ABSTRACTS

I.—THERAPEUTICS

- (1) **Lemoine, A. N. and Lemoine, A. N., Jr. (Kansas City, Missouri).**—Penicillin in the treatment of purulent conjunctivitis. *Amer. Jl. Ophthalm.*, Vol. XXVII, p. 1428, 1944.

(1) **Lemoine and Lemoine** report a case of purulent haemolytic staphylococcal ophthalmia neonatorum treated with local instillation of sodium penicillin drops. The infant had been treated unsuccessfully with sulphathiazole drops for the eyes and tablets had been given by mouth.

Two drops of sodium penicillin 100 Oxford units per c.c. in normal saline were instilled into the eyes every hour. After 23 hours of treatment the culture from the conjunctival sac was negative and there was no discharge.

H. B. STALLARD.

- (2) **Vorisek, E. A. and Evans, A. L.**—Penicillin administered locally in gonorrhoeal ophthalmia. *Amer. Jl. Ophthalm.*, Vol. XXVIII, p. 520, 1945.

(2) **Vorisek and Evans** record a case of unilateral gonococcal conjunctivitis treated at first by the local application of four penicillin drops, 500 units per c.c. one-hourly for 12 hours. After 16 hours of treatment the conjunctival smears were free of diplococci, purulent discharge had ceased and there was marked clinical improvement. On the second day the quantity of penicillin was reduced to 4 drops of 250 units per c.c. 3-hourly. On the seventh day diplococci appeared again in the conjunctival smears. On the twelfth day a typical allergic reaction occurred and penicillin was suspended.

On the thirty-sixth day a course of 5 intra-muscular injections of 10,000 units each was given 3 hourly in the treatment of the urethritis. The allergic manifestations re-occurred at once in the eye which had been affected, and subsided in a few days.

H. B. STALLARD.

- (3) **Smith, I. C. and Struble, G. C. (M.C.), A.U.S.**—The use of artificial fever therapy in ophthalmology. *Amer. Jl. Ophthalm.*, Vol. XXVIII, p. 461, 1945.

(3) **Smith and Struble** comment about the therapeutic uncertainty of artificial fever induced by intra-venous injections of T.A.B. vaccine. It seems that some service men react erratically to this. A few have developed sensitization to the vaccine and have unduly

high temperatures whilst others show little reaction and low temperatures, 99°6' to 100°6' are produced. The method of placing the patient in the "hypertherm" cabinet seems to be more precise. The authors record good results from short treatment periods of not over 105°F. for two hours in cases of iridocyclitis, choroido-retinitis, secondary glaucoma, retro-bulbar optic neuritis, severe corneal ulcer and corneal abscess, chronic recurrent superficial punctate keratitis, and intra-ocular infection after a penetrating wound.

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II.—CONJUNCTIVITIS

- (1) **Jameson Evans, P. (Birmingham).—Regional treatment of ophthalmia neonatorum.** *Lancet*, ii, p. 334, 1943.

(1) **Jameson Evans** comments on the improved preventive measures against blindness from ophthalmia neonatorum. In 1901 Bishop Harman found that ophthalmia neonatorum was responsible for 36 per cent. of blind L.C.C. children. In Birmingham from 1936-43 there has been only one case of blindness from this source in a population of 1½ million, yet it has the highest notification rate for this disease in Great Britain.

This result the author attributes to the segregation of infected infants and their mothers in a ward at the Birmingham and Midland Eye Hospital where a specially trained team of nurses carry out the treatment. This has been supplemented by home visits by ophthalmic trained nurses.

A table is given showing the admissions to hospital during the 6 years 1936-42. Since 1938 there is a marked reduction in this number, In only 1 per cent. in the past 5 years has the gonococcus been responsible for the ophthalmia neonatorum. Before 1938 routine treatment consisted in the use of silver nitrate less than 1 per cent. in strength and frequent washing of the conjunctival sac with warm normal saline. Since 1938 sulphapyridine has been a routine measure 0·125g. 6 hourly in milk. Most cases treated by this drug were free from discharge in 4 or 5 days. The incidence of corneal ulceration has been much reduced. If the eyes are not clear of discharge after 2 days of this treatment sulphathiazole is substituted.

