CONJUNCTIVA

For further details, and also for the reasons that have led the Association to adopt the above scheme our readers should consult the original article. Time alone can show how far the scheme will act satisfactorily. If insured persons, as seems likely, avail themselves of the scheme there may be some risk of depletion of the Out-Patient Departments of both special and general hospitals.

ABSTRACTS

I.—CONJUNCTIVA

(1) Mariotti, Cesare (Bologna).—A very rare and severe form of pseudo-membranous conjunctivitis of streptococcal origin cured by autovaccines. (Sopra una rarissima e grave forma di congiuntivite pseudomembranosa da streptococco guarita con l’autovaccino.) Boll. d'Ocul., Vol. VII, No. 11, p. 1118, 1928.

(1) A very severe and intractable case of pseudo-membranous conjunctivitis in an infant is described in this paper, and leads up to a discussion of the various organisms which may give rise to membranous or pseudo-membranous conjunctivitis. Further, Mariotti discusses the resistance to treatment of cases of conjunctivitis which are secondary to infection of the lacrimal passages. There is a very full review of the literature bearing on similar cases.

Leslie Paton.


(2) Morax reports at length two cases of pseudo-membranous conjunctivitis with unusual associated features. He also quotes in detail a similar case of Liio Pavia, and refers to one somewhat analogous described by Kalt and Autier. The most striking features of Morax's cases are quoted.

Case 1. A female child, aged three years, during her recovery from an angina and bronchitis with fever rising to 40° C.,
suffered from conjunctivitis of the right eye of many weeks’ duration with membrane-formation mostly on the upper tarsal conjunctiva; on some occasions the membrane was found to have disappeared, sometimes with the simultaneous development of a more or less pedunculated granuloma (demonstrated histologically); ablation of the granuloma was followed by further membrane-formation or by recurrence of the granuloma. Histological examination of a granuloma excised from the upper tarsus showed at the base vascular granulation tissue containing masses of hyaline substance. There was dense infiltration of the superficial layers of the granulation tissue with cells, mainly lymphocytes, and superficial to this cellular zone was a false membrane composed of a fibrinous layer with scanty cell infiltration.

Case II. A child at the age of four years developed an acute conjunctivitis with false membrane on the conjunctiva, and angina, also with the presence of a false membrane in the throat. Roux’s serum was given by injection. Within a few days corneal ulceration developed and rapid perforation of the cornea occurred. For two years the socket continued to discharge. Morax then examined the case and found the shrunken globe hidden by a granuloma. This and the conjunctival sac were covered by a grey false membrane. There was no palpebral oedema, and no adenitis. The other eye was healthy. After about three months’ stay in the country the child’s general condition was excellent, and there was no false membrane, but a pedunculated granuloma the size of a small nut occupied the orbit. The granuloma was excised without complication. Four months later the socket was free from granuloma and false membrane.

Details of similar cases are quoted from descriptions by Lijo Pavia (Argentine), and Kalt and Autier (Bulletin de la Soc. d’Ophtal. de Paris, 1927). The features of these cases are as follows:

1. The development of a pseudo-membranous conjunctivitis with acute or sub-acute onset in association with angina, bronchitis and fever or with angina accompanied by the formation of false membranes.

2. The development of false membranes not influenced in the least degree by injections of antidiphtheritic serum.

3. Both eyes affected in two cases, but the disease had a predominating effect in one eye.

4. After a preliminary period of pseudo-membranous exudate of several months’ duration, recurrences of the exudate took place.

5. The cornea was affected at the onset in two cases, at later dates in the others. Enucleation was necessary early in one case, and in the others the eyeball became shrunken.
6. The appearance of one or more granulomata covered with pseudo-membranous exudate, and the exacerbation of similar exudate after removal of a granuloma. Recurrence of granulomata.

Aetiology.—It is an affection of childhood, the oldest case being ten years of age. Three were female, one male. No definite result was obtained from bacteriological examination, excepting the complete absence of evidence of diphtherial infection.

Humphrey Neame.


