ABSTRACTS

I.—CORNEA


(1) Mazzei has followed the course of this affection in a patient for some years. The beginning of the trouble was a corneal ulcer from an injury during the war. Since that time the vision of that eye had gradually failed; there had been a constant sensation of pricking. When first examined the cornea was completely anaesthetic; a band of opacity ran across the cornea having a breadth of about 2 mm. The surface seemed slightly raised and xerotic. The details of the fundus could not be seen because of organized exudate on the capsule of the lens. The opacity increased slowly in size and in January, 1933, covered almost all the area uncovered by the lids. A small piece of affected area of the cornea was excised for pathological examination. The epithelium was found to be thickened, the anterior layers corneified. There were granular deposits in Bowman's membrane, which was degenerated. There were no calcareous salts found; from this the author concludes that their deposition is secondary to the other changes (an opinion held for long in England).

HAROLD GRIMSDALE.


(2) The aim of these experiments was to find out what influence, if any, the epithelia had on the nutrition of the cornea. Galante took the two corneae of the same animal, and having removed the superficial epithelium and Bowman's membrane from one, weighed them accurately, cut them into small pieces and placed each cornea thus divided in a vessel containing physiological solution and sodium fluoride. The tubes were left for eight days in a thermostat at 38°.

At the end of this time he measured the quantity of amino-acids and found that the cornea deprived of epithelium had given rise to much less than the whole cornea.

On the other hand when the posterior epithelium was removed
in similar experiments, the quantity was greater in the case of the incomplete cornea. The actions of the two epithelia appear to neutralize each other.

HAROLD GRIMSDALE.


(3) Kreiker stresses that mere pulling the conjunctiva over the ulcerated surface does not give good results. There must be complete covering. When the condition is healed, and in any case, not longer than six months, a hole is made in the conjunctiva over the pupil. The rest of the conjunctiva gradually recedes. Two cases are reported in support of this treatment.

ARNOLD SORSBY.

II.—ANTEROIOR CHAMBER AND FILTRATION ANGLE

(1) Bracci-Torsi. (Pisa).—The immunising power of the aqueous and its various proteins, in normal conditions. (Sulle reazioni immunitarie dell'umore acqueo e sue frazioni proteiche in condizioni normali dell'occhio). Ann. di Ottal., May, 1934.

(1) The recognition of "anti-bodies" in the aqueous is difficult because of the small protein content of the normal fluid. When the aqueous is withdrawn, the fluid that replaces it is much more rich in proteins, and in this, the second aqueous, the recognition is more readily accomplished.

Bracci-Torsi has endeavoured to find to which of the various proteid bodies the anti-bodies were attached; to this end he has precipitated the various proteins by ammonium sulphate in varying strength, and has examined the several precipitates for the antibodies. He finds that the chief vectors in the aqueous, as in serum, are the euglobulin and the pseudo-globulin, the serum albumen has no union with the anti-bodies.

HAROLD GRIMSDALE.


(2) The case reported by Rehsteiner has the distinguishing feature of the collection of crystals, examined clinically and
histologically, being free from any admixture of blood or exudate. There were no haemorrhages in the retina, and the possibility of the cholesterol coming from the intra-ocular circulation owing to changes in the permeability of the blood vessels is dismissed. The author draws attention to the findings by Schaaf in the cases of xanthoma of the skin; in this condition as in the case under consideration, blood cholesterol was diminished, whilst the lecithin content of the blood was increased.

**ARNOLD SORSBY.**

(3) **Trantas. (Athens).—Gonioscopy. (Sur la gonioscopie).** *Arch. di Ottal.*, January-February, 1934.

(8) By gonioscopy, Trantas means the examination of the angle of the anterior chamber, which may be brought into view by pressure on the sclera with a finger or a transilluminator or by means of a contact lens. Trantas makes pressure a few millimetres behind the limbus, either on the conjunctiva or through the lower lid. The observer uses either the naked eye or the corneal microscope. The author claims that by this observation he has proved the canal of Schlemm not to contain blood; and that in chronic glaucoma the angle may be seen in many cases to be open and not closed by adhesions.

