doubt that heterophoria is an outstanding cause of errors of judgment in landing. The condition may develop in the borderline cases admitted while they are undergoing flying training, or it may come about as a complication of head injuries with concussion, with a marked convergence weakness as is commonly shown. It may result from the effects of illness at home, e.g., influenza, or those endemic to some tropical country, e.g., sandfly fever, or through continued exposure to sun glare.

The training of cases so suffering by amblyoscopic and stereoscopic exercises has shown that, with care in selection, over 90 per cent. of cures have been brought about; and pilots who of necessity had to be taken off flying duty, have returned to their full category and continued in the Service without mishap.

The application of ocular muscle training to cases of heterophoria calling for operation is an important one, and the benefits likely to result from such training as a pre-operative and post-operative measure is stressed.

The technique of ocular muscle training for heterophoria as applied to the cases which arise in the Service is discussed.

"The Piezometer, an Auxilliary Apparatus for the Diagnosis of Retrobulbar Orbital Tumours." PROFESSOR ADOLF GUTMANN.

This paper is a brief description of a new apparatus for measuring the displacement backwards of the eye into the orbit under a known pressure. It is claimed that exophthalmos gives different readings on the instrument according to whether the proptosis is due to oedema, angioma or malignant tumour.

ABSTRACTS

I.—UVEAL TRACT

(1) Villard, H. and Dejean, Ch. (Montpelier).—Cysts of the iris. (Les Kystes de l'Iris). Arch. d'Ophthal., February, March, April, 1933.

(1) The increase in our knowledge concerning cysts of the iris resulting from recent biomicroscopical and histological examination, has demonstrated that the subject hitherto "fairly simple" is really one of considerable complexity. A case which came under their observation led Villard and Dejean to the conclusion that the subject merited re-examination and an attempt to clear up some of the indeterminate ideas concerning the origin and pathogenesis of these tumours. They have carried out their investigation
with zeal and thoroughness; the memoir, which appears in three numbers of the Archives, might well have been, and perchance will be, published as a monograph.

The usual classification of these cysts in four large groups: (1. Traumatic; 2. Parasitic; 3. Spontaneous [i.e., cystic formations which are not traumatic, parasitic or congenital]; 4. Congenital) has been followed, but subdivision of these groups has been adapted to correspond with the authors' findings. A section is devoted to each of the above groups; the caption of the 5th and final group is "Diagnosis, Prognosis, Evolution and Treatment of Cysts of the Iris."

The paper is abundantly illustrated; the authors have collected over 30 illustrations from various sources and have added some original drawings—all very well reproduced in black and white. A bibliography of more than 230 references completes a meritorious research.

The reviewer finds it impossible to produce within ordinary limits an abstract of this paper which would convey an adequate idea of the material therein. Perusal of the original is well worth while.

J. B. Lawford.


(2) Finoff's syndrome consists of mutton-fat precipitates, evanescent grayish nodules at the pupil margin, increased intra-ocular pressure, vitreous exudates and one or more yellowish tubercles in the choroid. The syndrome need not necessarily be complete and a rise of intra-ocular pressure in cases with large mutton-fat precipitates and a deep anterior chamber strongly suggests tuberculous uveitis provided that sympathetic ophthalmitis and syphilis have been excluded. The finding of choroidal lesions clinches the diagnosis, but this is not always easy, owing to vitreous opacities, and mydriasis with cocaine and euphthalmine may be necessary though in other cases a drop of adrenalin substitute is more effective. The choroidal lesions are usually in the periphery and are often only single. The paper closes with details of eight cases. In a subsequent discussion, Jonas Friedenwald made the following interesting suggestion with regard to the intra-ocular pressure changes. Injection of serum protein into the anterior chamber of animals causes hypertension of the globe, hence in chronic uveitis if the aqueous becomes loaded with protein, the intra-ocular pressure will rise. On the other hand, Friedenwald and Pierce have shown that congestion of the anterior part of the uveal tract causes a lowering of pressure by bringing about an increase
in the rate of reabsorption of aqueous. The actual happenings in an individual case are determined by the balance between these two processes.

F. A. W-N.


(3) Vannas produced aniridia in the right eye of two rabbits by repeated iridectomy; the left eye was not touched. The first iridectomy produced a marked lowering in the tension, which remained unaffected by the subsequent operations. Glaucoma had not supervened on the aniridia after two months. Miotics were found to lower the tension of the experimental eye even more markedly than that of the sound fellow-eye; and homatropine and atropine produced a rise in tension in the aniridic eye. The author concludes that changes and movement of the pupil and iris play no part in the action of miotics and, possibly, also of mydriatics.

ARNOLD SORSBY.


