entered the U.S.A. illegally; (d) in sporadic form among its city dwellers without known source of contact; (e) among the American Indians. Trachoma is not uniformly reportable in the various states and there are no adequate statistics as to the total number of people infected. A map is reproduced showing the geographical distribution of trachoma cases reported in 1937, as well as a table which gives the numbers of new cases of trachoma reported in the same year. Here Illinois heads the list with 502, Missouri, 476; Ohio, 435; California, 243; Tennessee, 118; Oklahoma, 106. The lower numbers in this series contain Connecticut, Oregon and Michigan, 4 each; Virginia, 3; South Dakota, Maryland and Georgia, 2 each; Kansas, Florida and Colorado, 1 each; while Montana, Idaho and Washington reported no new cases at all.

Gradle gives a rough estimate of the trachoma cases in the United States as follows: Stage I, 4,322 cases; Stage II, 7,538 cases; Stage III, 9,012 cases; Stage IV, 12,630 cases, making a total of 33,502 cases.

Trachoma among the American Indians is considered separately. The total Indian census among the reservations is 342,500. The incidence of trachoma varies with each individual reservation from nothing among the Seminoles to 35 per cent. among the Navajos. Gradle gives a rough estimate of 25,000 cases of trachoma among the Indians.

ABSTRACTS

MISCELLANEOUS


(1) The function of the “between” brain can be studied by fine electrical stimulation and by the coagulation of small areas by diathermy. It can be shown to have a definite influence on the size of the pupil. Stimulation, even if unilateral, always produces a bilateral change in the pupils, and this is linked with other symptoms such as alteration in the size of the palpebral fissure. Mydriasis occurs on stimulation of the posterior part of the hypothalamus and miosis from stimulation of the anterior. These centres are not specific for the production of pupil changes alone but are closely linked with sympathetic and tonic nervous mechanisms.

D. R. CAMPBEIL.

(2) In a study of plasmoid overgrowths of the conjunctiva Pascheff concludes that plasmoma and folliculoma are mutually exclusive forms of growth though both may be accompanied by pannus or by leucocytosis. The plasmoma appears to be related in its cell structure to the adventitia of the vessels, and folliculoma to the endothelium. Trachoma, fibro-papillary and hyaline hyperplasias are all lymphomatous types of hyperplasia and differ from plasmoma.

D. R. CAMPBELL.


(3) Weve describes the localisation and treatment of retinal tears. A detachment is often placed symmetrically around the site of a tear. An investigation of the subretinal fluid showed that its specific gravity increased with the duration of the condition, both in "balloon" and flat detachments. In the former a variation of 1.0066-1.0266 was observed. Certain enzymes were present; amylase occurred in 12 out of 55 cases, but was always absent when the s.g. was lower than 1.012. There was some evidence that it was derived from the retina, and that it was in association with peroxidase. No trace was found of glutathione, ascorbic acid or lactoflavine. Certain proteinases were present in the vitreous also, which converted protein into peptones and polypeptides, but not into amino-acids. The pH of the subretinal fluid varied from 8.3 (in cysts of the ora serrata), to 7.3 in recent detachments, and down to 6.9. Trimethylamine and butylamine were present, but not allylamine.

The author states that tears at the ora and fovea have a good operative prognosis, but only 50 per cent. of tears occurring in aphakic eyes can be cured. The localisation of holes by means of intensive lighting through the fully dilated pupil is most important.