(8) Apart from iritis and recurrent iridocyclitis with hypopyon formation, it would appear that lesions of the conjunctiva also may occur in erythema nodosum. As complications of erythema exudativum multiforme, conjunctival lesions are by no means rare; indeed three varieties of conjunctivitis have been described in this connection: catarrhal, membranous, and nodular. In erythema nodosum, however, the text-books do not recognise any conjunctival complication, and the literature on the subject contains but few reported cases. In a case under the care of v. Rötth conjunctivitis of the nodular variety developed; this is an agreement with the type reported by other observers and differs in no way from the nodular conjunctivitis seen in erythema multiforme. The lesion is thus described: "The part of the conjunctiva lying between the lids becomes oedematous, then a small nodule is formed, surrounded by an injected area. The lesion is confined mainly to the nasal side of the conjunctiva. The nodule extends down into the subconjunctival layers, perhaps also involving the episclera; usually it disappears together with the erythema nodosum within a few days. The prognosis is good; there is no pain and no treatment is necessary."

The fact that the conjunctival lesion of erythema nodosum corresponds to the most common variety seen in erythema multiforme, is of some interest, as some dermatologists consider both diseases to be of the same origin. Interesting too is the question as to the nature of the nodules: erythema nodosum is suspected to be of a tuberculous nature, but the conjunctival nodules cannot be regarded as tuberculous episcleritis. The appearance and clinical course of these nodules make it impossible to regard them as a deep-seated lesion of a stubborn variety such as tuberculous episcleritis.

A. Sourasky.

(4) Urbanek draws attention to a periodic dermatitis characterised by a vesicular eruption occurring in exposed parts of the body and associated with considerable itching which appears to be due to the action of light. It is seasonal in its occurrence coming on in the spring and subsiding in the autumn. It is accompanied by a similar eruption on the conjunctiva and may have some association with vernal catarrh. The suggestion is made that there may be some possible relation between light sensitivity and tuberculosis. Möller, for example, classes lupus erythematosides discoides as belonging to the light dermatoses, and Volk and Grosz have noticed a similar skin reaction after intracutaneous injections of dead tubercle bacilli. Urbanek thinks that this may help to explain the occurrence of periodicity in tuberculous eye diseases and the benefit accruing to such cases from treatment by artificial sunlight.

W. S. Duke-Elder.


(5) Lagrange states that he considers cases of vernal catarrh ought to be grouped in the class of cases dependent on what Czerny entitles the exudative diathesis. The condition, he states, is one which occurs about the period of puberty, which disappears when puberty is passed, and in which recovery has been helped by the use of glandular therapy. The idea came to him after observing the case of a woman who had a recurring seasonal conjunctivitis after the removal of the ovaries. The administration of ovarian extract was followed by the arrest of the conjunctivitis. In the four cases reported the ages were from nine to fourteen years; lacrimation, photophobia and irritation of the eyes had recurred in the summer months for three or four seasons, with conjunctival injection. Eosinophiles were found in the conjunctival secretion of three cases. It was noted that the testicles were ectopic or small in three. In one there was a family history of maternal syphilis and of hay fever, in another pneumonia had occurred at the age of eight years, and in a third there had been recurrent fever of unknown cause at the age of three, and recently violent pertussis. [These do not appear to have been cases of typical spring catarrh, for although there was a seasonal element,
and in three of them eosinophiles were found in the conjunctival secretion, there were no typical nodules, either palpebral or ocular, except in one which showed some projections at the limbus. Lactymation, photophobia and sense of irritation were present in three and conjunctival injection in all four. All four showed sensitivity to pollen, three by the cutaneous test and one by susceptibility to flowers. They therefore appear to belong to the group of hay fever. As the administration of orchitic extract was usually carried out over a period of several months, it would seem uncertain whether the improvement recorded was post or propter hoc.

HUMPHREY NEAME.


(6) In a trachomatous country such as Egypt it is possible, unless great care is taken, to miss cases of trachoma which are complicated by spring catarrh. Meyerhof drew attention to the importance of this in 1912 at the same Society, though this has escaped Fahim, the author of the paper under review.

As is well known the presence of eosinophilia in the conjunctival secretion provides a means of diagnosing the presence of spring catarrh, masked by trachoma. This was first pointed out by Herbert (British Medical Journal, 1907). It occurred to the author of the paper under review that there might be an error in diagnosis if the presence of eosinophilia was relied on, as so many Egyptians have either ankylostomiasis or bilharziasis, and in such conditions of helminthiasis there is eosinophilia of the blood, varying from 6 per cent. to 32 per cent. He therefore examined the conjunctival secretion of sufferers from these parasitic diseases and found eosinophilia absent. He therefore is satisfied that the presence of eosinophilia in the conjunctival secretion is pathognomonic of spring catarrh, even in Egypt.