H. B. STALLARD.

- (2) **Julianelle, L. A. (Saint Louis).—Studies on the infectivity of trachoma.** *Amer. Jl. Ophthalm.*, Vol. XXVI, p. 280, 1943.

(2) **Julianelle** successfully grafted human conjunctival cells containing demonstrable trachomatous virus upon the chorio-allantois

of the developing chick embryo. Proliferation of the epithelial cells was not accompanied by multiplication of the virus itself as judged by animal inoculation and microscopic examination.

Propagation of the virus was not detected by direct injections of macerated infective tissues into the yolk. The author suggests that the highly specialized nature of the virus and its prolonged period of lag may explain this failure.

H. B. STALLARD.

III.—MISCELLANEOUS

- (1) **Elwyn, Herman M. D. (New York).—Diabetic retinitis.**
Arch. of Ophthalmol., Vol. XXXIV, No. 3, p. 187, September, 1945.

(1) **Elwyn** is of opinion that diabetic retinopathy consists essentially in the development of (1) small, round and irregular haemorrhages; (2) sharply defined white exudates of hyalin and lipid in the deeper layers of the retina; (3) yellowish white glistening deposits of cholesterol. Other changes are the result of coincidental conditions, such as ageing and arteriosclerosis.

The haemorrhages are found mainly in the area between the upper and lower temporal vessels, and round the disc. They form the most characteristic feature of diabetic retinopathy, and if there are also the small white exudates and glistening deposits, the picture is pathognomonic of diabetes. The relative frequency of the haemorrhages varies with the duration of the disease; thus they were found in 5·7 per cent. of cases where the duration was one year, and in 58·9 per cent. where the duration was over 15 years. They are formed by diapedesis of red blood corpuscles through the walls of the capillaries, owing to the latter being dilated while the blood stream is slowed because of a relative narrowing of the supplying vessel—a condition known as "pre-stasis."

The exudates of hyalin and lipid are also an expression of insufficient nutrition and deficient oxygen supply. The normal blood sugar level is 80-90 mg. per 100 c.c. and a continuous blood sugar level above this value—say from 130-160 mg.—with or without glycosuria, will cause the development of haemorrhages. Treatment is not yet satisfactory, because it is doubtful whether it is possible to keep the blood sugar of any diabetic patient down to even 100 mg. per 100 c.c., most physicians being satisfied with a level of 130-150 mg.

F. A. W.-N.

(2) **Kirby, Daniel B. (New York).—Enucleation of the eyeball.**
Arch. of Ophthalmol., Vol. XXXIV, p. 1, 1945.

(2) Enucleation of the eyeball is commonly regarded as the simplest operation which the ophthalmic surgeon can be called upon to perform; but **Daniel Kirby**, in this article, shows that it is subject to refinements. Standing at the head of the patient, the pericorneal incision of the conjunctiva is begun at the 11 o'clock position, with curved Stevens' scissors, and should be completed, with undermining, in three or at most, four cuts. Tenon's capsule is buttonholed with the same scissors inferotemporally, just below the external rectus, a muscle hook inserted beneath the tendon from below up, and the tendon severed close to the globe. The superior rectus is next divided, the hook being slipped in from the temporal side to avoid the superior oblique, then the inferior rectus and, lastly, the internal. Prolapse of the globe is most conveniently brought about by traction on two double scleral hooks, inserted under the stumps of the internal and external rectus tendons. The nerve is divided by curved enucleation scissors slipped in from the nasal side. The blades must not be opened too widely or be pushed too far beyond the nerve, or the muscle-Tenon capsule will be cut through. This would permit an implant to slip through and wander about in the orbit. The oblique muscles are divided, also the tissue adherent to the back of the globe, and the latter is then removed.

