two Archiv. to keep going. If so an amalgamation is the obvious way in which to meet the difficulty. But for the Zeitschrift to change its name and country of publication appears to us to suggest that the editorial department feel that they need a freer hand in matters for publication relating to their own subject. It will be a poor day for science of every kind if methods of control are allowed to interfere with the free interchange of knowledge; for science is truly international and independent of race and creed.

ABSTRACTS

I.—MEDICAL OPHTHALMOLOGY


(1) Naffziger states that before 1931 a review of the literature showed no concurrence of opinion as to the reasons for the progressive exophthalmos occasionally seen following thyroidectomy. He then had a case in which operative treatment was successful and he was able at the same time to investigate the pathological changes involved. Since then a number of other cases have been investigated and the pathological changes have been verified by numerous observers.

"Granting that our use of the term exophthalmos is loose and inaccurate, one cannot say much more than that, after an operation for goitre, the apparent exophthalmos disappears in about one-half of the cases and lessens in an additional 15 or 20 per cent. In others it may remain unchanged, but in a few there will be progression of varying grades. This progression may continue slowly, causing no more difficulty than that involved in an unsightly appearance of the patient; progression may halt at any time and it is, fortunately, in only a very small number that it will progress to a danger point."

The cases in which operation has been performed by other surgeons together with eight of the author's make a total of 31. In this series two deaths occurred and four results were considered poor. In the author's series of eight cases the age varied from 28 to 53 years. Four were females, four males. All had marked thyrotoxicosis at some time.

Examination of pieces of tissue taken from the orbits at the time of operation proves that the ocular muscles show varying degrees of degeneration, fibrosis and cellular infiltration.
In some cases additional biopsies of muscle were taken from other parts of the body but no such changes were found in them.

Naffziger gives the case report of a man aged 39 in 1930 who complained of diplopia. Six months later exophthalmos of the left eye was noted. Enucleation became necessary. Two months later the remaining eye began to show exophthalmos, and evidence of thyrotoxicosis appeared. The basal metabolic rate was plus 24, and later in the same month thyroidectomy was performed. In January, 1932, the basal metabolic rate was plus 6. Yet the exophthalmos progressed and by September of that year vision was blurred and the optic disc was swollen 4 D., retinal haemorrhages being also present.

When admitted to hospital the basal metabolic rate was minus 13. There was great retrobulbar resistance. Exudates had appeared in the fundus and the exophthalmometer reading was 31; visual acuity, 120/200. Eye movements were limited and the field showed contraction. Operation was performed in October, 1932. There was a reduction of 4 mm. in the exophthalmometer reading while the man was still in hospital. The fundus condition rapidly cleared up and vision improved. Six years later, the patient considered the eye to be completely restored in vision and movement, although it is still more prominent than normal.

Details of the author's operation for this condition will be found in the Journal of the American Medical Association of August, 1932. Here he says: "We now remove not only the area of bone over the roof of the orbit, but carry the removal of bone lateralward into the temporal fossa and up close to the orbital rim, removing that portion of the lateral wall down to the antrum. Posterior to this, the removal of bone is continued back into the middle fossa, removing the postero-lateral portion of the orbit down to, and about, the orbital fissure. When choked discs are present, the optic foramina are unroofed."

Since he has used this extended removal of bone he has found that the immediate recession of the eyes has been much greater and post-operative hazard lessened.

A good drawing of a skull illustrates the area of bone to be removed on one side and the orbital area on the other side after the removal of bone. There are micro-photographs of the pathological changes present in the eye muscles with photos of the patient whose case is recorded at length and photos of three other patients before and after operation to show the very striking improvement he has obtained.

A bibliography of nine items concludes the paper and a short description of the discussion that followed its delivery.

R. R. J.

Whiteside’s case came to him for the purpose of being sterilized; she knew of her family history and had been told that if she bore male children they would become blind between the age of thirteen and thirty.