(4) Osterberg records a case of iridocyclitis with central scotoma for red, green, blue and yellow, occurring in a woman, aged 71 years. Both eyes were involved after an interval of six months. Treatment, satisfactory for the iridocyclitis, had left the scotomata unaffected. Eleven similar cases reported in the literature are discussed—nine "undoubtedly tuberculous, one syphilitic, and one supposedly rheumatic." The author regards his cases as probably tuberculous. Meller has shown histological evidence for the condition being retrobulbar neuritis caused by extension of the inflammatory process along the retinal veins to the optic nerve.

ARNOLD SORSBY.

II.—GLAUCOMA


(1) Casten and Shaad undertook this work in order to establish a sensitive test for the diagnosis of early glaucoma. Alteration of the light sense and retarded adaptation had already been shown
to occur in early glaucoma, and their work with a special portable adaptometer confirmed these findings. Records of 40 patients in whom glaucoma developed in the second eye while under observation, showed that in 50 per cent. the first symptom observed was increased tension (tonometer). In 30 per cent. it was a lowered light sense. In 20 per cent. changes in the fields or discs were the first symptoms. In the cases with lowered light sense, the adaptation curves showed changes for at least three months before other symptoms were detected, while in some, a high threshold had been present for more than a year before other signs of glaucoma. The measurement of the course of dark adaptation is not entirely simple; factors such as pre-exposure and pupillary diameter have to be controlled, and there is a large physiological variation in non-glaucomatous subjects. The results of the test can be regarded, therefore, as suggestive, but not conclusive, evidence of glaucoma.

F. A. W-N.


(2) The question whether there is any relation between arteriosclerosis and high intra-ocular pressure cannot be said to be decided with certainty, though the relation is clearly not a direct one. Vele, thinking that the constant of Ambard (the ratio between the urea in the blood and that in the urine), ought to throw light on this point, has estimated this constant in 50 glaucomatous patients, and compared the results with the findings in 50 normal subjects of about the same age. The figures show a small elevation in the case of the glaucomatous, and especially in those suffering from absolute glaucoma. In the glaucoma patients, also, the arterial pressure was on the average higher than in the normal.

HAROLD GRIMSDALE.

(3) Nicolato (Pavia).—The possible causes of a deep anterior chamber in primary glaucoma. (Sulle possibili cause del permanere della camera anteriore profonda nel glaucoma primario scopmensato). Boll. d'Ocul., August, 1933.

(3) The patient in this case was a tramp who was admitted suffering from grave pneumonia, and died three days after admission.

The only eye had vision of perception of light. It had been failing six years. Tension (Schiotz) 65 mm.; cornea hazy; anterior chamber deep; optic disc deeply cupped.
Microscopic examination showed the iris in its normal plane, except in one point where it approached the back of the cornea, without being adherent to it. The angle was open everywhere. Descemet's membrane and the lining endothelium were absent in many places, and the deeper layers of the degenerated cornea had become fibrosed. It is not possible to decide whether this change is due to the alteration of Descemet's membrane or whether the two are part of one process. Nicolato thinks the latter more probable. The advance of the process had to a large extent obliterated the spaces of Fontana, and the canal of Schlemm. The findings in this case show the fallacy of Henderson's theory of glaucoma; if the spaces of Fontana are absent, the anterior chamber will be deep and the iridic angle will remain open.

HAROLD GRIMSDALE.


(4) Giannantoni has made this series of observations with the idea of increasing our knowledge of the biochemistry of glaucoma. He has estimated the content of chlorides in the whole blood in 20 glaucomatous, and has compared it with the content in 20 normal patients. He finds that the average for the normal is 4.61 per thousand, with the minimum of 4.0 and the maximum of 5.25 per thousand, while the glaucomatous show an average of 4.76 per thousand, with a minimum of 4.37 and a maximum of 5.50 per thousand.

He concludes that there is a small but definite increase in the total chloride content in glaucoma, and that this may be one of the very numerous factors which determine the attack of hypertension.

HAROLD GRIMSDALE.


(5) Bellavia finds that insulin provokes a considerable fall of tension in glaucoma which, however, is not permanent. In the case of trophic ulcers, there is a general improvement of nutrition in which the cornea shares; the same remarks apply to the case of lacrimal fistula. The value of insulin in all these cases seems very limited.

HAROLD GRIMSDALE.

(1) Sanyal describes the case of a medical student, aged 26 years, who had a haemangioma of the conjunctiva. The tumour had been present from birth but had begun to increase in size during the past six months. There had never been any spontaneous bleeding. The rather diagrammatic colour plate shows the condition as well as any verbal description. There was a round spongy tumour at "9 o'clock" on the limbus of the right eye, the tumour being half on the cornea and half on the conjunctiva. The main vessel entered the under surface, so as to make the tumour resemble a rose on a stalk. Lower down and wholly confined to the conjunctiva were three smaller tumours of similar appearance. The main tumour was slightly moveable as there was a very short stalk. Under local anaesthesia the tumour was removed with the neighbouring conjunctiva. The wound in the latter was stitched, and a small raw area in the cornea touched with carbolic acid. The pathological report confirmed the diagnosis. A comprehensive bibliography of 24 items is appended.

