised for tuberculous irido-cyclitis. A special technique with Sudan III was used in order to show fatty changes (Klin. Monatsbl. f. Augenheilk., 1918, Vol. II, p. 556). These were of two varieties, infiltration and degeneration.

The lamellae of the cornea were in a state of fatty degeneration many of them resembling strings of minute corals. The corneal corpuscles were absent in the parts most affected. Descemet's membrane was deeply stained, also Bowman's, which was split up in parts into red blocks. The iris was infiltrated with masses of fat and fat cells, especially in its anterior portion. The angle of the anterior chamber in the lower two-fifths of its circumference was blocked with fibrinous exudate and large areas of this had undergone fatty degeneration. Fat was found in the ciliary body in less quantity than in the iris, and the anterior part of the sclera showed fatty infiltration and degeneration.

F. A. Williamson-Noble.


(3) Aland's paper provides a useful summary of the current views about this disease. After a description of the usual clinical manifestations, the author considers eight separate views set forward as to aetiology: (1) That it is staphylococcal, because of the frequent presence of these organisms. (2) That it is due to intestinal intoxication and entry into the circulation of bacteria or their toxins from the alimentary canal, because of: (a) the frequency of gastro-intestinal derangements in phlyctenular patients; (b) the improvement of the eye disease after treating these derangements; (c) the frequency with which indicanuria is present in this disease. (3) That it is tuberculous. von Pirquet's reaction is positive in 67-92 per cent. of cases and Verhoeff suggests that the negative reactions can be explained on an anaphylactic basis—the patient being in a so-called refractory stage and failing to react to tuberculin at the time of the examination. Sixty-five per cent. of cases have been reported as cured by tuberculin. The incidence of tubercle is very high in all children, and reaches 70 per cent. in autopsies performed at the age of 14 years. (4) That it is an expression of vagus irritability produced by some toxic agent resulting from excess of carbohydrate in the diet. Evidence in favour of this is, that the best and quickest therapeutic results are obtained by a carbohydrate-free diet and the topical and
Disease of Eyelids

Internal use of atropin. (5) That it is due to naso-pharyngeal sepsis since the disease rapidly clears up on the removal of diseased tonsils, etc. (6) That it bears a close relationship to eczema. (7) That it is due in many cases to the exanthemata. (8) That it is often due to pediculosis capitis. The author concludes that the commonest cause is tuberculous toxaemia, the next commonest being intestinal intoxication.

F. A. Williamson-Noble.

IV.—DISEASE OF EYELIDS


A peasant woman, aged 53 years, who had been suffering from an eye condition for seven weeks previously, contracted a double purulent ophthalmia through bathing her eyes in her own urine. She received the ordinary treatment for this condition, which was carried out in a small provincial hospital. Perforation of both corneae had taken place. This occurred, Botteri states, on the third day and after this the eyes were bandaged for twelve days.

Present Condition of the Eyes.—An apparent ptosis on both sides. Trachomatous scars and follicles, and the tarsus thickened and bent like a bow. The upper tarsal margin of both upper lids is connected with the upper two-thirds of the cornea by a strong fibrous band. When she looks down the upper lids are partly everted by this band. The visible part of the cornea is dull. Pannus is present. The right cornea is flattened while the left is enlarged. Both anterior chambers are shallow and there is an atrophy of the iris. Tension in the right is +1, in the left it is -1. Vision amounts to hand movements. Scrapings give a negative result. Operative treatment carried out, consisted in an optical iridectomy in the right eye, and a sclerotomy in the left. Neither had any effect on either the vision or the tension.

Cause of the Symblepharon.—This was due to the immobilization of both eyes, the corneal ulceration, and the swelling of the tarsal conjunctiva with the trachoma, and the fresh gonorrhoeal infection.

There are very few such cases reported in the literature on the subject.

S. Spence Meighan.
(2) Demetriavis (Egypt).—The treatment of ulcerative blepharitis by local vaccination with the broth-vaccines of Besredka. (Traitement des blépharites ulcéreuses par la vaccination locale au moyen des bouillons vaccines de Besredka.) La Clin. Ophtal., May, 1926.