In the discussion Sobhy stated that MacCallan and he had previously investigated this subject, publishing the results in the Eighth Annual Report of the Ophthalmic Section, Department of Public Health, Egypt, 1920, and had arrived at the same conclusion.

A. F. MacCALLAN.
II.—MISCELLANEOUS

(1) Veil, Prosper (Paris).—Sclero-keratitis successfully treated by the anti-tuberculous vaccine of Vaudremer. (Sclérokeratitis traitée avec succès par le vaccin anti-tuberculeux de Vaudremer.) _La Clin. Ophtal._, February, 1928.

(1) Veil's case was shown at the February, 1928, meeting of the Paris Ophthalmological Society. The patient was a young woman, aged 21 years, with a family history of tubercle, but without, as far as could be ascertained by careful examination, any personal lesion. Nevertheless, there were scars in the cervical region. The right eye had been, for three years, the seat of relapsing sclero-keratitis; the left eye presented a leucoma adherens. Taking everything into consideration the author concluded that the basis of the case was tubercle and decided to employ the vaccine of Vaudremer. One need not quote the details of the injections, which were painless and did not produce general, local, or focal reaction.

The photophobia disappeared after the third injection, the eye was white and painless after the fourth. At the end of the course of 12 injections the cornea had partly recovered its transparency, though the corneal microscope showed a rich vascularisation of that membrane. The sclera had a dusky appearance. During the treatment the patient put on four kilogrammes in weight, while her general health was much improved. Another course of the treatment is contemplated. Veil considers that this vaccine has a specific action and that its employment is justified in cases with a family history of tubercle. It is interesting to note that he has tried the vaccine in other cases which were completely free from tubercle, in two cases of iridocyclitis of indeterminate origin, and in one case of vitreous haemorrhage in an adolescent. In none of these cases was the vaccine of any service.

**Note.**—A previous case was reported by Veil and Favory to the April, 1927, meeting of the Paris Ophthalmological Society, and was published along with details of the preparation and method of use of Vaudremer's vaccine, in _La Clin. Ophtal._ for July, 1927. It concerned a woman, aged 23 years, who, four years previously, had suffered from what had been diagnosed as tuberculous pleuro-peritonitis, whose father had had pleurisy, and who (i.e., the woman) presented the signs of pure cyclitis with abundant desce-metitis. She was treated with this vaccine, but, while the eye condition manifestly improved, towards the end of the treatment
physical signs appeared at the apices of the lungs and the treatment was stopped.

ERNEST THOMSON.


(2) Engelking has described eleven cases of xanthomatosis bulbi, and performed a series of experiments on rabbits with a view to determine the factors in its aetiology. From clinical, histological, and experimental work he concludes that the condition is due to a disturbed metabolism in the iris and ciliary body, associated with an infection, or a toxin, or with increased intraocular pressure. Two things are essential: first, an increase of cholesterol in the blood, and, second, a local lesion in the eye.

A typical clinical case is as follows: The patient in 1915, being 56 years of age, had a chronic irido-cyclitis of the right eye, with keratic precipitates and posterior synechiae. Two years later the lens became opaque, and the pupil became occluded with exudative material, the eye meanwhile showing no irritation or pain. In 1926 the eye was amaurotic, the tension was very high, the anterior chamber was shallow. Keratic precipitates were evident in quantity. The iris was atrophic with ring synechiae, and a complicated cataract was fully developed. The other eye showed a chronic uveitis with keratic precipitates accompanied by a commencing cataract and vitreous opacities. In 1927 the right eye, which had been ten years blind, showed xanthomatosis of the iris as a circular yellow ring. The iris was very much atrophied, the cataract was hyper-mature, the intraocular pressure was 50 mm. Hg. At this time the entire chamber was optically clear, but later a clouding of the aqueous appeared which was diagnosed as probably due to cholesterol. The cholesterol content of the serum was 144 mgr. per cent.

