and soldiers become irritated by any addition to their accoutrement and as the severity of their task increases they cast away all but what they consider essential, preferring to take risks. To those less actively engaged in air raid duties but whose presence is necessary in look-out posts and on patrols, a pair of glasses fitted with one of the kinds of safety glass would save a number of eyes from destruction. To those sheltering in houses the pasting of windows with net, their occlusion by wooden shutters and the advice to keep clear of windows should be of sufficient prophylactic value.

ABSTRACTS

I.—CONJUNCTIVA

(1) **Appelmans, M. (Louvain).—Parinaud's conjunctivitis caused by the virus of lymphogranulomatosis inguinale. (Conjonctivite infectieuse de Parinaud causée par le virus de la maladie de Nicolas-Favre).** *Ophthalmologica*, Vol. XCVI, p. 321, 1939.

(1) **Appelmans** recalls a case of Parinaud's conjunctivitis due to the virus of lymphogranulomatosis inguinale. The patient was a physician who had been accidently infected by this virus during experimental work and the ocular lesion constituted the essential feature in the affection.

ARNOLD SORSBY.

(2) **Sysi, R. (Helsinki).—Treatment of gonococcal ophthalmia with M and B 693. (Ueber die Behandlung der Conjunctivitis gonorrhoica mit dem Präparet M and B 693).** *Acta Ophthalmologica*, Vol. XVII, p. 466, 1939.

(2) **Sysi** gives details of 11 cases treated with M & B 693 amongst other measures and stresses the value of this drug.

ARNOLD SORSBY.

(3) **Vollaro (Milan).—A new method of treating inveterate pannus by diathermy-coagulation. (Di un tecnica personale di diatermo-coagulazione nella cura di panno corneale tracomatoso inveterato).** *Rass. Ital. di Ottal.*, November-December, 1939.

(3) **Vollaro** quotes the use of diathermy in the treatment of pannus by several authors and explains why he has found it advisable to follow a different procedure. He fears that the

application of the electrode to the immediate neighbourhood of the cornea may be followed by damage to the deeper parts and possibly to the ciliary body. He therefore raises a bridge of conjunctiva as wide as possible, from the limbus to the tarsal plate and lifts this on a glass rod. The active electrode is passed over the conjunctiva near the tarsal plate with successive touches lasting for about one second and with intensity of 80 to 100 ma until a whitish-grey scar is made along the conjunctiva of the tarsal fold. The glass rod is then withdrawn; some ointment (antipiol or xeroform) is put into the sac. Slight reaction follows but usually clears in a week; the vascularisation slowly fades and, as shown by photographs, by the end of a year, the cornea is almost perfectly transparent.

HAROLD GRIMSDALE.

(4) **Angius (Cagliari).—Vaccine therapy in the treatment of Koch-Weeks conjunctivitis. (Ricerche sulle vaccinoterapia e sulla vaccinoprofilassi specifica delia congiuntivite acuta da bacillo di Koch-Weeks).** *Rass. Ital. di Ottal.*, November-December, 1939.

(4) Though this form of conjunctivitis is rarely serious, yet it sometimes appears in epidemics and may give rise to dangers. **Angius** has treated a number of cases in an epidemic by means of a vaccine prepared from cultures of the Koch-Weeks bacillus both alone and in connection with other treatment. The vaccine was given both by subcutaneous injections and by local instillation. He finds that the best results are obtained when the use of the vaccine is supplemented by argyrol. In all cases treated in this way, cure was rapid. In some cases when one eye alone was attacked, vaccine drops to the other usually prevented that from becoming infected. In three cases it was attempted to produce immunity by vaccination; inoculation with active Koch-Weeks bacilli was done on the fourth day; in one case no conjunctivitis followed; in the others it was very slight. There seems to be room for further trials of this method of treatment.

HAROLD GRIMSDALE.

(5) **Ochi, S. and Huziyama, H. (Sapporo).—The aetiology of trachoma. (Aetiologische Forschungen ueber das Trachom).** *Ophthalmologica*, Vol. XCIX, p. 96, 1940.