(2) It is notoriously difficult to make a readable abstract on a subject with which one is insufficiently acquainted. One may fail to supply a missing link in Demetriavis's chain of argument or statement, a link which would be readily supplied by one with full knowledge. These apologetic remarks have reference to what seems an important article by the author on the local use of the "bouillon vaccines" of Besredka. It appears that the former had under his care a very rebellious case of ulcerative blepharitis and "having received some bouillon vaccine prepared according to the method of Besredka" he employed it locally with immediate effect. But the missing link is the precise nature of the vaccine, though, from the context one must assume it to be staphylococcic. This is what the author says of these vaccines: "The basis of the discovery is this. A culture broth, of staphylococcus for instance, sterilized and freed of the staphylococci which have been cultivated in it, may be still suitable for the cultivation of other microbes. But the staphylococcus will not grow in it. An antivirus is formed in it which hinders the growth and development of that organism. Besredka to whom we owe this happy discovery, had the idea of making practical use of this hitherto unknown property of culture broths. He made broth vaccines for local dressings. In applying this broth-vaccine to a staphylococcic wound he noticed "... that microbes of the same stock died rapidly on contact with this solution and consequently infection ceased suddenly and rapid healing of the wound was brought about." Demetriavis is careful to point out that many failures have taken place with this method and that these failures have not been due to fault on the part of the vaccine but to the fact that the microbe was not of the same stock as the microbe from which the vaccine had been prepared.

ERNST THOMSON.

(3) Gallemaerts, V., and de Arric, le F.—A severe case of malignant pustule of the eyelid cured by specific treatment. (Un cas grave de pustule maligne des paupières guéri par le traitement spécifique.) Ann. d'Ocul., Vol. CLXII, p. 401, 1925.

(3) The case reported by Gallemaerts and de Arric is of a man, aged 23 years, in whom a cure was effected of a severe malignant pustule of the lower eyelid with extreme oedema of the face and submaxillary regions, in the main by specific serum
from the Pasteur Institute of Paris. Pending the receipt of the serum from Paris, a dose of 90 centigrammes of neosalvarsan was given, but without apparent effect. Within thirty-six hours of the administration of the first dose of serum, definite improvement was obvious. The serum was administered partly subcutaneously but for the greater part by the intravenous route. In all 600 c.c. were given. The temperature rose during the course of the disease to a maximum of 104.4° F., and the pulse to 130 per minute at the height of the illness. Swallowing was extremely difficult.

A fairly extensive consideration is given to recent literature upon the subject of methods of treatment, and a comparison is made. The conclusion is reached, without the least doubt in the mind of the author, treatment by specific serotherapy surpasses that of intravenous neosalvarsan injection, cauterization or excision.

HUMPHREY NEAME.

(4) Green, John (St. Louis, Mo.).—Orbital cellulitis following hordeolum. Amer. Jl. of Ophthal., January, 1926.

(4) Green’s case was that of a physician, aged 27 years, who had a stye in the right lower lid, which he (the patient) opened with a gold hypodermic needle, previously “flamed.” The next day three more styes appeared, and two days later there were proptosis, pain and fever, which went on to typical orbital cellulitis with diminution of vision and oedema of the retina. A free canthotomy was performed and the orbit opened up, a considerable quantity of pus and necrotic material being removed. Cultures showed the presence of staphylococcus aureus. Next day the patient’s condition was worse, so curvilinear incisions were made freely through the upper and lower lids, and were packed with rubber tissue, stuffed with gauze, fomentations being applied. The condition slowly improved and a month later the exophthalmos had almost subsided. Vision, however, was reduced to perception of light, the disc being as white as porcelain and the arteries reduced to mere threads. This was probably due to thrombosis following an acute inflammation of the central artery of the retina due to spread from the orbital cellulitis. The author lays stress on the importance of wide incisions through the lids in cases where the cellulitis is diffuse or there is no certainty as to the location of pus pockets. In the upper lid care must be taken not to divide the levator. This can easily be avoided in the upper lid if the incisions are made into the orbital fat each side of the tendon about 1 cm. from the eyebrow.

F. A. WILLIAMSON-NOBLE.

Pavia describes a case of a patient with pulmonary tuberculosis who showed a marked tuberculous follicular conjunctivitis. In the tarsal region there were discrete, yellowish-white oval nodules underneath the epithelium, 15 on one side and 3 on the other. A piece was excised and microscopic examination showed the typical epithelioid and lymphocytic infiltration of tubercle with giant cell systems and massive disorganization. The changes involved both the periglandular tissue and the substance of the glands themselves. A small chalazion showed similar changes.

