REFERENCES

Discussion at the XIIIth International Ophthalmological Congress, Holland, 1929. Prefatory abstracts, papers by Gonin, Kapuscinski, Arruga and others.


Gonin, J.—Mes plus récentes experiences touchant de décollement rétinien. (My latest experiences with detached retina.) Arch. d'Ophtal., p. 554, 1928.


ABSTRACTS

I.—DISEASE OF LENS


(1) Reviewing the theories put forward to account for the occurrence of senile cataract, Siegrist first discusses the theory advanced by Hess and Römer, O. Becker, Peters, Possek, and others, who consider that, as a result of some abnormality in the body fluids, the aqueous humour becomes abnormal, thereby damaging, first the lens capsule, and later, the subcapsular lens fibres. Lesions showing an incidence suggestive of such an aetiology were claimed to have been demonstrated by Hess and Possek in cataracts produced by lightning, massage, naphthalene, tetany, and also in senile cataract. Vogt, on the other hand, from slit-lamp observations, adheres to the school which attributes a supranuclear origin to senile cataract, and believes it to be an expression of the wear and tear of age, beginning, as one would naturally expect, in the older, that is, the deeper lens fibres. By this origin, he claims that senile cataract may be differentiated in its pathogenesis from all cataracts of toxic origin, such as those due to naphthalene, sugar, tetany, etc., which have a subcapsular origin. Thirdly, an endocrine theory of origin is discussed which brings senile cataract into line with other cataracts whose pathogenesis is known to be due to a failure of the ductless glands, such as cataracts occurring in diabetes, myotonia dystrophica, status
Disease of Lens

lymphaticus, etc. Ductless glands are known to atrophy with age and it is suggested that in consequence mild toxins are retained in the blood, and that the lens, in common with the rest of the body, is influenced by their presence, an influence which is shown by the development of cataract. The author suggests, if this theory is correct and glandular deficiency is the cause of senile cataract, that by giving the active elements of the glands therapeutically the disease should be arrested. This he claims to have demonstrated with Dr. Streuli in 32 cases, using "Euphakin," a combination of parathyroid, thyroid, the sex glands and calcium lactate. At the same time he emphasises that this is a small number of cases on which to base any proof; nor does he claim "Euphakin" to be a certain and universal cure for cataract.

Against the "glandular deficiency theory" Vogt brings forward three objections:—(1) That age phenomena are uninfluenced by any treatment, and that senile cataract shares in this generalisation. (2) That there is an hereditary factor in senile cataract which also cannot be influenced by any agent. (3) Senile cataract by its supranuclear origin differentiates itself absolutely from all other so-called exogenous cataracts, such as those due to tetany or diabetes; it must therefore have a different pathogenesis.

Against these objections Siegrist brings forward the following arguments:—(1) The fact that by rejuvenation operations age processes are definitely influenced. (2) That hereditary factors depend ultimately upon the conditions in which they develop for their final characteristics. (3) That it is not an invariable rule that exogenous cataract begins in the subcapsular layers, and senile cataract begins in the supranuclear layers of the lens.

As examples he cites the cataracts associated with myotony and experimental tetany, which are known to begin sometimes in the supranuclear layers, and the senile posterior cataract, which begins in the subcapsular layers of the lens. Further, Siegrist holds that diabetic cataract is a typical exogenous cataract, and yet in young people it is subcapsular in origin while in old people it begins in the deeper layers of the lens. Vogt considers, on the other hand, that this last is really a senile cataract, and that in old people a true diabetic cataract does not occur. Siegrist's view is supported by the investigations of Goldmann who has shown that if rats are given sufficiently large doses of naphthalene to induce acute poisoning they develop superficial subcapsular lesions in the lens, but if small doses are given so that chronic poisoning results, a more deeply situated supranuclear cataract develops. It seems that when it is present in small doses the poison does not affect the capsule and the younger superficial fibres, the resistance of which is high, but only the deeper and older fibres, the resistance of which is
A similar explanation can be applied, in Siegrist's opinion, to the different types of cataract occurring in young and old diabetics, for it is well known that an acute form of diabetes tends frequently to occur in young patients, but rarely in old patients. The author finally concludes that he considers senile cataract to be due to toxins in the aqueous humour acting upon the lens; the site of the lesion depends upon the nature of the toxin; an acute and virulent toxin produces a subcapsular opacity while a more chronic and less powerful toxin gives rise to an opacity more deeply seated in the substance of the lens.