**HAROLD GRIMSDALE.**

(4) **Nicolato. (Pavia).—Some details of the minute anatomy of the iridic angle in man. (Di alcune particolarita della fine anatomia dell’angolo irido-corneale nell’uomo).** *Rass. Ital. d’Oftal.*, May-June, 1933.

(4) **Nicolato** has examined the iridic angle in the eyes of foetuses of varying ages, in the infant and in the adult.

He finds that Descemet’s membrane ends either by thinning out gradually or in a sharp chisel edge; that the trabeculae of the corneo-sclera have no direct connection with this end, which is interposed between the endothelium and the trabeculae. Where the trabeculae pass beyond the hyaloid layer they come under the endothelium which covers them.

He has not been able to find any connection between the elastic fibres and Descemet’s membrane. The circular elastic fibres are separated from it by a layer of cement substance; the longitudinal elastic fibres pass beyond the end of Descemet’s membrane to reach the point of union of the trabeculae with the parenchyma of the cornea. Developmentally, the trabeculae seem to be mesodermic and part of the uveal tract.

**HAROLD GRIMSDALE.**
III.—INJURIES

(1) Hesky: (Trieste).—Aluminium foreign bodies in the eye. (Contributo clinico alle alterazioni derivanti all’occhio da schegge d’aluminio endobulbari). Boll. d’Ocul., August, 1933.

The results of the implantation of any foreign body in the eye depends greatly on the chemical reactions which it sets up, and the relative toxicity of the salts produced by these reactions. Some metals, such as gold, give rise to very little reaction; others, especially copper, are very badly tolerated. Aluminium has rarely been recorded in the eye as a foreign body, and in most cases, seems to remain unaltered for a long time. In Hesky’s case the eye had remained quiet for some three years, but after that time became irritable and the vision failed to some extent. Two years later the patient sought advice. Then there was ciliary injection and a deep opacity in the lower half of the cornea. It was not possible to see the lower part of the iris and anterior chamber. There was no visible wound of the iris or damage to the lens; on account of the history the author suspected the presence of a foreign body and on examining the patient lying on the side, a loose, black body moved from behind the corneal opacity to the part of the anterior chamber then lowest. This was removed by operation, breaking up into tiny fragments in the act; it proved to be aluminium. The removal was followed by clearing of the cornea.

HAROLD GRIMSDALE.


Halász reports four cases in which copper splinters 1 to 2 mm. in size migrated from the deeper parts of the eye into the anterior chamber, becoming embedded in the limbus, so that they could be extracted with a pair of forceps. Migration began following a quiescent period after the injury 4 to 5 years in three cases, and 11 years in the fourth. The migration itself lasted from two weeks to 14 months. Only in one case was there evidence of chalcosis in the form of sunflower opacity of the lens, and in this case the injury was four years old.

ARNOLD SORSBY.

Jungraw reports the case of a boy, aged 12 years, who was seen three days after a perforating injury of the cornea; the wound was infected and traumatic cataract was present. The day after panophthalmitis had developed, and this was followed within a few days by signs of meningeal irritation. Lumbar puncture fluid showed the presence of staphylococcus brevis. Post-mortem examination revealed diffuse leptomenigitis, especially at the base; the infection had been spread from the eye along the lymph spaces of the optic nerve.

ARNOLD SORSBY.


Roese reports two cases in which permanent injury was sustained as the result of ethmoid operations. In one case the eye on the operated side became much swollen, on subsidence the eye was found to be abducted. Advancement of the internal rectus was impossible as the muscle was surrounded by dense scar tissue; presumably the muscle had been torn off at its origin. In the second case, the lamina papyracea was perforated, optic nerve divided, oculo-motor nerve and also the first division of "V" injured. Clinically, there was: blindness, disturbed sensation of the forehead, palpebral narrowing, enophthalmos, complete palsy of III, dilated pupil and optic atrophy.

[The reviewer has experience of a case similar to the first noted above. Bilateral abduction with diplopia followed immediately after a bilateral intranasal operation on the ethmoid. Nine months later bilateral advancement of the internal rectus, on both sides reduced to a fibrous band, gave but little result.]

ARNOLD SORSBY.