The typical microscopical appearances in an eye which was excised for glaucoma of long standing, and was stained with sudan III, were as follows: The cornea showed a fatty infiltration of the parenchyma; the sclerotic was fat-free, except in its inner part. The choroid was fat-free, except for fine fatty bodies in some of the cells of the pigment epithelium. The retina was fat-free. The vitreous contained some resemblances of cholesterol crystals, which, however, were not typical. The iris showed an area loaded with fat arranged with a ring-shaped distribution. The anterior chamber was fat-free.
The author's experimental work dealt with the feeding of rabbits on a high cholesterol diet. The eyes were then wounded, and allowed to heal up with infection. Twelve days later the animals were killed, when examination showed a wide-spread xanthomatosis of the iris and ciliary body.

W. S. Duke-Elder.


In Sobhy's case the eye was pushed forward, down, and out. All movements were free. No tumour or resistance was felt around the globe. The proptosis was not reducible. There was no pulsation, murmur, or glandular enlargement. The pupil was semidilated and sluggish. The optic disc was swollen: the vision was only 4/60, partly due to the corneal opacity, the result of old trachoma. Wassermann negative. Radiography gave no help. Blood-count showed no increase of white blood corpuscles.

The operation was carried out, under general anaesthesis, through an angular incision at the outer angle of the orbit. A tumour was felt behind the globe to the outer side of the optic nerve. The tumour was shelled out easily; it measured 22 by 17 mm. It was found on microscopical examination to be an angioma.

A. F. MacCallan.


Peters reports two cases of detachment of Descemet's membrane after operation. The detached portion of the membrane in each case rolled itself up in the form of a cylinder, and remained quite clear. The first case was of a woman, aged 86 years, who was suffering from a chronic glaucoma, and on whom a cyclo-dialysis had been done. Twelve days later slit-lamp investigation showed a detachment of Descemet's membrane over a small area, surrounded by pigment changes in the cornea. The second case was of a woman, aged 87 years, who had absolute glaucoma. In her case an iridectomy was performed which was followed by the same sequela. This operative complication is extremely rare, but has been noted before.

W. S. Duke-Elder.

Villard relates in full all the circumstances attending the examination of a case of simulated bilateral amaurosis in a soldier, who, after all, was never convicted, in spite of the most trying tests that can well be imagined. Nevertheless, it was afterwards found that when discharged from military service he was living happily and seeing perfectly, and even making a good living, in his native village. The details of the tests made in this extraordinary case in order to convict the man of fraud must be read in the original.

Ernest Thomson.


Loddoni reports in detail the occurrence in a girl, aged 29 years, of conjunctival haemorrhage after a slight injury by fragments of metal. The vision of the affected eye was found on one occasion to be 6/6. Later, amblyopia and amaurosis developed in association with mydriasis, attacks of nystagmus and intermittent squint. The matter is discussed, and references are made to other cases in the literature. A bibliography is appended.

Humphrey Neame.

(7) Picard, P. (Thionville), and Dreyfus, P. A. (Strasburg).—Compression of the thorax followed by immediate and permanent blindness. (Compression du thorax suivie de cécité immédiate et définitive.) *Arch. d'Ophtal.*, June, 1928.

Picard and Dreyfus, in the case now published, add one to the small number hitherto reported. They refer to seven examples in the literature, the earliest of which was published in 1906 by Béal. In all the instances loss of or severe damage to sight ensued, with the ophthalmoscopic appearances of optic atrophy. Picard and Dreyfus's case presented some unusual characters, or at least some which had not been noted in former cases.

The man, aged 37 years, was crushed by a travelling crane. On admission to hospital immediately afterwards, he exhibited the characteristic ecchymotic mask, with extensive haemorrhages of face and neck. He was quite conscious. There were several fractures of ribs and an acromian dislocation of the left clavicle.
Extensive ecchymosis of the eyelids, a high degree of chemosis; and subconjunctival haemorrhage occupying the whole of the ocular conjunctiva were noted. There was also noticeable exophthalmos, especially on the right side. The pupils were wide and immobile. The ocular media were clear, and the fundi quite normal, except for a small patch of old choroiditis in the left eye.

The man had no perception of even concentrated light, and stated that his sight failed suddenly about two seconds after he was struck. Signs of atrophic changes in the optic disc appeared about ten or twelve days after the accident; in four weeks the discs were completely blanched with sharp edges and narrowed arteries.

The authors discuss the various hypotheses which have been offered to explain the causation of the blindness in these cases: they incline to the hypothesis of haemorrhage in the substance of the nerve, followed by sclerosing degeneration. In none of the reported cases has there been post-mortem evidence of the lesions resulting from this type of injury.