A spherical implant gives as good results as any other shape, but the diameter should not exceed 18 mm. The first step for its insertion is to dissect the conjunctiva from Tenon's capsule. To do this, the assistant holds the conjunctiva with two pairs of forceps, while the surgeon, with forceps on Tenon's capsule, separates it with scissors, round the edge of the incision backwards, for a distance of 6 to 7 mm. Double armed sutures are inserted through Tenon's capsule, as in the diagram. They are drawn aside for insertion of the implant, and then carefully tightened. Before the second suture is drawn secure, the first is tied with a square knot, being firm and taut, but not so tight as to cause pressure necrosis. A double overlap is thus formed, which securely closes the muscle capsule cone over the implant. Search is made, with two muscle hooks, for openings which may require additional sutures, and care must be exercised not to include the tarso-orbital fascia.

The conjunctiva is united horizontally with mattress sutures, and a dressing applied, with strapping and a bandage, which is not disturbed for five days. A temporary prosthesis can be worn within ten to twenty-one days.

F. A. W-N.

- (3) **Ramsay, A. Maitland (St. Andrew's).—An analogy between eye strain (asthenopia) and heart strain (angina).** *Glas. Med. Jl.*, Vol. XXV, No. 4, April, 1945.

(3) A study is made of the analogy between the eye and the heart and it is emphasised that every pathological condition at its outset is a modification of a physiological process and that every symptom is a manifestation of disturbed physiology. It follows that the earliest symptoms are therefore those of exhaustion and due to disorder of function rather than of structure.

The involuntary musculature of the eye and heart are compared, the power of automatic contraction, the meridional and circular arrangement of fibres, and the double nerve supply. Equilibrium is maintained by the sympathetic-parasympathetic nerve supply of both organs acting in mutual antagonism and it is pointed out that the parasympathetic supply by oculomotor and vagus nerves is essentially protective and conservative.

Hippus is compared with youthful sinus arrhythmia and the property of iris muscle in amphibia to contract after death bears a strong resemblance to that of the heart muscle.

The reaction of eye and heart to drugs is also similar and the pain produced by the action of physostigmine on the unstriated musculature of the eye and elsewhere is quoted as an example.

Heart strain and eye strain are discussed and although an individual has no direct control of the action of his ciliary or cardiac muscle yet he has a complete control over the conditions which lead to their overaction resulting in the early signs of exhaustion.

The behaviour of these muscles under strain is also comparable as seen in compensating hypertrophy but should the load be removed either by lack of exercise or premature use of spectacles degeneration sets in even to fatty degeneration in the case of cardiac muscle.

Maitland Ramsay concludes that in health perfect balance is maintained in involuntary musculature by double nerve supply: the para-sympathetic system controls contraction and the sympathetic system dilatation. Failure in this balance is in all probability the first sign of approach of disease.

B. W. RYCROFT.

- (4) **Meenan, P. N. (Dublin).—The aetiology of trachoma in Ireland.** *Irish. Jl. of Med. Sci.*, November-December, 1945.

(4) This communication is a preliminary report of an investigation into the aetiology of trachoma in Ireland which, aided by a grant from the Medical Research Council of Eire, was undertaken in conjunction with Lavery. The work was begun in 1944, and is still in progress. This report is confined almost exclusively to the laboratory side of the investigation, and the clinical side of the work

is mentioned only in so far as is necessary to interpret and amplify the laboratory findings. A fuller account, incorporating the clinical findings, and the findings with the sulphonamides and penicillin (which work is still in progress) will be made the subject of a later joint publication.

At the present time there are two theories as to the cause of trachoma, that it is due to a Rickettsia or to a virus. The usually accepted criteria for a Rickettsial disease are that the organism should have an arthropod host, and that the Weil-Felix reaction (agglutination with *Proteus* strains) should be present. Neither of these is present in trachoma.