The object of this research by Hoffmann and Kunz was to study the acute changes induced by the action of hot water and diathermy on rabbits' eyes.
The character of these changes was, on the whole, independent of the manner in which the heat was applied, and their intensity corresponded to the height of the temperature. They began to appear when the temperature rose above 45°C.

In the lens, cataract developed through the breaking down of the fibres under the capsule, and extended towards the centre with further rise of the temperature.

By an alteration in the conditions of the experiments with diathermy the extent of the opacity could be restricted to portions of the lens surface. This "heat" cataract, however, showed both morphologically and genetically considerable differences from Vogt's "fire" cataract.

The changes in the other tissues of the eye were largely due to disturbances in the circulation, congestion of the blood vessels, exudation of highly albuminous lymph and haemorrhage, all of which could assume enormous dimensions. The epithelial structures suffered earlier and more severely than the connective tissues; the retina was particularly affected, more especially in the inner layers.

These results bear a close resemblance to those that have been obtained with infra-red rays.

**Thos. Snowball.**


(6) Schmelzer reports a case of a severe injury of an only eye by the accidental insufflation of mercury sublimate. On the third day operation was undertaken, the cornea being covered by mucosa from the mouth by the method of Denig. The patient did well, the cornea remaining transparent. Sublimate insufflation in seven rabbits led to bad results and the author holds that in all probability the mucous transplant was responsible for the favourable course in his patient.

**Arnold Sorsby.**


(7) Coal tar and its derivatives play an ever increasingly important rôle in modern commerce; Biondo has investigated the action of the several products on the eye. Practically all the substances of this group are irritating to the eye and some are
powerfully caustic. The hydrocarbons are the least and the phenol derivatives the most capable of causing severe damage. The paper gives the results of experiments with some 30 different bodies.

Harold Grimsdale.

IV.—REFRACTION AND OPTICS


(1) Ferree and Rand point out in their paper the great importance of adequate lighting for reading and other forms of close work. An increase of intensity of light over a suitable range has two effects which facilitate reading. (1) The pupil contracts and thus increases the depth of focus of the eye; (2) the sensation difference between the object and its background is increased. In the aged, an increase in illumination is obviously of value because of diminished transparency of the media and of diminished sensitivity of the retina. The authors have devised a lamp which is of service in determining the optimum illumination for various purposes. Full details are given in the paper, and it consists of a powerful round bulb with a reflector behind it enclosed in a box of which one side is open. This side is fitted with four horizontal shutters and by opening or closing these the amount of light can be varied from 90 foot candles down to zero. Since no rheostat is used, there is no variation of colour on diminishing the illumination. The shutters are covered in front by a plate of “Belgian flashed opal glass” so as to eliminate shadows. The lamp has many uses, thus it can be employed for illuminating test types and tangent screens, and can also be employed for determining the optimum illumination for various industrial processes. It is a simple matter to substitute etched daylight glass for the opal glass and in this way, to determine the amount of light required in work which involves colour matching.

F. A. W-N.


(2) In this article on ametropia Tron points out that all the constituents of the dioptric apparatus of the eye—the refractive
power of the cornea, lens, and eye as a whole—show variations closely corresponding to the normal variation curve. The axial length in the large number of cases examined, however, was an exception, but its variation curve conformed to the binomial if the cases of myopia over -6.0 D. were excluded.

Emmetropia may result from a very variable combination of the optical elements of the eye. In a series of 60 emmetropic eyes the refractive power of the eye varied between 52.59 and 64.21 D., and the axial length between 22.42 and 27.30 mm. It is only by taking into account this variability in emmetropia that a correct conception of the character of the ametropia in individual cases can be obtained. Ametropia, therefore, may arise where either the axial length or refractive power (or both) is outside the limits of the values of these factors in emmetropia. It may also arise where these are both within the variation limits of emmetropia, but occur together in particular combination—combination ametropia—the importance of which the author repeatedly emphasizes. It was found to be much more common in his series of cases than the axial or refractive types.

The significance of the axial length in determining the refraction of the eye varies with different degrees of ametropia; among high ametropes axial ametropia predominates, while in the lower grades the combination ametropia is more frequent.