W. S. DUKE-ELDER.


(2) This article, which Gaiser describes as a contribution to the study of progressive myopia in advanced life, gives particulars of nineteen cases of a condition of the lens to which different names and interpretations have been offered by various writers.

The designation which Gaiser here adopts is that used by his teacher, Vogt, who first demonstrated in several cases of lens with double focus the characteristic slit-lamp condition (corroborated by the present series of cases) of a "nuclear cataract with interval," i.e., a clear interval between the opaque foetal nucleus and the surfaces of the adult nucleus.

In all the cases here recorded myopia was present, and in the majority it could be proved to be progressive. In four cases cataract extraction was performed, the subsequent refraction showing that the myopia had been due to the lens.

An important element for the change in the refraction is the increase in the curvature of the anterior and posterior surfaces of the nuclear cataract as compared with those of the lens.

This condition of the lens, which occurs more frequently in persons with axial myopia, gives warning against the assumption of a progressive lengthening of the antero-posterior axis of the eyeball, continuing throughout life, in axial myopia.

Attention is drawn to a point in the early symptomaticatology of this condition, viz., a frequent complaint of diplopia (monocular), more marked for distant vision than for near.

THOS. SNOWBALL.


(3) MacCallan's paper gives a useful description of the various types of acquired non-traumatic cataract with excellent illustrations. He has found that "33 per cent. of middle and upper class patients are affected as shown by ordinary focal illumination while
an additional 12 per cent. exhibit opacity when the slit-lamp is used.” He then passes on to consider whether there is any pathological condition of the body which is invariably associated with cataract, and after a review of the various theories as to cataract formation, states that every case of lenticular opacity was found to have a condition of focal sepsis, usually in the teeth, tonsils or accessory sinuses. An interesting suggestion was made to him by Professor Elliot Smith; namely that there was a bare possibility of toxic material passing up within the sheaths of the dental nerves to the Gasserian ganglion and thence within the sheath of the ophthalmic division of the 5th nerve to any part of the eye. In his comments on some points in connection with cataract extraction, the author states that he has found intracapsular extraction a satisfactory operation, but, in the long run of cases, less safe than capsulotomy; he also expresses his disapproval of artificial maturation, of preliminary iridectomy, and of complete iridectomy at operation in special cases.

F. A. W.-N.

II.—THERAPEUTICS


(1) Armstrong reports a case of severe blepharitis which was sent to him for bacteriological treatment. Out of four distinct bacteriological methods employed one only proved efficacious and led to “what appears to be a cure of the condition.” Staphylococci were the only bacteria found in the material taken repeatedly from the inflamed areas. The first three methods, which failed, were:—(1) subcutaneous inoculation of stock polyvalent staphylococcus vaccine, (2) an autogenous vaccine, (3) a stock antivirus (Besredka). The patient became sceptical but consented to continue. An autogenous antivirus was prepared and applied in the form of a lotion which led to improvement within twenty-four hours, and to cure through persistent treatment.

MacCallan replied to the foregoing communication (which was contained in a letter to the Editor) inferentially suggesting that the case might relapse, and stating that during the last year every case of severe blepharitis seen by him in private and hospital practice had been found to be associated with gross focal sepsis. When
this had been dealt with, usually either by the dental surgeon or the throat surgeon, combined with mild local treatment, the blepharitis had been permanently cured.

**Ernest Thomson.**

(2) **Renard, Gabriel (Paris).—Polyvalent vaccine in ocular infections.** (Les Vaccins polyvalents dans les Infections Oculaires.) *Arch. d'Ophtal*, June, 1928.