J. B. Lawford.


(8) Roggenbau and Wetthauer have investigated the permeability of the ocular media to infra-red rays. They used the eyes of dead oxen, and, as a source of light, a Nernst lamp (temperature 2,261°C). The light from this was conveyed through a slit aperture by a system of lenses and mirrors, and was dispersed by a prism. Measurements were taken by a micro-radiometer. They investigated the spectral region from 656 A.U. to 3,000 A.U. They recall the work of Vogt who measured the transmissibility of the human eye to infra-red rays by a galvanometer and a thermopile. It will be remembered that this investigator found that the cornea absorbed 20 to 25 per cent., the aqueous 20 to 30 per cent., the lens 30 per cent., and the whole of the ocular media 60 per cent. of the incident radiation. He also stated that rays from 800 to 1,500 A.U. penetrated the media, while those above 1,500 A.U. were absorbed.

The present investigators find that the permeability does not stop at 1,500 A.U. but goes on to 2,500 or 3,000 A.U. They find that the cornea has a maximum permeability between 900 and 1,000, that the aqueous and vitreous have maxima in the visible spectrum, while the lens has a maximum between 700 and 800
A.U., that is, in the region between the visibles and the infra-red. The permeability of all the media falls in the region of 1,400 to 1,500 A.U. to a first minimum, below which the permeability of the vitreous falls to nil. This phenomenon explains the findings of Vogt. Thereafter, however, the permeability of the other media has a second rise between 1,600 and 1,700 A.U. and reaches a second minimum between 2,000 and 2,100 A.U. After this a small third maximum is reached about 2,300 A.U.; thereafter the permeability gradually falls away. The importance of this investigation is the demonstration that a considerably higher percentage of radiant energy in the long waves of the spectrum falls upon and is absorbed by the lens. This tissue shows a maximum absorption of between 1,000 and 1,200 A.U. and again between 1,500 and 1,900 A.U. The authors' results are interesting in that they corroborate almost entirely the researches of Hartridge and Hill (1916) on the transmissibility and absorption of infra-red by the media of the eye, a research which appears to have been overlooked.

W. S. Duke-Elder.


It would be impossible to do justice to Lacarrère's article in an abstract, since the understanding of it depends almost wholly on the illustrations. The author describes a diaphragm—which can be fitted to the usual Zeiss instrument—containing two slits of peculiar shape and arrangement which greatly facilitate examination of the cornea, but which, it is specially stated, are not concerned with, and, so far as the author can see as yet, are not advantageous in examination of other parts of the eye.

Ernest Thomson.


Roy reports in detail the development of optic atrophy, with reduction of vision of the right eye of a workman to perception of light, as the result of exposure to the light produced by electric welding. For several months after the exposure, the vision of the affected eye was reported by various observers to be 1/10. About eight months after the exposure Roy found a retinal scar to the temporal side of the optic disc, a lesion of the macula and
optic atrophy. Careful investigations were made to exclude other causes of optic atrophy. He noted a deficiency of information on this matter in ophthalmic text books, but found reports of several cases in the literature (Brière, Rohmer, Panas, Knies, Terrien, etc.) in which optic atrophy and loss of vision had followed exposure to lightning or other electric discharge at close quarters. Apart from transient signs and symptoms in the skin and conjunctiva, the left eye of Roy's patient remained healthy. This is explained by presuming that the patient had turned his head to the left so that the left pupil was protected by the nose from direct exposure. A large bibliography is appended.

HUMPHREY NEAME.

(11) Spindler, Henry (Lille).—The influence of the loss of one eye on the visual function and the consequences of this from the standpoint of capacity for work. (Influence de la perte d'un œil sur la fonction visuelle et ses conséquences au point de vue de la capacité de travail) La Clin. Ophtal., January, 1928.

(11) Spindler combats the opinion that has been held by some writers that when one eye has been lost, and when time has brought about cerebral re-education the working capacity is not really seriously diminished, and, a fortiori, when there is merely diminution of visual acuity of one eye. These writers say that the only loss is that of one-sixth of the visual field. Spindler reminds us of the anatomy of the oculo-cerebral connections with special reference to the macular bundle, and makes the point he wishes to insist on in the following words: "When one eye has been lost the two cerebral macular visual centres, right and left, continue to be excited by the luminous impressions transmitted to one centre by the remaining portion of the macular bundle, for example the direct bundle, and to the other visual centre by the other portion of the macular bundle of the remaining eye, that is by the indirect bundle. The two visual centres thus continue to receive luminous impressions from the internal and external, superior and inferior sectors of the retina of the remaining eye, but, in so far as intensity is concerned, they receive one half only of the luminous impressions, since there is only one retinal surface instead of two to receive and transmit impressions. The fact that the two visual centres continue to be excited accounts for re-education in the estimation of distance and in the sense of relief."