D. R. CAMPBELL.


(4) Although various causes are known for interstitial keratitis, there still occur a number of cases in which the reason for its occurrence is obscure. It is with the possibility that some of this
latter group are due to food allergy that Dean and McCutchan deal in their paper. Since 1930 they have seen six persons with interstitial keratitis who have been relieved by removing certain articles from their diet and have suffered relapses when consumption of the offending foods has been resumed. The manifestations begin with slight irritation of the eye, lacrimation and redness. The cornea becomes infiltrated with faint irregular interstitial opacities, often limited at first to one quadrant and becoming denser. Deep vessels develop soon and conjunctival loops extend into the subepithelial layers of the cornea. The development of scar tissue follows and the entire cornea may be involved except for a fairly clear margin near the limbus. Dense calcareous looking opacities appear late, no intra-ocular complications have been seen. The disease is accompanied by pain which may be very severe. On removal of the offending food or foods from the diet, the ciliary injection and pain disappear in 48 hours, and opacities not due to scar tissue gradually lessen. All symptoms reappear 24 hours after ingestion of the food to which the patient is sensitive. The six cases described in the text, illustrate these observations in a striking manner. The first was a woman, aged 49 years, in whom the disease had become progressively worse over a period of eleven years, vision being reduced to detection of shadows. In the absence of equipment for adequate cutaneous tests, the patient was admitted to hospital and her diet reduced to zero. After two days of fasting, improvement became manifest, and then simple articles of food were added day by day until a maintenance diet was established which produced no ocular symptoms. If pork were taken, however, they returned, and the same was true of milk from a cow which had been fed on cottonseed meal. In the remaining five cases, the following articles of food were proved to be responsible:—in the second case, wheat, strawberries and cucumber; in the third, cheese; in the fourth, pork and egg white; in the fifth, chocolate; in the sixth, rye bread. In this last case the interesting observation was made that an intradermal test with rye produced a violent reaction not only locally but also focally, both eyes becoming red.

F. A. W-N.


(5) Knapp states that hitherto only nine cases of this disorder have been reported in the literature. His patient was a coloured female, aged 28 years. Since the age of 14 she had developed an increasing number of small and large fatty tumours of the skin irregularly distributed over the trunk, extremities, head and neck.

In the right cornea there was a dense white area about 4 mm. in
diameter and a larger area in the lower third of the left cornea but similar in appearance. There was superficial and deep vascularization. Slit-lamp examination showed that the margins of these opaque areas were well defined and their structure was homogeneous. There were recurrent attacks of moderate conjunctival and ciliary injection. These changes in the cornea progressed over six years and reduced visual acuity to 1/60 and 3/60. The blood cholesterol estimations were normal. In this case there has been no opportunity to confirm by histological examination the fatty nature of the corneal lesion.

H. B. Stallard.


(6) Nicholls and Nimalasuriya review the description given by Bitot in 1863 of numerous small white specks or slender short lines of a non-inflammatory origin usually triangular but sometimes round or oval aggregating into a pearly or silvery spot, placed temporally to the cornea and only as small dots on its medial side. On the temporal side the affected area is roughly triangular in shape with its apex pointing temporalwards and its curved base with the concavity towards the cornea. In some cases the surface of the spots is rugose and in others it is arranged in a series of wavy parallel lines.

The authors have examined several hundred malnourished children in Ceylon. They have never seen Bitot’s spots extending on to the cornea as some observers describe in the literature. They comment on the slight thickening and pigmentation of the bulbar conjunctiva on the temporal side which increased in some of their cases. The epithelium was thickened by heaped-up epithelial cells which stood out white against the pigmentation; one or two blood vessels running towards the cornea were prominent, and capillaries could be seen dipping into the thickened epithelium. These changes in the conjunctiva extended to within 1 or 2 mm. of the corneoscleral junction. In less than 2 per cent. of cases the nasal side of the bulbar conjunctiva was thus affected.

The authors of this paper did not find night blindness present in the majority of the cases.

They comment that Bitot’s spots tend to be very chronic and it is necessary to give large doses of fish-liver oils or concentrated preparations of vitamin A to clear them.

They found among other signs of vitamin A deficiency in school children surveyed in Southern and Northern Ceylon, phrynoderma, a papular dry skin eruption, angular stomatitis and superficial erosion of the tongue and have attempted to correlate the incidence
of these in association with Bitot's spots. The percentage incidence of these disorders is set out in a table.

H. B. Stallard.


(7) Traquair's Mackenzie Memorial Lecture delivered on October 28, 1939, is here reprinted. It is an admirable survey of a subject that the lecturer has made his own and well repays perusal. Traquair's work on perimetry is so well known to all our readers that no set abstract is necessary in this place. The paper is illustrated by a frontispiece of Mackenzie, reproduced from an article in the *Annales d'oculistique* of the year 1868, which will we think be new to most ophthalmic surgeons of the present day. There are also four diagrams showing the field in horizontal section, contraction of the field to show the effect of peripheral contraction, a diagrammatic representation of the visual pathway and two charts from cases of tobacco amblyopia.

R. R. J.

(8) Corrado (Genoa).—The variation of the arterial pressure both general and retinal under acetylcholine and ultra-violet rays. (Variazioni della pressione arteriosa retinica ed omereale, etc.). *Ann. di Ottal.*, January, 1940.