(2) During the last three years Renard has employed a polyvalent vaccine in a number of diseases of the eye due to infection by known and unknown microbes. The composition of the vaccine is:

<table>
<thead>
<tr>
<th>Microbe</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonococci</td>
<td>3 milliards</td>
</tr>
<tr>
<td>Pneumococci</td>
<td>3 milliards</td>
</tr>
<tr>
<td>Staphylococci</td>
<td>3 milliards</td>
</tr>
<tr>
<td>Streptococci</td>
<td>1 milliard</td>
</tr>
<tr>
<td>Club-shaped bacillus</td>
<td>500 millions</td>
</tr>
<tr>
<td>Enterococci</td>
<td>1 milliard</td>
</tr>
<tr>
<td>B. Pyocyanus</td>
<td>1 milliard, 500 millions</td>
</tr>
</tbody>
</table>

Cultures of 48 hours are taken: each is exposed separately to the minimum temperature necessary to kill the micro-organism, and the resulting mixture put up in ampoules ready for use. "Two years' experience has shown us the efficacy of this vaccine and enables us to bring forward statistics of some importance." Their experience has been chiefly in cases of gonococcal infection: they have treated 17 cases in adults and 20 in the newly-born. The results recorded in the adult cases are very encouraging, 15 out of 17 cases having recovered without any corneal damage. In the cases of ophthalmia neonatorum the results were "analogous" but figures for the whole number treated are not given.

All the cases of purulent ophthalmia were treated additionally by local applications, consisting of frequent irrigation with permanganate of potash, and the instillation of nitrate of silver.

Renard has also used this vaccine in a number of intra-ocular infections, post-operative and accidental. He urges its employment in all such cases at as early a stage of the infection as possible. Clinical notes of some of the patients under his observation appear to maintain his claim.

**J. B. Lawford.**

(3) **Frydman, Mlle R. (Geneva).—Protein-therapy in ophthalmology.** (La Protéinothérapie en Ophtalmologie.) *Rev. gén. d'Ophtal.*, March, 1928.

(3) Frydman states at the outset that protein-therapy is both ancient and modern since it was employed in England in the
seventeenth century: for this statement she gives no authority. The method was adopted again in 1915 by Schmidt and has since been generalised. It was introduced into ophthalmology by L. Müller and Thanner in 1916. Under the name "Proteinkörpertherapie" the German authors understand the administration of albumens parenterally only, though some writers would include the buccal route. The author herself adopts the German meaning and her experience is with the intramuscular injection of Cibalbume, a proprietary preparation from the Ciba laboratories. Before passing to her own cases some are cited from the literature, from which accounts one would be inclined to deduce that few acute ocular diseases are not benefited by the treatment. Coming to Frydman's own cases one is struck at once with the fact that it is not stated how many cases altogether have been treated. Fourteen case histories are given, namely, gonococcal conjunctivitis three, eczematous kerato-conjunctivitis one, serpent ulcer of cornea two, chronic ulcer of cornea one, iritis six, panophthalmitis one. One must suppose that these are cases selected from a much larger number, otherwise the results can hardly be considered conclusive, though nevertheless very suggestive. The conclusions may be given in slightly abbreviated form:—Ocular gonococcal infections are undoubtedly influenced for good. As to the other cases, especially iritis and serpent ulcer, the results vary. Iritis may benefit greatly, but results may be transitory and relapses frequent. In one case of serpent ulcer a cure resulted, in another it did not. In one case of panophthalmitis consecutive to an intra-ocular foreign body (extracted by magnet) the result was excellent (V.A., 1/4.) In a number of other cases of, e.g., acute dacryocystitis, eczematous kerato-conjunctivitis and affections of the cornea following trachoma, the results are stated to have been "satisfactory." Apart from these formal conclusions one finds it stated in another part of the article that the treatment was employed as prophylactic in post-operative cases where infection was anticipated or where there was a slight infection such as iritis. The results in these cases were, apparently, doubtful. Some further remarks on the method in general are given, namely, that the intramuscular method is free from danger and can be employed without putting the patient to bed, that it is of great value as an adjuvant to local treatment, and that it gives remarkable results in a great number of ocular infections, but is not a panacea.

The author is to be congratulated upon her moderation of statement, but an analysis of the total number of cases treated would have been appreciated. The bibliography contains thirty-one names of authors and titles.