Her family tree contained twenty-three males who had become blind. Whiteside demanded all details of intermarriages and family names; and after thorough “investigation of the afflicted cases by consultation and correspondence, the accompanying genealogical table was produced, the summation of which would indicate that sterilization of this female patient (represented by the rosette circle in table) was contra-indicated, and that the patient could propagate ad libitum without the fear of her offspring becoming blind.”

In searching the literature he was unable to find an extensive review of a long genealogical table such as is represented here.

The condition is a problem of preventive medicine, sterilization being the only method of eradicating the condition.

In his summary the author pleads for “continued co-operation between the ophthalmologist and the surgeon as a means of eradicating the social and economic problem of this condition.”

R. R. J.


Carroll and Goodhart during one year have observed no fewer than six cases of total but temporary blindness associated with acute poisoning due to ethyl alcohol. In their paper they give a detailed account of four of these. The condition develops during a period of acute intoxication, but a necessary pre-requisite seems to be addiction to alcohol. It may also be significant that in all the six cases there was a previous history of trauma to the head.

One feature of the condition is that although the patients are totally blind, normal pupillary reactions are retained. Recovery is fairly rapid—in one case 12 hours—but may be apparently delayed by the development of hysterical blindness. The site or character of this lesion has not been determined but it is probably central. Although rare (0-05 per cent. of all instances of ethyl alcohol poisoning) the condition is important, because of the excellent prognosis which can be given, as contrasted with the poor prognosis in methyl alcohol poisoning.

F. A. W-N.

In a study of 966 diabetic patients, 195 were found by Hanum to suffer from retinitis. The highest incidence occurred in the fifth and sixth decade of life, and there was a definite relationship between the duration of the diabetes and the occurrence of retinal changes. In this series women were more prone to the affection than men, the ratio being 5:2. There was no relationship between the severity of the diabetes and the incidence of retinitis, though there seemed to be evidence that more diabetics who had received little or no insulin treatment were affected than those who were treated with insulin. Paradoxically enough it would also appear that diabetic retinitis is more common now-a-days than it was before the introduction of insulin. In discussing fundus appearances the author stresses what he calls the proliferative type, characterized by massive exudation into the vitreous and even retinal detachment. He holds that in such cases there is a loss of capillary resistance and a diminution of the ascorbic acid content of the blood. Some success by treatment with ascorbic acid, lemon juice and citrin (vitamin P) is recorded. The author could find no definite evidence of renal impairment as a factor in diabetic retinitis, nor could he substantiate the view that hypotension is an essential factor. In 28 cases of retinitis the retinal blood pressure was determined by ophthalmo-dynometry and in some 75 per cent. it was found to be raised—a finding of no clear significance. On a statistical evaluation the author concludes that diabetics with retinitis have a lower life expectation than patients not showing this complication.

Arnold Sorsby.


Feigenbaum and Rachmilewitz correlate fundus studies with medical findings in 168 patients of whom 93 were of essential (benign) hypertension type, 17 with malignant hypertension and 58 with nephritis. The fundus of the essential hypertension group showed characteristic changes of "fundus hypertonicus" in 89 per cent. consisting mainly in general reduction in calibre with arteriovenous compression; tortuosity and irregularity in calibre were present in a smaller proportion.

The 17 patients with malignant hypertension (with or without renal manifestations) presented the same alterations in the arterioles, only far more frequently and much more pronounced than in the benign hypertension group. An important and characteristic finding
in the malignant hypertension group was engorgement of the veins, retinal exudates, haemorrhages and oedema including papilloedema in many instances.

In patients with chronic nephritis the predominant feature was general arterial constriction while the other arteriolo-sclerotic changes characteristic of non-nephritic hypertension as well as venous hyperaemia were insignificant. This essential difference between the nephritic and the non-nephritic type may serve as a basis for differentiation between the two groups even in the advanced stage of the so-called "retinitis albuminurica," and may at the same time indicate a different pathogenesis. The correct term for "albuminuric retinitis" of the malignant type should be "arteriolo-sclerotic retinopathy."

ARNOLD SORSBY.