The virus theory goes back as far as 1907 when Halberstaedter and Prowaczek described the occurrence of granular masses included within the cytoplasm of conjunctival epithelial cells in trachoma. These have two constituents, elementary bodies and initial bodies, which are stages in the life cycle of the virus.

The infective agent is filtrable through a gradocol membrane; elementary bodies are present in the centrifuged filtrate; inoculated into the eye of a human volunteer, who was free from trachoma, the bacteria-free filtrate caused the disease which began acutely (Thygeson).

Wilson has shown that the presence of inclusions composed of elementary bodies constitutes the earliest recognisable pathological change in trachoma, being often found in the absence of bacteria.

The elementary bodies are morphologically indistinguishable from those of psittacosis, inclusion conjunctivitis and lymphogranuloma venereum. Tissue culture usually has been ineffective, though Poley reported some unconfirmed positive results.

An unexplained experiment by Bland is remarkable. He inoculated trachomatous material containing elementary bodies into the conjunctiva of four grivet monkeys in succession, and from the fourth passage into a human volunteer. No inclusions were found in any of the infected monkeys, but they re-appeared in the volunteer. Almost certainly the virus persists in infected monkeys, but not in a morphologically recognisable form.

Meenan discusses in an interesting fashion the possible action of sulphonamides in the treatment of trachoma. All that can be said is that they may be of value (at any rate by local application, Abstractor). Whether this is due to their effect on secondary invaders, or, as alleged, to a specific effect cannot at present be proved. The balance of probability seems to be weighted against the latter.

The question may be asked at what stage in the life history of trachoma does infection die out? Does it die out at the stage when there are no longer recognisable inclusions or does it carry on into the later or third stage?

The microscopical examination of specimens for inclusions is extremely tedious and a period of at least 90 minutes may be spent in examining a slide before it can be pronounced negative. Even if positive, inclusions may be found in only one cell. In only one of the author's cases were inclusions found in any considerable number.

In all, conjunctival scrapings from 49 cases were examined. Eight of these include normal conjunctiva, spring catarrh, ophthalmia neonatorum and technical mishaps to slides; in none of these were inclusions found. In the 41 cases of clinical trachoma inclusion bodies were found in 36.5 per cent. The author was unable to use cases from the endemic trachoma areas in the country, but was forced to rely very largely on cases which had been under observation before the investigation started, and had been already under treatment. There is no doubt that the percentage of positive findings would have been very much higher if he had had the opportunity of examining more fresh cases.

Inclusions are only found in the following ocular conditions: trachoma, inclusion conjunctivitis, inclusion blennorrhoea and swimming bath conjunctivitis. The differential diagnosis of these conditions *inter se* rests on clinical grounds. Inclusion blennorrhoea of the new-born cannot be confused with trachoma, because the latter never occurs in the new-born. Inclusion conjunctivitis of the adult is a rare disease which begins acutely in one eye, though it may spread to the other; in swimming bath conjunctivitis there is a history of freedom from any eye complaint until after the recent use of a swimming pool. The principal condition with which trachoma may be confused clinically is follicular conjunctivitis, but this should not occur if the ophthalmologist uses his slit-lamp to note the absence of neovascularization of the corneal periphery characteristic of trachoma. Inclusion bodies are not found in follicular conjunctivitis.

The author confirms Braley's observation (*Arch. of Ophthalm.*, Vol. XXI, No. 5, p. 735, 1939), as to the occasional presence in the normal conjunctiva of Giemsa-staining intracellular granules. These, however, should not be confused with the Halberstaedter-Prowaczek Körperchen (HPK), or virus inclusion bodies of trachoma.

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BOOK NOTICE

Archivos de la Asociación para evitar la Ceguera en Mexico.
Vol. III. 1945.

This fasciculus of 282 pages is a credit to the Editors and to the Association for the Prevention of Blindness in Mexico. There are