(5) **Ochi** and **Huziyama** report that inoculation of trachoma material into the testicle of the rabbit gave, in serial passage, a positive result of 22·25 per cent. of 200 patients. Examination of cell inclusions in the positive reacting testicles showed two different forms. In the first there is a change in the chromatic substance of the nucleus of the cell, the substance outside the cell

having the appearance of thick threads, the length and breadth of which vary. In the second form, formations of the size of cocci are found in the cell body in the initial stage: these increase, then divide and attach themselves to the nucleus of the cell as do Prowazek bodies, they are found in other parts of the cell. The two forms probably represent different intermediate stages.

ARNOLD SORSBY.

(6) **Barrett, Sir James (Melbourne).—Spring catarrh.** *Med. Jl. of Australia*, February 17 and March 23, 1940.

(6) **Sir James Barrett** contributes two letters to the *Medical Journal of Australia* on the subject of spring catarrh. It is a comparatively rare disease in Australia and he has had a case of the palpebral form under his care since the autumn of 1938. The case improved during the winter, but relapsed in the summer of 1939. He wrote to Rowland Wilson of Cairo, and gives a summary of his reply. The author tried the local administration of prontosil, using 2·5 per cent. "prontosil soluble" solution in water as drops. Starting cautiously in one eye the treatment was given twice daily in each. After three weeks the improvement was remarkable. The second letter reports continuous improvement. The author says that the drug can be given by the mouth and reaches the eye very rapidly, but it seemed more logical to apply it direct.

A note of caution is added to beware of letting the solution fall on clothing; the stain is very difficult to eliminate.

An attempt to substitute "proseptasine" ointment for the "prontosil soluble" was not satisfactory. In his covering letter the author says that by April 6, 1940, the case looked "like a complete cure."

R. R. J.

(7) **Tita (Catania).—Tuberculous lesions of the lids. (Tubercolosi palpebro-congiuntivale).** *Ann. di Ottal.*, November, 1939.

(7) Among the seats of tubercle in the region of the eye, tuberculosis very rarely attacks the lids. Primary ulcer of the lids is particularly uncommon. **Tita** describes a case of a young girl who, at the age of six, suffered from a swelling of the margin of the right upper lid. In a few days this burst and a scab formed covering the opening. This was removed by the mother of the girl whenever it reformed. The parents looked on the swelling as a stye; later there appeared an ulcer in the situation; the lid became oedematous and an intense hyperaemia of the conjunctiva with mucopurulent secretion came on. In a short time the other eye became attacked. This condition lasted for three years in spite of constant treatment by astringent lotion. Then the girl was brought to the author's

notice. At this time the right upper lid showed slight ptosis; it was oedematous and thickened; there was an ulcer about 1 cm. long on the edge, at the junction of the middle and outer thirds, extending into the conjunctiva which was thickened and covered by small grey papillae with some small grey nodules interspersed, resembling trachoma granules: this condition was found only on the superior tarsal conjunctiva, the rest was practically normal. The upper lid of the left eye showed a condition like that of the right, but less marked and without ulceration. The pre-auricular glands were not enlarged. It was not possible to take the child into hospital at once; during the delay, the lids were treated by painting with silver nitrate. A cultivation was made of the conjunctival bacteria; nothing unusual was found. In the meantime the state of the lids did not improve. The papillae tended to fuse into nodules which ulcerated; the marginal ulcer showed signs of healing. A fragment of conjunctiva was removed on two occasions for the purpose of diagnosis. These showed the presence of giant cells and typical tubercles; Koch's bacillus was seen in sections.

Examination of the lungs showed some loss of resonance and rough breathing over all the area of the right lung. There was no sputum obtainable. X-Ray showed diffuse infiltration, with slight ulceration in the right apical region.

The guinea-pig inoculated with material from the lid died from general tuberculosis in 70 days; a rabbit, inoculated in the anterior chamber, showed typical tuberculous iritis.