(6) Bangerter reports on the case of a girl, aged 11 years, suffering from diabetes and showing cataract in both eyes. The cataract was punctate in appearance, but scattered throughout the lens, most marked in the sub-capsular area. There was also a flat cloud-like opacity at the posterior pole containing glistening dots. Attention is drawn to a similar case published by Nobécourt, and it is argued that in addition to the classical sub-capsular type there is this other form of diabetic cataract affecting the lens diffusely.

ARNOLD SORSBY.


(7) Jancke describes several cases of congested retina resembling "cyanosis retinae," but associated with emphysema and enlargement of the right side of the heart, rather than with polycythæmia. He notes the interesting fact that papilloedema may occur secondarily to venous congestion.

D. R. CAMPBELL.


(8) In recent years research has been made into the condition of the circulation in the optic nerve in the various forms of optic
atrophy. It is known that in some cases vision is preserved in glaucoma even when the intra-ocular pressure is high. Orzalesi suggests that this may be correlated with high tension in the retinal arteries; on the other hand that tabetic atrophy may to some extent depend on low retinal arterial pressure. The way in which intoxication leads to amblyopia is not known; it has been suggested that the toxic material acts on the ganglion cells and their axis cylinders directly; others have assumed some alteration of the blood supply; the author has examined the arterial pressure in a number of these cases and finds that in the majority there is low arterial pressure, but holds that this cannot be the sole cause of the atrophy though it may be an adjuvant.

HAROLD GRIMSDALE.


(9) Pringle, in discussing the diagnosis as to whether the case is one of extra or subdural haemorrhage, states that personally he has not derived much assistance from the state of the pupils, and that their significance as a test loses value from its uncertainty. Nor did he find that an examination of the fundi in these cases assisted in any special degree.

The author, however, is emphatic in his praise of the value of the “Macewen pupil” in differentiating cases of subdural haemorrhage from the state of alcoholic coma. He states that in his experience this test has always been positive in alcoholic coma, and forms in his opinion, a most valuable diagnostic sign.

In discussing the subject of subdural haemorrhage and its relation to haemorrhage into the sheath of the optic nerve, the author describes how in five fatal cases blood was found, at post-mortem examination, in the sheath of the intra-orbital portion of the nerve, but not on the cut-surface of the nerve as made in the removal of the brain; this goes to prove that the blood in the sheath had arisen from the vessels of the nerve or its sheath, and was not blood forced into the sheath from the subdural space.

G. I. SCOTT.


(10) Of all ocular structures the conjunctiva is that chiefly affected by allergic manifestations. Conjunctivitis is a very frequent concomitant of asthma; “spring catarrh” is generally admitted to be an allergic state. Agnello’s patient had suffered from childhood
from urticaria of an allergic nature. Later in life she became subject to paroxysmal tachycardia and to facial oedema, which almost closed the palpebral fissure. The exact cause of these symptoms, which were certainly allergic, was not discovered.

**HAROLD GRIMSDALE.**

(11) **Streiff (Geneva).**—Angioid streaks in the retina. *(Le strie pigmentate moniliformi della corio-retina).* *Boll. d'Ocul.*, October, 1938.

(11) **Streiff** gives the history of three cases which showed this condition. All three were past middle life and two were slightly myopic. All showed arterio-sclerosis. The streaks begin usually at a little distance from the disc; they may be linear or made up of dots in a line covering the subjacent choroidal vessel, which is frequently sclerosed. There are often associated with them, haemorrhages in the retina; one of the author's cases showed a very large haemorrhage in the macular region of one eye, which however, did not show any angioid streaks. The author holds that these streaks, made up of dots, and resembling strings of beads must be separated from the angioid streaks of Groenblad and Strandberg.