W. S. Duke-Elder.

V.—MISCELLANEOUS


Icove aims at producing anaesthesia by permeation of novocain into the ciliary ganglion, and into the long ciliary nerves. The ganglion, placed between the external rectus and the optic nerve, some 15 millimetres behind the eyeball, is best reached from the temporal side. The technique is as follows:—An ordinary syringe is used with a needle 5 cm. long and of number 22 gauge. The skin of the lower lid is painted with iodine and punctured with the needle at the junction of the lower and outer parts of the orbit, the needle being passed on, between the external and inferior recti. The point must be directed slightly upward and inwards, to avoid striking the floor of the orbit, and is passed in as far as it will go. The syringe is emptied before withdrawing the needle. The best solution is 4 per cent. novocain, with a slight amount of adrenalin. The amount given varies with the type of case. Cataracts require 0.4 c.c. given three-quarters of an hour before operation. Glaucomas, chronic, the same as for cataract: acute, 3 c.c. given at least an hour before; enucleations, 3-4 c.c. three-quarters of an hour before; while 0.5 c.c. suffices to make a subconjunctival injection painless. The conjunctiva being innervated by the supraorbital, supratrochlear, lacrimal and infraorbital nerves is not anaesthetized by the injection, and requires the instillation of cocain or a subconjunctival injection of novocain if the operation involves cutting of this membrane. The method has been tried in strabismus but gave only partial anaesthesia.

F. A. Williamson-Noble.
(2) Gérard, Georges (Lille).—A case of subconjunctival fat hernia associated with slight exophthalmia in a fat individual. (A propos d’un cas de hernie graisseuse sous-conjonctivale avec légère exophtalmie chez un obèse.) La Clin. Ophtal., March, 1926.

(2) One is inclined to gather that Gérard’s case was at first supposed to be a subconjunctival lipoma or lipodermoid, and that the operation corrected the diagnosis to hernia of the orbital fat. The description of the patient permits the reader to visualize his extreme stoutness. For more than two months he had been troubled with a little tumour of the conjunctiva. It was of the size of a large almond but visible only on looking inwards, being hidden under the outer canthus when looking forwards. It was triangular in shape with its base outwards (thus contrasting with lipodermoid which has its base towards the limbus). It was sessile and deeply united with the subconjunctival tissue. By its consistence and colour it appeared to be formed by the juxtaposition of fatty lobules surrounded by a conjunctival sheath. Then one has an illuminating description of the operation in which the more the surgeon dissected the more the fat appeared, until the surgeon became afraid that he would partially empty the orbit if he continued to pull upon the pedicle 8 or 10 mm. broad by which the tumour was united with the orbital fat. He finished the operation quickly and applied a firm bandage for twenty-four hours. The wound healed easily. After this Gérard goes minutely into the anatomy of the orifices at the base of the orbit through which the “periconjunctival” fat is continuous with the orbital fat, and through which also pass forward experimental injections made into the depth of the orbit and pathological infiltrations of gas, pus or blood. Considerable passages are quoted from Charpy who seems to be the principal French writer on this portion of anatomy.

Ernest Thomson.


(3) Gaston’s paper opens with a brief review of the literature on this subject. Numerous types of foreign protein have been used, the best are those the injection of which produces a considerable general systemic reaction. Petersen has pointed out that recovery as a result of this treatment, is very closely related to the degree of negative phase induced by injection of the protein. Riech concludes that “rise in temperature” increases the biological activity of the body cells, Marin Amat that the action is through the sympathetic nervous system, which acts by stimulating the production of proteolytic ferments. Fulton considers the therapeutic effect as
due to stimulation of the autonomic system and bone marrow, with increased permeability of the vascular walls causing increased leucocytic activity in the affected area, while Key believes the therapeutic effect to be produced by alteration in the activity of the whole organism rather than by direct influence on the pathological process. The most suitable substance to inject is probably whole milk which has become slightly contaminated with bacteria. The milk is boiled in a water bath for three to four minutes before use, and when it has cooled sufficiently, 10 c.c. (for an adult) are injected intraglutely. The dose is usually repeated on the second and fourth days or third and fifth days, depending on the severity of the reaction and the urgency of the case. Though not mentioned in this paper, some observers recommend that the injections should be continued until no rise of temperature is provoked. Experience shows that non-specific protein therapy exercises its most favourable effect in acute and subacute inflammations of the anterior segment of the eyeball and in gonococcal conjunctivitis. With regard to the latter, Lindner frequently noted disappearance of gonococci from the conjunctiva within thirty-six to forty-eight hours after the institution of milk injections. Various workers have reported good results in the following diseases:—acute and subacute idiopathic iritis and iridocyclitis, serpiginous ulcer, hypopyon keratitis, traumatic infections of the anterior segment of the eyeball, sympathetic ophthalmitis, keratomalacia, and for relief of pain in panophthalmitis. Particularly good results are obtained when the infection is due to staphylococcus aureus or pneumococcus.

F. A. WILLIAMSON-NOBLE.

BOOK NOTICES


The Committee upon the physiology of vision was initiated by the Medical Research Council after the British Medical Association in 1924 had forwarded to them a resolution unanimously adopted at a meeting representative of ophthalmologists from all parts of the United Kingdom. In the terms of this resolution the Association was recommended "to press strongly upon the Government