Note.—With regard to the author's statement that protein therapy had been employed in England in the 17th century she
says that various ailments were treated by intravenous injections of cow's milk but that the method was abandoned on account of the frequent occurrence of fat embolism. It would be interesting to know more about this early employment of the method.

Ernest Thomson.


(4) Optochin is used extensively in continental clinics for the treatment of pneumococcal conjunctivitis and corneal ulceration, and has been used by Stargardt since 1923 as a prophylactic measure against serpigenous ulceration. Rieger records his experience of this prophylactic treatment and concludes that it is an important addition to ocular therapeutics. He has analysed the cases under his observation in which an injury to the eye has led to infected ulceration of the cornea, necessitating in-patient treatment. About 2,000 cases of trauma were seen yearly for the last three years. During the first two years 13 cases (8 in one year and 5 in the other) led to the formation of serpigenous ulceration in spite of treatment; during the third year one per cent. optochin ointment was instilled as a prophylactic measure in all cases of trauma, and in that year there was only one case of corneal ulceration.

These records dealing only with in-patients do not show the full benefit that is derived from the prophylactic use of optochin, as there was also a considerable reduction of milder infections among out-patients. Of these milder infections, the records of the first two years (which were looked at in retrospect) are incomplete and therefore not comparable with the solitary case of mild infection seen during the third year (when optochin was used as a routine).

A. Sourasky.


(5) A comprehensive investigation has been carried out by Marx, Mendes, da Costa-Vet, Naar and Wolff, into the relative values of cocaine and the many substitutes which from time to time have been suggested for ophthalmological work. The following substances were tested, and they were utilized both in acid form (as the hydrochloride) and in the basic (as the borate): cocaine,
novocaine, eucaine, tutocaine, psicaine, butyn, diocaine, isocaine, holocaine, stovaine, optochin, eukupin, eukupinotoxin. They were tested with reference to:

1. Power of inducing anaesthesia.
2. Pain which follows from use.
3. Influence on the conjunctival vessels.
4. Effect on the pupil, the accommodation, and the height of the palpebral fissure.
5. Effect on the intra-ocular tension.
6. Effect on the cornea.
7. General toxicity.
8. Stability on preservation and sterilization.

The physical properties of the drugs were also examined.

The results which emerge from the investigation demonstrated clearly that none of its substitutes or derivatives can efficiently supplant cocaine itself, apart from the fact that on subcutaneous injection it has a considerable toxicity. Most others are more painful, and most of them dilate the blood vessels. In general the basic drugs are the more efficient. Incidentally it appears that atropine combined as a base (atropine borate) is much more efficient than as an acid salt (sulphate), a 0·25 per cent. solution of the former having approximately the same efficiency as 0·75 per cent. of the latter, as measured by the light reaction. Similarly, pilocarpine in basic form is twice as effective as in the acid form as measured by its effect on the ciliary muscle by the distance at which small print was readily legible.

W. S. Duke-Elder.

III.—MISCELLANEOUS

(1) Bücklers, Max (Zürich).—Anatomical investigation of the connection between senile and myopic circumpapillary atrophy of the choroid. (Anatomische Untersuchungen ueber die Beziehungen der senilen und der myopenen circumpapillaren Aderhautatrophie.) Arch. f. Ophthal., Vol. CXXI, p. 243.

(1) Bücklers examined microscopically the eyes of seven non-myopic persons of very advanced age, together with those of one case of extreme anisometropia (M. = 25.0D.), and found that the senile variety of circumpapillary atrophy of the choroid (Bügels) in non-myopic persons shows anatomical changes (atrophy of the choroid, degeneration of the choriocapillaris, and in particular the development of spaces, like tears, in the lamina vitrea of the
choroid, atrophy and proliferation of the pigment epithelium, etc.)
similar to those which have been adduced as proof of a mechanical
cause of atrophy of the choroid in myopia.

Hence he concludes that the views, based on these anatomical
changes, that the choroidal atrophy in myopia is the result of a
mechanical stretching or pressure, are no longer tenable.