The author discusses the nature and source of the disease. He holds that the length of duration (three years) excludes Parinaud's conjunctivitis, and that the microscopical findings prove it to be tuberculous. It seems probable that infection of the lid was derived from outside and the point of entrance was the suppurating stye. The germs may have been carried by the finger of the mother, who stated that she removed the scab from the swelling, or by the child herself; there is little doubt that the second eye was infected in this way. On the other hand it is possible that the pulmonary infection may have been the beginning of the ocular disease, but the author does not think this so likely. It cannot be shown whether the infection of the lungs preceded or followed the eye lesion. The child was sent to a sanatorium; the eye condition seemed to be favourably influenced by argyrol and iodoform, so long as she was under the author's care.

HAROLD GRIMSDALE.

II.—MISCELLANEOUS

(1) **Guyton, Jack S. (Baltimore).—Pharmacodynamics of the intra-ocular muscles.** *Arch. of Ophthal.*, September, 1940.

(1) **Guyton's** article, which is a long one, contains an admirable review of the physiological effects of miotics and mydriatics. So far as the nerve endings in the eye are concerned, these are of two types: cholinergic, corresponding in general with the parasympathetic system, and adrenergic, corresponding with the sympathetic system. The cholinergic nerve endings act through the liberation of acetylcholine, which is rapidly destroyed by choline esterase, a substance present in all tissues. Most choline derivatives are similarly affected except for doryl (carbaminoylcholine) which is inactivated only after several hours. The rapid destruction of the ordinary choline compounds can be inhibited by certain drugs with a carbamate (urethane) group, such as physostigmine or prostigmine. Pilocarpine and muscarine act directly on the nerve endings in the same way as acetylcholine, but are not destroyed by choline esterase. Atropine and its derivatives prevent the choline compounds from producing effects on the cholinergic nerve endings, but not on the autonomic nerve endings. The adrenergic nerve endings act through the liberation of adrenalin at the nerve endings, which combines with one of two hypothetical substances to form one of two diametrically opposed varieties of sympathin. The so-called E. variety produces excitation of structures innervated by the sympathetic system, while the I. variety causes inhibition of these structures. An example of the E. effect is afforded by the response of the dilator muscle of the iris to a sympathetic nerve stimulus and of the I. effect, by the relaxation of the bronchiolar muscles due to a similar stimulus. Adrenalin and sympathin are both destroyed much more slowly than is acetylcholine and the reactions produced by them are usually much slower, *e.g.*, the pupil constricts more rapidly than it dilates. Cells innervated by adrenergic nerves can be sensitised to the action of adrenalin by the action of cocaine and certain other compounds, a state of hyperthyroidism, a state of pancreatic insufficiency and by post-ganglionic denervation. Ephedrine affects adrenergic structures to a limited extent by direct action, but its major effect is probably produced by a cocaine like sensitisation. There is no known substance which inhibits the action of adrenalin or sympathin, but ergotamine and yohimbine in large doses inhibit the effect of sympathin E. on certain structures but not on others. These observations may be applied to the intra-ocular muscles. Thus in the iris, the dilator muscle is supplied solely by excitatory (sympathin E.) fibres, while the sphincter has