The author gives an explanation as to how this comes about, but as the reviewer is unable to follow the explanation exactly in a foreign language it will suffice to say that in the author's view the
two cerebral centres are, after a time, able to build up perspective and relief sensations out of the messages received from the two halves of the remaining retina. In any case (and one is inclined to think this expression reveals a doubt as to the correctness of his theory of re-education), says the author, there is a diminution of the energy of vision (énergie de la vision). He compares the conditions to those of an under-exposed photographic plate compared with the same plate exposed for a longer time, and, similarly, points out how in one’s every-day practice one finds that a normal individual sees the photometric scale more brightly illuminated with two eyes than with one eye, and how when, in an ametrope, each eye has been given by glasses an acuity X, both eyes together have an acuity X plus. The sum total of the author’s calculations of incapacity is that a workman who has lost one eye has lost one-sixth of his field of vision, an amount, which he says, is agreed and is equivalent to an incapacity of 16.6 per cent., plus a loss of 8.4 per cent., due to “diminution of visual energy,” the total “invalidity” due to the absence of one eye being thus 25 per cent.

Ernest Thomson.

(12) This is a useful description of the means of securing anaesthesia in ophthalmic surgery by instillation, infiltration, and nerve-block, using cocaine, novocaine and various other substitutes for cocaine. For cataract extraction O’Brien recommends instillation of cocaine four times, and then a subconjunctival injection of equal parts of a 2 per cent. solution of novocaine and 1/1,000 adrenaline solution. He then blocks the facial nerve in the following manner: The point of injection is just anterior to the tragus of the ear, below the posterior portion of the zygomatic process and directly over the condyloid process of the mandible. Going straight inwards with a short needle one strikes the bony condyloid process at a depth of about 1 cm. As soon as the bone is felt with the needle about 2 c.c. of a 2 per cent. solution of novocaine is gradually injected in withdrawal. (Nerve-blocking is more usually carried out at the present day by the use of a much more dilute solution of novocaine, say 0.25 per cent., in much larger quantity, 10 or 15 c.c.—Reviewer.)

O’Brien says: “Except in cases of enucleation or evisceration or in an eye that is blind, it is usually not wise to inject deep into the orbit for fear of injuring some of the structures lying therein.”

A. F. MacCallan.

Galal-Aboul-Seoud is an experienced ophthalmic surgeon who had an opportunity to spend four weeks in 1926 in the Islamic Holy City of Mecca, the capital of the Hejaz. Here there is a general dispensary which was founded in 1820 by the Albanian Governor of Egypt, Mohammed Ali, the ancestor of the present King of Egypt. The work was carried on at the dispensary during the month of February, the total number of patients examined being 200. The operations included 18 for cataract, 9 for glaucoma, 48 for trichiasis or entropion, and 40 for trachoma.

The author was particularly struck by the absence of trachoma among the inhabitants of Mecca, their eyelids being perfectly smooth. Such evidences of trachoma as he saw were among the people of Nejd, who are now occupying the city. Nejd is an emirate of central Arabia extending eastwards from the Hejaz to the Persian Gulf. It consists mainly of a plateau where rain is prevalent, and where consequently there is cultivation. The climate is cooler than in the Hejaz and there are frequent high winds and sand storms.

The inhabitants of Mecca, on the other hand, live in a valley, very warm in winter, and in the summer unbearably hot. There is practically no rain, and absolutely no cultivation. The extremely limited water supply is brought in pipes for more than 20 miles. The author suggests tentatively that this immunity of the inhabitants of Mecca to trachoma may possibly depend on the meteorological conditions. He considers that there is no racial distinction between the inhabitants of Mecca and their neighbours the inhabitants of Nejd. He is unable to offer an entirely satisfactory explanation of the immunity of the inhabitants of Mecca and the Hejaz generally, though they have been visited annually for centuries by thousands of pilgrims from trachoma-stricken countries.

A. F. MacCallan.