**HAROLD GRIMSDALE.**

II.—CORNEA


(1) On an analysis of the vitamin A content of the blood in a series of patients with corneal affections and on the results obtained with vitamin A therapy by mouth and locally, **Kentgens** concludes that this method of treatment is particularly valuable in cases of herpes of the cornea, the duration of the affection being reduced by half (from 584 days to 249). Superficial punctate keratitis, marginal ulcers and catarrhal ulcers are also favourably affected. The results obtained in two cases of Mooren's ulcer and in ophthalmia neonatorum with corneal involvement were also satisfactory.

**ARNOLD SORSBY.**


(2) **Rintelen** describes a method of fixing the corneal graft by covering it with gutta percha membrane and securing this cover
by means of cross threads from limbus to limbus. Good fixation is obtained and the graft can be viewed through a small opening in protective gutta percha membrane.

ARNOLD SORSBY.


(3) **Friede** gives a careful review of 78 cases of keratoplasty. The original article should be consulted by those interested in the operation. The author obtained the best results in cases of scrofulosis, herpes and ulcer of the cornea and least success after ophthalmia neonatorum. The presence of anterior synechiae or a total leucoma lessens the chance of obtaining a clear graft. In the last condition pre-operative glaucoma is common and may require treatment, e.g., by an extensive cyclodialysis. The most favourable size of graft is 4-5 mm. The cornea of a sarcoma eye is still the one most used while those taken from the cadaver give good results. The author advises the use of atropine in making a small graft and eserine when the graft is larger than 6 mm. Removal of a cataractous lens should be done after the corneal transplantation.

D. R. CAMPBELL.

III.—MISCELLANEOUS

(1) **Nicholls, John V. V. (Montreal).—A case of granuloma of the lacrimal canaliculus.** *Canadian Med. Assoc. Jl.*, December, 1938.

(1) **Nicholls**, while working with Sir Henry Holland at Karachi, observed an unusual case. The patient was a female aged about 60 years with a small mass, the size of a pea, in the margin of the right upper lid. The lump was situated about 2 mm. to the nasal side of the punctum and had been present for three years. It was found to be attached to the skin over it and to the deeper structures. There were scars in the conjunctiva of the upper lid, apparently resulting from a mild attack of trachoma. The mass was easily removed under local anaesthesia. It was non-encapsulated. The tissue removed was examined in the laboratory of Moorfields Eye Hospital. Sections showed a non-encapsulated mass of granulation tissue surrounding and compressing the canaliculus. It was mainly composed of a stroma of fine fibrous tissue with lymphocytes and plasmocytes. A few endothelial cells were present with the small giant-cell containing not more than four large oval vascular nuclei.
The mass was practically avascular, contained no organisms or foreign body and no necrotic areas were present.

In the author's opinion this was probably a trachomatous affection of the canaliculus.

A high power section of the mass accompanies the paper.

R. R. J.

(2) **Dubois-Poulsen.**—The sphenopalatine ganglion and the eye.

(2) **Dubois-Poulsen** is known as a protagonist of nasal cocainisation, a method of treatment which at present is much discussed in French ophthalmological papers. A swab of cotton wool soaked in 10 per cent. solution of cocaine and left for an hour in contact with the posterior part of the middle turbinate is credited with curing a large number of painful eye conditions.

The immediate object of the cocaine application is to bring on the anaesthesia of the sphenopalatine ganglion.

The author gives a detailed description of the anatomy of the ganglion and of its afferent and efferent fibres. It is a sympathetic ganglion and controls the lacrimal gland and the mucous glands of the nasal cavity. A stimulus acting on the conjunctiva or on the nasal mucous membrane sets in operation a reflex arc which passes up the trigeminal fibres and is probably relayed to the multipolar cells of the nucleus of the facialis. The centrifugal path begins in the sympathetic nervus intermedius of Wrisberg and follows the course of the facial nerve to the geniculate ganglion. From this ganglion the impulse travels in the greater superficial petrosal nerve. This nerve joins the sympathetic deep petrosal nerve and runs through the Vidian canal to the sphenopalatine ganglion. Efferent fibres of this ganglion convey the impulse to the lacrimal gland. At the same time, the stimulation of the ganglion induces a dilatation of the conjunctival, nasal and facial vessels. The nose as well as the eye begins to water profusely. Sometimes the patient complains of paraesthetic sensations in distant areas, e.g., in the back of the neck and in his legs. The diastolic pressure in the central artery is increased without a change in the general circulation becoming noticeable. The tension of the normal eye remains unaltered. The central visual acuity is not reduced, however the visual field may become restricted concentrically. The blind spot invariably becomes enlarged and the scotoma which corresponds to the course of the larger central vessels can easily be mapped out. In addition, the stimulation of the ganglion has a very marked psychic effect, which varies according to the personality of the patient. It may bring on euphoria in balanced people and hysterical fits in emotional women.
The anaesthesia of a ganglion with such activities can be expected to be efficient in the treatment of many ocular troubles.