While combination and emmetropia agree in the variation limits of the refractive power of the eye and the axial length, they differ in respect to the distribution of these variants. Thus, in combination myopia the longer axial lengths occur most frequently, while in combination hypermetropia the shorter lengths are more common. Accordingly the averages for the axial length in combination hypermetropia, emmetropia and combination myopia are also different.

Axial ametropia forms a heterogeneous group; it includes cases with axial lengths that are only extreme variants of the normal variation curve, and eyes with pathologically shortened or increased axial lengths.

The spheres of combination ametropia and axial ametropia overlap fairly freely, so that different forms of ametropia with the same refractive error occur. The degree of refractive error, therefore, cannot be taken as a guide for differentiating the individual groups.

The sphere of school myopia gives an indication of the frequency of combination ametropia, and hence cannot be regarded as the result of a pathological lengthening of the axis produced by close work at school.

A study of some 20 cases of high myopia with reference to the presence of changes round the optic disc shows that there is no
direct relation between these changes and the axial lengths of these eyes; nor can they be cited as proof of the axial character of the myopia.

THOS. SNOWBALL.


(3) Colombo has examined the amount of astigmatism during rest and accommodation, of a number of eyes; with the object of discovering whether any alteration of astigmatism was possible by the effort of accommodation.

He finds that in the majority of cases the alteration is purely spherical; in a few cases, however, he observed an asymmetrical contraction, but never a diminution of the astigmatism.

HAROLD GRIMSDALE.

V.— MISCELLANEOUS

(1) Corrado (Pisa).—The late results of treatment of pituitary tumours by X-rays. (Esiti lontani del trattamento Roentgen-terapico del tumori sellari e parasellari). Ann. di Ottal., January and June, 1933.

(1) The first part of this contribution is chiefly historical, analysing the reports and opinions of other surgeons. Corrado quotes with approval the opinion expressed by Cavina in the paper just mentioned, that X-rays and radium are useful measures of treatment in properly selected cases, and with suitable application. It is probably due to the injudicious selection of cases, that the opinions of surgeons vary so greatly as to the value of this means of treatment.

As regards surgical interference, the relative success of the endocranial and trans-sphenoidal methods is still uncertain. In the hands of the most successful operators the risk is not very great; Cushing, operating by the transfrontal route, has had a mortality of 6 per cent.; Frazier 5 per cent. against a trans-sphenoidal rate of 3·4 per cent. A considerable proportion of those operated on successfully die later from recurrence of the tumour, but when the tumour is non-malignant, the results are extremely good. The vision, which is generally much reduced before operation, is, in most cases, recovered to a greater or less extent and the visual fields expand, so long as the fibres of the optic nerve are not completely degenerate.
In the second fascicle of the paper appearing in the June number, the author gives the details of some patients who have benefited from the use of ray treatment, with results which have remained good for some years. He reproduces radiograms taken at intervals of some of these patients, which show a tendency on the part of the sella to return towards normal.

The part of the paper dealing with the cases which do not improve under treatment has not yet appeared.

HAROLD GRIMSDALE.


(2) In this paper the late G. S. Derby pointed out the importance of medical social service in eye clinics. He showed that there is a great and useful field of work which lies beyond the consulting surgeon’s activities of examination, diagnosis and advice about treatment.

Much of the latter's work is wasted by patients who do not or cannot devote time to the necessary treatment, who will not attend the hospital for “follow-up” supervision and are prevented by economic and industrial circumstances from receiving adequate and proper treatment.

Time spent in investigating the domestic and economic position of such patients, supervising treatment and affording facilities for attending hospital and “follow-up” work is well rewarded by the prevention of protracted disease and the conservation of useful vision in many cases. For this purpose medical social workers are of considerable value. The author stresses the importance of this work particularly in cases of glaucoma, trachoma, ophthalmia neonatorum, phlyctenular conjunctivitis, tuberculous lesions of the eye, cataract and myopia.

The author considered that any eye hospital or clinic is seriously hampered and much of its good work wasted by not having social service workers attached to its personnel.