Near the optic papilla he also found cystoid degeneration of the
layers of the ganglion cells and nerve fibres, together with fatty
degeneration of the vitreous lamina and the sclerotic. The condi-
tions found also explain why the tears in the vitreous lamina
and the choroidal changes above described, that were attributed to
myopic stretching, do not appear till long after the termination of
the growth of the eyeball (and therefore cannot be the result of
stretching).

The signs characteristic of senility and of myopia progress as
age advances, and like all senile changes are subject to the
influence of heredity.

Bücklers points out the fact that there are families in which the
refraction of the members is the same, but some show atrophy of the
choroid and others are free. To this category belong the cases of
anisometropia, where the one eye shows emmetropia or hyper-
metropia, and the other an axial myopia of 1 to 30 or more D.

In these cases the emmetropic eye does all the work, while the
progressively myopic eye is generally in a position of divergent
strabismus, and takes no part in fixation. Yet this relatively
inactive eye passes through all the phases of degeneration of pro-
gressive axial myopia: from circumpapillary atrophy and macular
degeneration associated with haemorrhages to degeneration of the
peripheral parts of the fundus and vitreous, and retinal detachment.
The other eye, however, which alone does all the work, remains
healthy and emmetropic.

Cases of this kind prove the untenability of all theories of a
mechanical cause of myopia, and admit of the only explanation
that both in myopia and in myopic degeneration signs of an
inherited taint are present; which brings the myopic degeneration
into line with the inherited characteristics of senile changes as
described by Vogt.

THOS. SNOWBALL.

(2) Tron, Eugen (Leningrad).—A contribution to the chemistry
of the re-formed aqueous humour. (Ein Beitrag zur Chemie
CXXI, p. 329.

(2) This record of an experimental research by Tron gives
particulars of the albumen and chlorine content, as well as the
amount of calcium and potassium, in the first and secondary, or
re-formed, aqueous humour.
He discusses various views as to the causes of the changes in the chemical composition of the aqueous, and summarises his results as follows:

1. In comparison with the first aqueous, the re-formed shows an increase in the cation content (Ca. and K.) and a diminution in the anion concentration (Cl.).

2. Ascher’s rule (that a rise in the albumen content in the aqueous is accompanied by a fall in the chlorine) holds good under the most varied experimental conditions (paracentesis of the anterior chamber at different intervals, paracentesis in full-grown, and in young animals, and puncture after subconjunctival injection of pituitrin).

3. As to chemical composition, both the first and the second aqueous can be regarded as an ultrafiltrate of the blood ("dialysate" of Duke-Elder. T.S.) The differences between the two can be explained by the increased permeability of the capillary walls for the colloids of the blood setting in towards the anterior chamber as a result of the dilatation of the vessels of the ciliary body. The differences in the anion- and cation-content in the first and re-formed aqueous are due to this increased permeability of the vessel walls, and are dependent, on the one hand, on the breakdown of Donnan’s equilibrium normally existing between the aqueous and the blood serum, and, on the other, on the passage into the aqueous of those portions of the crystalloids that are combined with the colloids of the blood, and hence are usually not dialysable.

THOS. SNOWBALL.

(3) Yoshimoto, Ryotsui (Japan).—Contribution to the problem of avitaminoses of the eye. (Beitrag zur Frage der Avitaminosen des Auges). Arch. f. Augenheilk., Bd. XCIX, May, 1928.

(3) 1. Hemeralopia and vitamin deficiency.—This investigation was at first carried out on rats under Sugita’s experimental conditions of diet, etc., somewhat modified, and the relationship between avitaminosis and keratomalacia established with greater certainty than by Sugita. But as it was found impossible for reasons given to confirm the occurrence of hemeralopia in avitaminous rats, Yoshimoto experimented with the well suited domestic fowl which, as soon as absolute darkness is relieved by a certain amount of light, begins to peck for food. It could not be established that the avitaminous fowl suffered from hemeralopia.