In profuse watering of the eye not due to lacrimal stenosis the cocainisation of the ganglion brought on a cure in eighteen cases out of twenty-three.

The same treatment was very successful in cases of subacute conjunctivitis which could not be ascribed to a bacterial infection. These affections, which are often unilateral, cleared up in four or five days after three or four months duration.

The author records rapid improvement of superficial episcleritis, but the nodules of deep scleritis proves refractory to the treatment.

Superficial punctate keratitis with subepithelial infiltrations near the limbus healed rapidly after the nasal treatment. A similar success could be stated in a type of kerato-conjunctivitis resembling trachoma.

Even patients who could not be cured by cocainisation obtained relief from pain, photophobia, watering and blepharospasm. Patients who have a poor corneal sensation seem to respond more readily to the ganglion anaesthesia. Apparently, the corneal lesion is not entirely due to the lack of sensation and consequent exposure to injuries. The trophic rôle of the sympathetic fibres cannot be denied. Indeed, no paralytic keratitis results if the fifth nerve is cut above or at the level of the Gasserian ganglion before the sympathetic fibres have joined it.

Another affection which clears up after ganglion anaesthesia has been labelled the syndrome of the naso-ciliary nerve. This name has been given by Charlin to a triad of symptoms: inflammation of the anterior segment of the eye, neuralgic pain at the point of exit of the external branch of the naso-ciliary nerve and profuse nasal watering. Charlin suspected a neuritis of the naso-ciliary nerve. He treated this syndrome successfully by cocainisation of the lower turbinate and the lower meatus. However, it is more probable that this treatment is efficient by abolishing axon-reflexes and prevents the excitation of the nasal branch from being conveyed antidromically to the ocular branch of the nerve. Charlin’s syndrome can be cured more efficiently by blocking the nervous path at the ciliary ganglion. For this purpose the author recommends the injection of 2 c.c. novocaine followed by 2 c.c. of 40 per cent. alcohol.

The results of nasal cocainisation in herpes zoster are not so brilliant. The excruciating pain of a patient could be relieved by an injection into the sphenoid-palatine ganglion. The nasal painting had an insignificant result.

The ganglion anaesthesia has given good results in various types of headaches. It is an excellent treatment for Sluder’s syndrome which is described as a triad of orbital and periorbital pain, so-called accommodative asthenopia and a sensation of the eyeball being too
big for the orbit. There are frequent exacerbations of the pain. The condition is probably due to hyperactivity of the sphenopalatine ganglion. The author records two cases of migraine in which the nasal treatment had been successful. Most patients suffering from migraine were not much improved.

In glaucoma the cocainisation was followed by a bilateral decrease of the hypertension. The decrease was more marked on the side of the application. A much more powerful method to reduce ocular hypertension is the injection of 40 per cent. alcohol into the ciliary ganglion. In this way each case of acute glaucoma can be brought down to a subacute stage before operating on it. Again, the injection into the ciliary ganglion is more efficient than nasal painting in relieving the glaucomatous pain.

In optic neuritis the opening of a nasal sinus has often proved successful even in cases in which the sinus was found to be healthy. As the sphenoid sinus is situated in the immediate neighbourhood of the sphenopalatine ganglion, the success of the operation is probably due to accidental interference with the fibres which run from the ganglion to the optic nerve and which are supposed to control the retinal circulation.

