means of reflectors. Both methods have proved successful where
the results obtainable justified their installation, as in drawing
offices and in the commercial matching of colours.

According to The Electrical World, attempts are now being made
to deal with the problem by using spectacles made with a special
glass, the invention of which is credited to Dr. Hermann Weiss,
of Vienna. We presume that such a method can only be applied
to some definite source of light, such as an arc lamp. If practicable
it would render it possible to enjoy a picture gallery even in a
November afternoon in London. It must, moreover, be
remembered that methods of obtaining "artificial daylight" which
depend on screens require a very powerful source of illumination,
which is not only costly, but also may easily cause damage
to the pictures. We look forward with interest to hearing how
the inventor proposes to get over the obvious difficulties, such as
the prevention of light from outside sources reaching the eye and
the correct standardization of the screening medium to the various
sources of light in use.

ABSTRACTS

I.—HEREDITARY DISEASES

(1) Truc (Montpellier) and Opin (Toulon).—A long-established
centre of night-blindness in Provence. (Congenital familial
hereditary night-blindness; the Nougaret of Vendémian
type.) Arch. d'Ophtal., August, 1925.

[Readers of this communication may remember that the late Edward
Nettleship and Professor Truc were associated in the investigation
of the important genealogy of congenital night-blindness
commonly known as the Vendémian pedigree, which was begun
by Cunier and recorded by him in 1838. The completed pedigree
was published in the Transactions of the Ophthalmological
Society of the United Kingdom in 1907, and in the Bulletins de
la Société française d'Ophthalmologie, 1909.]

(1) Truc and Opin have discovered more or less accidentally,
another centre of congenital hereditary night-blindness, with
precisely similar characteristics, and have published the pedigrees
of several families affected by this abnormality.

The case which first came under observation was a female, a
native of Néoules, Department of Var. She informed the authors that
others in her part of the country suffered from a similar disability;
the affected persons were known as "sournières," i.e., unable to see at night or in the dusk, from a local term "sourn"=sombre. The authors suggest that this village may possibly have been the original centre of the familial night-blindness of Vendémian, of which the first known example, Jean Nougaret (1637-1719) was known as "le Provençal." He may have been a native of Néoules but on this point evidence is lacking. Vendémian and Néoules are not far apart; both are in the old department of Provence, now subdivided. Néoules, a village of 300 inhabitants, is situated midway between Toulon and Brignolles, in a locality which, until the advent of the motor car, was very isolated. The inhabitants are almost all well-to-do agriculturists, some of them enriched by viticulture. As at Vendémian they are country folk who, by force of circumstances, have been relatively isolated. For this reason doubtless, the hereditary visual defect of which they are subjects, has been transmitted and reinforced by numerous consanguineous marriages. It is widely known in the department of Var that natives of Néoules are night-blind. Parents in this district examine their children's sight at an early age to ascertain if they are affected. In the examination of recruits for military service young men from Néoules, by reason of this defect, have been relegated to auxiliary services. In contrast to the Vendémians the night-blind inhabitants of Néoules make no endeavour to conceal their defect and submit willingly to ophthalmoscopic examination.

The genealogies now published contain 142 individuals, 42 of whom suffered from night-blindness: 17 of these are living and 8 have been examined by the writers. The cases are grouped in 6 families; their pedigrees are given in the accompanying tables:

<table>
<thead>
<tr>
<th></th>
<th>Persons</th>
<th>Night-blind.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>1791-1802—Emeric Bourguignon</td>
<td>37</td>
</tr>
<tr>
<td>II.</td>
<td>1800-1873—Jacques Long</td>
<td>21</td>
</tr>
<tr>
<td>III.</td>
<td>1785-1854—Emeric Augier</td>
<td>53</td>
</tr>
<tr>
<td>IV.</td>
<td>1810-1892—Bazile Long</td>
<td>15</td>
</tr>
<tr>
<td>V.</td>
<td>1846-1916—Jeanne Monin</td>
<td>5</td>
</tr>
<tr>
<td>VI.</td>
<td>*1809-1889—Augustine Monin</td>
<td>16</td>
</tr>
</tbody>
</table>

The authors have been unable to obtain information dating back more than a century. The identity of names indicates clearly that numerous alliances have been contracted among these families, but it has not been possible to follow the pedigrees far enough to find a common ancestor from whom the defect has been inherited, as was so strikingly the case at Vendémian.

*There appears to be some discrepancy between the numbers in the general statistics and the totals of the 6 families as given by Truc and Opin.
FIG. I—EMERI BOURGUIGNON.

All the individuals examined by the authors were free from other defects. Errors of refraction were few and low in degree; central acuity of vision was good; no mental defects were present.

As at Vendémian the defect proved to be uncomplicated night-blindness, congenital, familial, hereditary, transmitted by either sex. The children of night-blind individuals, if free from the defect, never transmit the abnormality to their offspring. One
of the pedigrees, No. IV is apparently not in agreement with this statement; in it a healthy female, in generation II, had a son who was night-blind and his son was also affected. Later information, however, has shown that the female reputed to be free was in reality the subject of the defect. In pedigree No. II there appears to be a similar example, a healthy female in generation II had a night-blind son. This female has been dead for many years and the statement concerning her could not be verified. It is more than probable that an error occurred as in the previous case.