a double supply, comprising excitatory cholinergic nerves and inhibitory (sympathetic I.) nerves. In confirmation of this, it has been found that stimulation of the cervical sympathetic produced relaxation of the sphincter even when this had been separated anatomically from the dilator and that the same result was produced by adrenalin and its derivatives. There is thus some evidence of a reciprocal innervation of the dilator and the sphincter. In-vitro experiments have demonstrated that the dilator muscle contracts to a concentration of adrenalin as low as 1·500,000,000 and of cocaine as low as 1·100,000. It is unaffected by atropine, pilocarpine, physostigmine, or morphine and also by acetylcholine or its derivatives unless in high concentrations. Ergatomine in a concentration of 1·100,000 produces a contraction. The sphincter is contracted by quite low concentrations of acetylcholine and its derivatives and by the miotics and is relaxed by the mydriatics and also by concentrations of adrenalin as low as 1·500,000,000 and of cocaine as low as 1·1,000. Ergotomine causes contraction of the sphincter. The fact that physostigmine has no effect on the pupil after complete degeneration of the parasympathetic nerves is explained by the absence of formation of acetylcholine in such an eye. The mode of action of the ciliary muscle is not completely clear, though contraction of its major portion is effected by cholinergic fibres, hence any drug which enhances or simulates the action of acetylcholine produces contraction of the muscle. Whether there is a sympathetic nerve supply is still in doubt, but it seems certain that adrenergic drugs affect the muscle to an appeciable degree. In the normal state, it is thought by some that stimulation of adrenergic fibres causes relaxation (*cf.* the iris). Some interesting phenomena are observed when miotics are used in different animals. In man, pilocarpine produces miosis, followed by a transient mydriasis when the effect of the drug passes off. In the rat, however, the effect is entirely paretic and the pupil dilates. So far as the ocular effects of various other drugs are concerned, the following observations may be of interest. Prostigmine in man produces an effect approximately equal to that of physostigmine, but it can be used in about twice as strong a concentration without causing irritation. The laevo-rotatory form of scopolamine hydrobromide (hyoscine) is about 10 times as powerful as atropine, the racemic form (atroscine) is only 5 times as powerful. Euphthalmine instilled once in a 5 or 10 per cent. solution produces mydriasis lasting 5-10 hours, but has a minimal effect on accommodation. The same is true of a drug known as paredrine hydrobromide which is used in a strength of 0·15 to 2 per cent. Cocaine produces its maximal mydriatic effect in 45 minutes, the effect disappearing after about 4 hours. Accommodation is also affected, practically complete paralysis being produced by six instillations of a 6 per cent. solution.

Histamine (vel. amino-glaucosan) in a 2-10 per cent. solution produces intense miosis which is not opposed by the action of atropine. Unfortunately it also produces chemosis and is painful, unless preceded by a local anaesthetic. Ergotamine produces either no effect on the pupil or only a minimal contraction. Synergy between drugs may have important clinical bearings, *e.g.*, for breaking down posterior synechiae, the combination of atropine, adrenalin and cocaine may be useful. A single instillation of 1 per cent. atropine and 1 per cent. benzedrine produces almost the same degree of cycloplegia as repeated instillations of atropine, the same being true of 5 per cent. homatropine with 1 per cent. benzedrine, though homatropine alone, in this strength may be equally effective. It is possible that in acute glaucoma, a combination of physostigmine or prostigmine with a choline compound would be of value.

These observations, the result largely of animal experiments, suggest that a clinical investigation into the local effects on the eye of various drugs might bring some useful additions to our therapeutic armamentarium. Perhaps such a subject will one day be considered suitable for an endowed essay or scholarship.

F. A. W-N.

(2) **Spaeth, E. B. (Philadelphia).—The management of some complications which follow cataract extraction.** *Amer. Jl. of Ophthal.*, Vol. XXIII, p. 1019, 1940.

(2) **Spaeth** gives several interesting case reports illustrating such post-operative complications as trauma, infections, subchoroidal haemorrhage, sympathetic ophthalmitis, iritis and secondary glaucoma and iris prolapse. He discusses the importance of careful and thorough pre-operative examination and post-operative precautions in the prevention of some of these disasters.

In the case of subchoroidal haemorrhage it is evident that vitreous loss is a pre-disposing factor and this complication demands immediate attention. The author recommends sclerotomy and drainage of the fluid blood. He condemns the use of the cautery or trichloracetic acid in the treatment of small prolapses of the iris, sympathetic ophthalmitis and secondary glaucoma due to obstruction of the filtration angle by peripheral anterior synechiae are the more serious complications of these procedures.

In cases where aqueous filters through a cystoid cicatrix in the course of the corneo-scleral wound the author advises caution in closing the cicatrix and in following up the intra-ocular pressure in order to avoid the conversion of hypotony into hypertony.