The anaesthesia of the ganglion has been very useful not only in well defined conditions. It is the method of choice in treating neurotic people who like to choose the eye as focus of their troubles.

HUMPHREY NEAME.


(3) Minton gives an account of industrial eye injuries which should be of use to general practitioners. He states that these are on the increase. They are responsible for 10 per cent. of the blind in this country. Their high incidence is due to:—(1) The non-provision of safety measure by many employers; (2) complete negligence of the workmen in using the safety measures provided.

The problem should be tackled from two sides:—(1) The employers should be made conscious of the necessity of providing safety measures. The new Factories Act will enlarge the scope of the compulsory use of protective measures. (2) A determined fight should be made to educate the workmen and to encourage them to overcome all their prejudices against wearing goggles and other protective devices.

When work is being done away from the factory, without the protective appliances at hand, it ought to be possible for intelligent workmen to supply themselves with them at a cost within their competence. On more than one occasion the reviewer has offered
a protective veil, useful against light flying particles, to a workman who has accepted it with alacrity. Such a veil costs only twopence.

A. F. MacCallan.


(4) Jaeger gives the result of an annual investigation of 350 girls aged 10-16 years, and 150 boys, aged 10-18 years, taken over a period of ten years. He finds that myopia most commonly occurs at 12 years old and rarely shows an increase after the age of 15. Increase in the number of dioptres of myopia occurs rapidly in the second and third years of school life. Myopia appears to be correlated with age and physical development rather than with the mental requirements of school. Environment probably exercises an additional influence.

D. R. Campbell.


(5) Disturbance of the ocular muscles is not an uncommon accident after spinal anaesthesia. Changes in the fundus are much less frequent. Motolese reports a case in which bilateral paralysis of the external rectus was complicated by loss of visual acuity due to atrophy following papilloedema. Unfortunately he did not see the patient for nearly two months after the operation, by which time much damage had been done to the nerve. He holds that if the pressure had been relieved by lumbar puncture earlier, there would have been a good chance of recovery.

Harold Grimsdale.


(6) The patient was a child, aged 10 years, and the tumour had been noted for some eight years, as the eye was exophthalmic at the age of two years. At the age of four years, the child fell down stairs and the exophthalmos was reduced but the sight was lost in that eye. There seems little doubt that at that time the eye was ruptured and emptied. Since the exophthalmos reappeared, the parents consented to operation (which had been advised before but refused). There was removed a mass in a capsule filling the greater part of the orbit. The tumour was largely undergoing mucoid degeneration. It was
possible to find in some places oligodendrocytes. Santoni considers the tumour as probably belonging to the group of oligodendrocytic gliomata.

HAROLD GRIMSDALE.


(7) Cholesterin crystals occur in the eye under two different forms, for which, as explained here by Georgariou, there are two different methods of production:—

(a) Partial lipoidosis oculi, which has been described under various names, is characterised by a local infiltrative fatty degeneration in the iris epithelium and the endothelium of the posterior surface of the cornea and secondarily in the underlying basal tissue. The appearance of individual cholesterin crystals is a later secondary development.

(b) In cholesterinosis bulbi, a case of which is here described with the cholesterin in the form of typical rhomboid crystals filling the anterior chamber, a change in the composition of the intraocular fluid takes place, following repeated inflammation in the ciliary body, with a greater permeability of the vessels and the escape of more protein and colloids which undergo a process of "chemical digestion" in the anterior chamber. The tissue fluid between the coats of the eye also suffers a disturbance in the colloids present in it, which leads to the exudation of numerous cholesterin crystals in the tissue spaces.

Why this deposit of crystals does not occur in all cases of cyclitis is a question that is not answered, but it is hinted that the traumatic form of cyclitis may have a specific influence on their formation.

The author appends a full bibliography on the subject.

THOS. SNOWBALL.