(8) The examination of the arterial pressure in the retina is a very important practice in ophthalmology. Increase of this pressure has been shown to be not infrequently the first sign of a general arteriosclerosis. It is well known that there is no constant relation between the size of the artery and its pressure. Though the importance of recognising early changes in arterial pressure is known, the best method of treatment is in doubt. Hence Corrado has investigated the action of the two agents on normal and arteriosclerotic people. He decides, as a result of many observations that the short ultra-violet rays are more potent in reducing the pressure while acetylcholine acts more strongly in increasing the calibre of the vessels. The reduction of the arterial pressure of the retina is more marked than that of the general after the use of ultra-violet rays; after acetylcholine the general pressure is more affected; this is associated with a more constant vaso-dilatation. It seems probable, says the author, that the ultra short rays act on some pressure-regulating mechanism in the brain. Therefore when it is desired to obtain only a local effect on the vessels of the head, the use of ultra short rays is the method of election; acetylcholine, acting on the general pressure, may be followed by some unwelcome result. The two agents may be usefully combined, however, in many cases.

Harold Grimsdale.

The question of the aetiology of trachoma is still to solve; of recent times the opinion has been becoming more general that the disease is due to a filter-passing virus. There can be no doubt that the disease is contagious, though this is still denied by a few surgeons; the result of a considerable number of experiments on man, prove the contagious nature. These have shown that the virus is not always equally active and also that subjects are not equally susceptible. The question is still further complicated by the fact that man alone suffers from true trachoma; it cannot be established that the conjunctivitis which in monkeys, follows inoculation, is the same disease.

Recent research on the life history of viruses has shown that they may be cultivated on tissue cells kept alive, outside the body. Santoni has tried to cultivate the infecting agent of trachoma in this way; there are several ways of cultivating virus. The author has selected the plan of growth on tissue taken from the living body. He has chosen epithelial cells from the superficial layers of the cornea; the cells grow aseptically. Some part of these cells is dipped in material taken from active trachomatous cases. No Prowazek's corpuscles were to be found in any of these. The results of the experiments were negative.

The author draws certain conclusions from the facts before him; that to whatever category we ascribe the agent of trachoma whether to virus or rickettsia, both have been found cultivable outside the organism. It has been found possible to identify the carriers of virus—if not the virus itself—in formations described as elementary bodies; it has been shown that these bodies make their way into the cells and by their growth, destroy them. It is further evidence that the size of these bodies coincides with the size demonstrated by filtration.

The infecting agent of trachoma differs from all other virus, in that its toxicity decreases under cultivation while all others increase in this power. Even small changes of temperature or slight drying, can destroy the trachoma virus. These experiments such as the author has conducted, are not easy to carry out; many of them fail from infection by bacteria, but a fair number remained sterile. In none, however, did he succeed in obtaining evidence of multiplication of the trachoma virus. It will be remembered that Cuénod and Nataf have claimed that the virus will grow in lice and that these are probably the carriers of the disease; it seems certain that many sufferers from trachoma are not lice-infected and also that there is no serological reaction in the blood of the trachomatous similar to that found in the sufferers from diseases which are known to be due to rickettsia. The author thinks that further study of
virus may lead to the discovery of the agent of trachoma, which because of being solely a disease of man, may have special peculiarities of growth.

HAROLD GRIMSDALE.


(10) It was noticed accidentally by Mitchell, Swift and Wagnard in 1935 that rats fed on excess of galactose became the subject of cataract. They found that these rats showed disturbance of metabolism; the amount of calcium in the cataractous eye was double normal, but the total amount in the body was not altered. Bellows noted that the appearance of the cataract was delayed by large doses of vitamin C, and still more by dosing with yeast. After a few days of feeding with galactose, he found the lens to contain less glutathione and cistein than normal. Mitchell using different sugars for food, found that after feeding with galactose some part of this sugar was not fermentable but remained in the blood. He thinks that this is the main factor in the production of this form of cataract.