H. B. STALLARD.

(3) **Riedl, F.—Eigenartige Form von Linsenregeneration (multiple freie Lentoidbildung) bei Cataracta secundaria in einer Familie mit Cataracta perinuclearis hereditaria.** *Klin. Monatsbl. f. Augenheilk.*, Vol. CIII, p. 169, 1939.

(3) **Reidl** investigated 17 individuals of a family in which hereditary perinuclear cataract had been known to occur in five generations. In eight affected cases the cataract had been operated on at an early age, yet small secondary cataracts 'lentoids' were present on the iris and cornea and in the vitreous. They were composed of actual lens fibres which had probably originated from lenticular epithelial cells which were liberated at the time of operation.

Various types of lens regeneration have been described in man—(1) proliferation of capsule epithelium (Wagenmann), (2) Elschnig's pearls, (3) regeneration of normal fibres inside the capsule after needling a young lens, (4) formation of free 'lentoids.' The latter has not been described previously.

D. R. CAMPBELL.

(4) **Czukrasz, Ida (Debrecen).—The use of Vitamin B, in the treatment of hypovitaminosis. (Die Anwendung des Vitamins in der Behandlung der Hypovitaminosen).** *Klin. Monatsbl. f. Augenheilk.*, Vol. CIII, p. 221, 1940.

(4) Vitamin B can be used as injections (Betaxin) and as ointment (0·03-0·1 per cent. Betaxin in Eucerin) in the successful treatment of dendritic ulcer, herpes, zoster, and other ulcerative conditions of the cornea.

D. R. CAMPBELL.

(5) **Glees, M.—A simple adaptometer. (Ein einfaches Adaptometer).** *Klin. Monatsbl. f. Augenheilk.*, Vol. CIII, p. 226, 1940.

(5) **Glees** describes a simple form of adaptometer made by Zeiss. It is easily portable and can be used for testing several people at once, without the necessity of a control observer or any special light source. The test object is an arrow which can be rotated.

D. R. CAMPBELL.

(6) **Ten Doesschate, G. (Utrecht).—Robert Grosseteste, Bishop of Lincoln, on optics.** *Ophthalmologica*, Vol. XCIX, p. 333, 1940.

(6) **Ten Doesschate** gives a survey of the writings on optics by Roger Bacon, John Peckham and Vitello, pointing out the pioneer efforts of Robert Grosseteste who preceded them. In spite of many

puerilities and his tedious manner, Grosseteste must be regarded as the first writer (and probably lecturer) on optics in Western Europe. In comparison with his contemporaries he belongs to the Moderns. Exclusive extracts from his writings are given, but the full recognition that R. R. James has given to Grosseteste is overlooked.

ARNOLD SORSBY.

(7) **Binkhorst, P. G. (Utrecht).—Statistical observations on retinal detachment. (Statistische Betrachtungen ueber Netzhautablösung).** *Ophthalmologica*, Vol. XCIX, p. 367, 1940.

(7) **Binkhorst** reports on the end results of detachment operations at Utrecht in 1935-1938, completing the material published by Van Manen on the cases in Professor Weve's clinic up to 1935. As in the previous report the total percentage of cures was high (77 per cent. out of a total of 515 detachments). The incidence of cure varied considerably with the different types of detachment. It was 100 per cent. in the seven cases of macular hole of non-traumatic origin and the same percentage in 90 cases of detachment with a tear at the ora. The poorest results (22 per cent.) were obtained in previously treated eyes with scarring taking the shape of a star in the central area.

ARNOLD SORSBY.

NOTES

Corrigendum

ON p. 67, line 7, in Dr. Margaret Dobson's paper on "Convergence," 2 05 D. should read 2·50 D., we regret the error in proof reading.

FUTURE ARRANGEMENTS

1941

May 1-3, 1941.—Irish Ophthalmological Society, Annual Meeting in Dublin.