(8) Németh investigated 100 cases of glaucoma in Berlin and Budapest. He was unable to find any particular type of physique associated with primary glaucoma, but glaucoma simplex appeared to be common in asthenic individuals, whereas acute inflammatory glaucoma occurred in broad, short ("pyknic") individuals. Asthenics tend to have a lower blood pressure and are subject to earlier and more rapidly progressive glaucoma. They require rest of the nervous system, whereas "pyknics" are subject to vascular crisis.

D. R. CAMPBELL.
MISCELLANEOUS


(9) Zondek recalls that in some cases of salt-water obesity the increase of intracranial pressure causes bitemporal hemianopsia, probably due to swelling of the tissues in the vicinity of the chiasma. A regimen directed towards the dehydration relieves the symptoms.

ARNOLD SORSBY.


(10) Ascher describes a characteristic case of an epithelial cyst in the anterior chamber which responded quickly and decisively to X-ray treatment: three doses of 400 r and two doses of 300 r, a total of 1800 r being given within 24 days.

ARNOLD SORSBY.


(11) Simonelli gives an account of the chemistry of the visual purple. He shows that during the bleaching of this, several substances are produced. These have been spectroscopically examined. The original substance, rhodopsin, has an absorption band centred about the length 500 μμ; then a substance appears which has an absorption band in the ultra-violet; treated with trichloride of antimony, it becomes blue and has a band of absorption about 620 μμ. This is characteristic of vitamin A. A third substance after treatment by trichloride of antimony gives an absorption band about 655 μμ. This is a carotinoid whose chemical structure is not yet worked out; it is given the name of retinene. It has been shown that vitamin A is easily derived from carotene. A fourth substance, yellow in colour, giving two absorption bands about 497 and 466, is identified as carotene.

Wald has found that in the chloroform extract of the dark-adapted retina of the frog there is much retinene and traces of vitamin A; in the light-adapted eye there is no retinene but much more vitamin A. Chloroform has a destructive action on the visual purple changing it into retinene. It seems that in the dark-adapted eye, retinene does not exist as such but is combined to some protein molecule. After partial bleaching of the retinal purple, retinene can be found; complete bleaching discloses disappearance of retinene
and appearance of vitamin A in large quantity. When the bleaching is partial producing visual yellow, breaking up the visual purple into retinene and some proteid, reformation of visual purple is easy; when the bleaching has gone on to the formation of visual white, the reformation is much slower; vitamin A must first be reconverted into retinene. This process cannot take place in the isolated retina; the presence of the pigmented epithelium is necessary for this change.

Vercelli discusses the importance of vitamin A in the avoidance of night-blindness. He recalls how this condition may be easily cured by the addition of vitamin A to the food. Recent researches have been made on the changes in the time of dark-adaptation. It has been shown that a large proportion of school children show an increase, which is removed by the addition of vitamin A to their food.

HAROLD GRIMSDALE.

BOOK NOTICE


This brochure comprises lectures delivered in the eye department (Tennent Foundation) of the University of Glasgow in April, 1936. They include problems of colour vision, phenomena of local adaptation, light and dark adaptation, clinical methods (focal illumination, tonometry, sensitiveness of the cornea) and diseases of the eye dependent on constitution (tubercle) and climate.

Of the 99 pages, 73 are devoted to physiological optics. The problems of colour vision are treated from the point of view of the Hering theory, and space is taken up by discussing the exploded hypothesis of the specific brightness of colours and the explanation of the two chief types of colour blindness by differences of macular pigmentation. The almost complete absence of reference to English workers—or indeed any but German workers—is explained by the somewhat naive note: “Special attention was paid to German literature; it was taken for granted that English authors were well known to the listeners, and they were therefore mentioned only in passing.” Such a remark does not justify the implied attribution of discoveries to the wrong people—e.g., macular pigmentation to Holm and Kravkov, though it was well known to Clerk Maxwell and Abney; electrical processes in the retina to Kohlrausch and Sachs, whereas the work of Dewar and McKendrick (1873), Gotch,