H. B. STALLARD.


(3) Guthrie's work is an elaboration of the stenopaeic hole, well known to all ophthalmologists. This elaboration consists in having a disc with multiple holes instead of a single one. The smaller the holes, the sharper the definition, but the less the brightness, and there is a physiological optimum between the sharpness and brightness which varies according to conditions of illumination.
The size of the apertures should, therefore, be variable, and one method of securing this is to have two perforated discs, mounted one behind the other. On rotating one, the holes in the other will be partially or totally occluded. For practical purposes the range in size should extend from 1.5 mm. for far vision to 0.3 mm. for sharpest near vision. The spacing of the holes is also important, the ideal is very close to 4 mm. The following are some of the author’s results. Eyes requiring 3-4 D. for correcting accommodation or so astigmatic that they cannot read 6/60 can see 30/20 with the discs and read J1. Atropized eyes can see sharply and without strain. Emmetropic vision is not improved except for gun sighting, glare, etc.

F. A. W.-N.


(4) Spaeth, after a preliminary discussion of the difference between light sense and visual acuity, suggests the value of determining the former in different eye diseases. In testing the light sense there are various difficulties to be overcome if accurate results are to be obtained. These comprise (1) variation in size of the pupil; (2) varying sensitivity of different portions of the retina. No. 1 is overcome by “fixing the pupil” with a preliminary instillation of 0.5 per cent pilocarpine. No. 2 by illuminating an area of retina which subtends an angle of 36° on each side of the fixation point. The degree of dark adaptation is made as uniform as possible by using a standard time (20 minutes) for each patient and by insisting on a preliminary period of light adaptation, again under standardized conditions. The instrument used was a light-tight pair of goggles with an aperture in front of each eye for a prism of a special green glass.

Some of the author’s findings were as follows:—All types of glaucoma showed a rise in the light threshold, most marked in the acute and subacute forms. It is probable that increase in the light minimum antedates all other signs and symptoms of glaucoma. All cases of retinal detachment showed a marked increase of the minimum light sense and a return of field and visual acuity after reposition of the retina did not result in a proportionate increase of light sense. Cases of retinitis pigmentosa showed marked lowering of light sense while in keratitis and cataract the light minimum was less impaired than the visual acuity. In tabetic optic atrophy the impairment in the light minimum was greater than the fall in visual acuity; in “secondary optic atrophy” the reverse occurred. In inflammatory conditions of the fundus, patients with a high degree of choroidal disease showed the greatest defect in light threshold; haemorrhagic changes
produced little deviation from the normal. In amblyopia exanopsia, it was most uncommon to find the light minimum as low in proportion as the visual acuity. This is partly, but not wholly, to be accounted for by eccentric fixation. In albinism and various other congenital defects the increase in the light threshold was proportionate to the loss of visual acuity while in retrobulbar neuritis it was greater. The author’s article closes with a short résumé of the findings of others on this subject.

F. A. W-N.


(5) This article applies to colour photography of the anterior segment of the eye, and Dekking has worked out a simple technique which seems to give satisfactory results. The source of light is a Philips ciné-bulb of 15 volts, 50 amperes. It has a small spherical mirror in front which forms an image of the two filaments between the filaments themselves and has a glass parabolic mirror behind with a focal length of 3 inches and an aperture of 8 inches. The camera works with a stop of 10 and has a “finder camera” above it for focusing, the two forming a single unit with the source of light. The length of exposure is 0.08 second and the magnification obtained is three times. “Agfacolor” plates were found to give satisfactory results.

F. A. W-N.

BOOK NOTICES


The author in his foreword to this work quotes a Chinese proverb “One picture imparts as much information as ten thousand words,” and though this may be an exaggeration the 100 pictures in this volume certainly convey a great deal of information. They are beautifully reproduced in colour on a matt surfaced paper, and being 15 cm. in diameter, are sufficiently large to allow the beholder to see all the details. A short account of each case is printed on the page opposite the fundus drawing, giving the diagnosis, clinical and laboratory findings, visual fields, visual acuity and other details. These greatly enhance the value of the drawings, but the descriptions have purposely been kept short, though full details of each case are available at the Johns Hopkins Hospital.