Taliercio has examined the eyes of a number of albino rats which were fed on galactose in varying quantity, and of controls. In all those receiving large amounts of this sugar in their diet, he noted the appearance of opacities in the lenses in about seven days. These soon became completely opaque in most cases. He found an increase of calcium content in the cataractous lens. He found also, increase of pH in the cataractous lens. The CO2 of these lenses was unaltered. The glycolytic power seemed considerably increased in the completely cataractous lens while in the incipient cataract it was reduced. This finding seemed to the author to be improbable; therefore he repeated the experiment using bicarbonates but no glucose. He found the CO2 produced to be almost equal in amount to that produced when glucose was present. From this he concludes that the increase in glycolysis was apparent only, and that it was probably diminished in the mature cataract.

HAROLD GRIMSDALE.

(11) Missiroli (Rome).—Transitory myopia following dosing with sulphamides. (Miopia transitoria in seguito ad ingestione di sulfamidici e sua interpretazione patogenetica). Boll. d'Ocul., January, 1940.

(11) Missiroli has observed several cases in which the use of sulphamides was followed by myopia; other cases have been recorded and have been followed by other surgeons who have observed the disappearance of the myopia in a short time. The author in one
case attempted to reduce the myopia by the use of homatropine; failing with this, he used atropine and found the myopia disappear. He concludes that the cause is a spasm of accommodation.

HAROLD GRIMSDALE.


(12) This case is very interesting; the patient underwent corneal grafting in both eyes for corneal dystrophy. In the right, the whole thickness of the cornea was removed; in the left, Descemet's membrane was left. This eye was not so successful as the right, and the patient returned in a year in the hope of a second more fortunate result. When the right eye was examined by the corneal microscope, it was noted that there was a cavity in the implanted graft, which seemed to be in connection with the anterior chamber, and to be bounded on the deep surface by Descemet's membrane in which there was seen to be a hole. R.V. with correction was 5/30; this was as a year ago. The patient had been practically blind before operation.

HAROLD GRIMSDALE.

(13) Tita (Catania).—Primary lamellated calcareous degeneration of the cornea. (Distrofia calcarea lamellare primaria della cornea). Boll. d'Ocul., January, 1940.

(13) Tita publishes an account of a number of patients in whom he had observed an unusual form of degeneration of the cornea. It consists in a number of layers of calcareous deposit in the superficial layers of the cornea. Sometimes there were as many as five. In all cases except in one, when there was interstitial keratitis, there was no preceding affection. In some, the patch was single; in others, multiple. Each patch could be seen by the corneal microscope to be made up of an infinite number of small glittering white points. From two patients the author removed the opaque material and tested it. It showed the characters of calcareous salts, phosphates and probably carbonates.

HAROLD GRIMSDALE.


(14) Accepting Koffka's distinction between stimulus and retinal image Jablonski shows that the ametrope using correcting lenses constantly is better able to appreciate the real nature of an object than the ametrope not using glasses, though the latter sees better than the former when both are deprived of glasses. A psychological factor is involved as the author shows experimentally, though it is
difficult to assess to what extent these experimental conditions correspond to the conditions obtaining normally.

ARNOLD SORSBY.

BOOK NOTICE


The second edition of Wolff's Anatomy of the Eye and Orbit is much more than a mere reprint. Noteworthy as the first edition was for the unrivalled excellence of the anatomical drawings and accuracy of the text, the new edition has been enriched by sixty new illustrations. Of these the most important are a series of flat sections of the retina and some striking pictures of differential staining of the rods and cones. The blood-supply of the visual pathway has been re-written and embodies Wolff's own valuable original investigations.

The book can be very highly commended. Like the first edition it is dedicated to Mr. Percy Fleming, himself an authority on the subject. It is a worthy monument to the excellence of his teaching and inspiration.

NOTES

Death

It is with great regret that we record the death on June 22, 1940, of Phyllis Tookey Kerridge, at the age of 38 years. Mrs. Kerridge had a brilliant academic career at University College, London, and was one of the foremost research workers in physiology in this country. She gained the B.Sc. with honours in chemistry in 1922, and took a medical qualification eleven years later. Much of her recent research work was in acoustic problems and the mechanical devices for aiding the deaf. In our fourteenth volume, in 1930, she contributed a joint paper with Miss Dorothy Adams, now Mrs. Campbell, on the hydrogen-ion concentration of the vitreous in eyes affected by naphthalene.

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Appointment

Dr. Daniel B. Kirby has been appointed Professor of Ophthalmology, College of Medicine, New York University, and Director of the Eye Service of Bellvue Hospital.