R. R. J.


(2) Hogg's paper on "Diabetes and eye disease" contains some interesting reflections on such debatable problems as the aetiology of so-called diabetic cataract; the pathology of retinitis, with or without associated cardio-vascular and renal disease; and the cause of transitory changes in refraction.

The author has made a careful study of the literature concerning the ocular complications of diabetes and from his own clinical experience he criticizes certain existing theories and hypotheses.

The author's statistics show that retinitis is the commonest ocular complication of diabetes, then cataract and transitory refractive errors. He regards certain kinds of retinal changes such as multiple punctate haemorrhages of dark red colour about the size of a pin's head scattered over the fundus, and sometimes few in number and at the periphery, as pathognomonic of diabetes. White patches and spots may be present, round, oval, or irregular in outline and grouped around the macula.

The author quotes Cammidge's classification of diabetes into two types: (1) The anapothectic or alimentary variety, in which
there is difficulty in storing carbohydrates and (2) Achriatic, or true diabetes, in which there is defective utilization as well as defective storage.

Retinitis is usually associated with the former and treatment with or without insulin leads to a disappearance of sugar from the urine but seldom is the retinal condition improved.

The author has administered calcium to many diabetics with retinal haemorrhages without benefit.

He discusses the hypotheses concerning the aetiology of diabetic cataract and points out that in elderly diabetics the type of cataract does not differ appreciably from the senile type. He agrees with Foster Moore that the term "diabetic cataract" should be restricted to the cataract of rapid development occurring in young diabetics.

He comments on the rigidity and relative immobility of the pupil in some diabetics. Glaucoma, iritis, keratitis, infections of the conjunctiva and eyelids, paralysis of intrinsic and extrinsic ocular muscles and transitory refractive errors occurring in diabetes are discussed.

H. B. Stallard.

(3) Burnham, G. Herbert (Toronto, Canada).—Respecting values of the various forms of treatment of certain diseases of the cornea. Arch. of Ophthal., August, 1933.

(3) Burnham in this article makes strong claims for the success of his "combined treatment" in diseases of the cornea such as calcareous degeneration, conical cornea, interstitial keratitis, keratitis profunda, and spreading ulcers. The technique is as follows: Prepare a solution of pilocarpine hydrochloride gr. v to 3j of water. Give a hypodermic injection every afternoon for 20 days. The first dose should be m.ij increasing daily by m.1/2 up to m.iv which is the usual maximum, though sometimes m.vi can be given. After an interval of six weeks, a series of 10 injections is given and so on, with this interval, until the treatment is stopped. "In the interval, mercury by itself and a mixture of sodium iodide and sodium bromide are administered" (details as to dosage are not given).

F. A. W-N.


(4) Hypopyon ulcer comparatively often follows small injuries if they are inflicted by septic foreign bodies, and receives different names in different localities according to the nature of the
employment in which the injuries are received. Sanguinetti has noted the occurrence of an unusual number of cases in the men and women engaged in the work of harvest in 1932.

The ears of corn which cause the small injuries, frequently carry a streptothrix, and this introduced into the little wound produces a condition favourable to after-infection by the pneumococcus, which is a common inhabitant of the conjunctival sac.

He notes that the spread of knowledge of the danger of these small injuries among the farmers and workers has led them to seek skilled advice at an earlier date than in former times and that thus fewer eyes have been damaged or lost. In all cases of hypopyon ulcer the importance of early treatment cannot be exaggerated. The author relies largely on the actual cautery but has had very good results in some severe cases from the use of ultra-violet rays.

HAROLD GRIMSDALE.

BOOK NOTICES


Professor Southall is well known for his authoritative treatise on "The Principles and Methods of Geometrical Optics," and also as the editor of the English translation of Helmholtz' Physiological Optics. It is not given to everyone who is an authority on mathematics or physics to write a good elementary manual for students. In the present instance the author has been brilliantly successful. If anything could reconcile the student of ophthalmology to grapple seriously with the geometrical optics which it should be his duty to master it would surely be this book. Nothing beyond elementary geometry and algebra, and a soupçon of trigonometry is demanded of him. The subject is treated in the most attractive manner, many points of interest which are seldom found in other books being incidentally brought to light. When the reader's concentration on the mathematical problems begins to flag, welcome relief is afforded by diversions into history. The sections dealing with the optical system of the eye and spectacles are admirably done.

The book is well printed and the diagrams are numerous and very clearly defined.