2. Cataract and vitamin deficiency.—A connection between cataract and vitamin deficiency was held by von Szily and Eckstein to be established by their experiments on rats. Although Yoshimoto repeated the research of von Szily
and Eckstein precisely in every detail, in no case could he find either a lamellar or a complete cataract or even any permanent lens opacity. What he discovered was that the lenses of rats get cloudy in low temperatures; this property is most marked in the youngest rats and goes on decreasing with age. The opacification of the lens produced by cold persists only up to 10 days in normal rats kept at 20°C.; in avitaminous rats from 15 to 25 days according to the diet they have been on. Even at lower temperatures the lens clears under all diets, but the difference in the time of clearing between normal and avitaminous rats remains constant. If one watches the gradual development of opacification under the influence of cold, one can see clinically all stages from commencing dullness to almost complete cataract. Pictures are given of lenses taken out and examined after being subjected to various degrees of cold from 5°C. to 18°C.

D. V. Giri.


(4) At the outset Franceschetti and Wieland discuss critically the methods hitherto employed—refractometry, viscometry, precipitation, surface tension—and claim for the nephelometer, which they describe, much greater accuracy. They modified the nephelometer to suit their purpose and the results of their investigations are as follows:

1. The albumen-content of the rabbit's aqueous averages at about 0.05 per cent., vitreous 0.012 per cent.
2. In the rabbit with congenital hydrophthalmos the albumen-content is higher; for the aqueous the average is 0.13 per cent., for the vitreous 0.021 per cent.
3. The second tapping of the aqueous and vitreous shows great access of albumen, which is maintained in the aqueous for a week and in the vitreous for several weeks.
4. In the hydrophthalmic eye of the rabbit the return to normal is more delayed.
5. In man, the albumen-content of the normal aqueous varies between 0.019 per cent and 0.034 per cent.

N.B. The cases investigated were mostly elderly people with cataract or optic atrophy. The authors make no mention of the general condition of the patients.

6. The secondary aqueous in man invariably shows increased albumen-content, even when in the primary aqueous there was already a marked increase.

7. In acute glaucoma (primary and secondary) the aqueous
invariably shows an increased albumen-content (0.213 per cent. to 0.457 per cent.); in the secondary aqueous it may amount from 0.474 per cent. to 0.767 per cent.

8. In congenital hydrophthalmos in man the increase of albumin in the primary aqueous is even higher (0.782 per cent. to 2.37 per cent.). The quantity of albumin in the secondary aqueous (2.86 per cent. to 3.2 per cent.) corresponds to what otherwise is found only in the secondary aqueous of the rabbit.

D. V. Giri.

BOOK NOTICES

Ophthalmologický Sborník. Collection of Papers read before the Fourth Congress of the Czechoslovak Ophthalmological Society, 1929. Published by the Society, Prague, 1929.

The Report of the 3rd Congress of the Czechoslovak Ophthalmological Society, held in 1928, appeared in 1929, and was noticed in this journal, December, 1929. That of the 4th Congress of this Society, held in 1929, has now reached us. It is a much smaller volume: 187 pages as against 578. With kindly consideration for the foreigner résumés in French, English and German are given of 26 of the 30 papers contained in the volume, and occupy the first 30 pages thereof.

A considerable proportion of the papers are statistical, pertaining to observations on various ocular diseases over a period of ten years or so, in ophthalmic clinics of the country. Zahor (from the Workmen's Accident Insurance point of view) discusses the problem of detachment of the retina in accidental injuries to the eye and emphasises the difficulty of excluding detachment due to disease in such cases, of which he cites examples.

In 112 cases of detachment of the retina, Würz found a history of previous injury in 34 (excluding 4 as uncertain). In 8 the traumatic origin was doubtful though possible: in 11 the detachment was clearly due to injury: in one it followed concussion from a fall on the back of the head. The results of treatment were unsatisfactory: cure in two cases, improvement in two.

Mrazova and Vejdovsky both report cases of injury to the eyeball and lids by ink-pencils, followed in two instances by necrosis of corneal and conjunctival tissue and in one by severe iritis.

Ptelen, investigating 50 cases of rupture of the sclerotic, observed during ten years, reports a "good result" in only 2 per cent. Würz, at the Brno Ophthalmic Clinic, reports 6 cases of "juvenile haemorrhage in the vitreous": 5 males, 1 female, the ages between 14 and 32 years. While under observation retinitis proliferans developed in one patient and Coats's type of retinitis in another.