At all events the authors feel justified in their belief that in relation to hereditary transmission the characteristics of night-blindness at Néoules are the same as those at Vendémian. The suggestion by the writers that Nougaret of Vendémian was a native of Néoules, and that the cases of night-blindness now recorded are among his descendants is not unreasonable. The authors hope to pursue their investigations on this point in both districts.

J. B. Lawford.


(2) In this paper Usher makes a valuable contribution to the records of hereditary epicanthus and ptosis. The pedigree includes six generations and "shows epicanthus and ptosis in four generations (3-6), and transmission by both continuous and discontinuous descent."

The form of epicanthus in this pedigree is that described by von Ammon as epicanthus palpbralalis, and is the same in all the affected members. There are 18 members showing the deformity in the pedigree, and Usher has been able to examine 14 of them. In all the 14 bilateral epicanthus was present with one exception, a boy in whom this deformity was present on one side only. In 13 of the 14 ptosis was present; it was bilateral in all but one. In case 14 there was bilateral epicanthus but no ptosis.

The accompanying chart shows "that 15 individuals (6 males, 9 females) with epicanthus and ptosis are descendants of a male with epicanthus and ptosis in generation III. In each case the anomalies have been derived from an affected male by continuous descent. In the remaining two cases in the pedigree the anomalies have not been derived by continuous descent. One of them (V, 29) has normal parents and his paternal grandfather has epicanthus and ptosis, so that the congenital anomalies have missed one generation. The other (VI, 4) has normal parents, but his mother's paternal grandfather has epicanthus and ptosis and the congenital anomalies have passed over two generations." The author notes that these two cases differ in some respects from those in which the inheritance is direct.
Usher has described his cases in detail and has added some good photographs of affected members of the pedigree. He has also collected a number of previously published pedigrees of epicanthus, mostly with ptosis. These follow his own cases in the general tables and are here reproduced. It will be seen on reference to the pedigrees that one of them (9) shows the defect in four, and one (11) in five generations. A useful bibliography concludes a paper of much interest in the inheritance of ocular anomalies.

J. B. Lawford.


(3) Hemmes shows a family tree of hereditary nystagmus, and in addition gives a survey of all the family trees known in the literature, thirty-seven in number. In these there are two types of heredity. In one group the condition affects both male and female members without preference. In the other group, males only are affected and the females are the transmitters. In the mixed group one cannot speak of either a dominant or a recessive type. In general, heredity from the mother to the sons, and from the father to the daughters prevails. Thus, 28 affected fathers had 88 daughters of whom 61 per cent. had nystagmus, and 50 sons of whom only 18 per cent. had the disease. On the other hand, 28 affected mothers had 70 sons with 64 per cent. nystagmus and 34 daughters with 35 per cent. nystagmus. Often second generations are missed so that definite rules cannot be laid down. In the second group where sex is selected we have the following conditions: From the marriage of a female transmitter with a healthy male there were descendants to the number of 136 males and 90 females. Among these 96 males and only one female were affected. As a rule affected males and healthy females produce healthy and latent affected females, equally. The sons remain healthy. The latent disposition can remain dormant through many generations. Mixtures between the two groups were observed. Hereditary nystagmus is associated with a low hair boundary, pigment anomalies, and head-shaking. This head-shaking shows itself only sometimes during those activities which require greater mental concentration, and ceases generally as the patient becomes older. Apart from the diminished visual acuity there is no complaint. On looking to the side, jerky nystagmus appears, so that in order to compensate this a correspondingly slower movement takes place to the mid-line. In the middle zone the
eyes do not exhibit any movement, or there is an oscillating nystagmus. This mid-zone does not always lie in the mid-line, but sometimes a little to the left or to the right. In another group the zone does not remain constantly in the one situation, thus, if the direction of vision is slowly turned to the extreme right from the left, it lies more to the right. On the other hand, if the direction is from right to left it lies more to the left. After a sudden large alteration in the direction of vision, the nystagmus sometimes ceases for a period.

In twenty-seven cases the media were clear. Seven cases were examined for scotomata but none were found. The blind-spot was mapped out. In one case this was not possible. Eight cases were examined carefully for central scotomata, and while this was carried out the movements of the eyeballs were arrested by the finger. By this manoeuvre the visual acuity was sometimes improved and on the other hand was sometimes made worse. Round spots of 2.5 mm. in diameter were usually recognized at one metre. Of twenty-seven cases examined, in no case was the visual acuity found normal. Probably the retinal picture is not a clear one on account of the continuous movement. Hemmes comes to the conclusion that the origin of hereditary nystagmus does not depend on the pathological condition of the eyes. He nevertheless considers it remarkable that astigmatism occurs in 64 per cent. of all nystagmus cases known in the literature. He is of opinion that this might be brought about by the continual pulling of the muscles. An excessive irritability of the labyrinth was not found but rather the contrary. Sometimes the two types of nystagmus are connected, but in other cases caloric irritation produced no influence. Sometimes the three most important labyrinth reflexes, deviation of the eyes, loss of orientation, and falling down, were only partially present or they were elicited more easily from one ear than from the other. According to statements in the literature, many persons with hereditary nystagmus are indifferent to turning movements. The function of the otoliths throughout is diminished. This brings the author, who is a supporter of the Quix otolith theory, to the supposition that the diminished function of the otoliths is the cause of nystagmus.

The last chapter is devoted to the occurrence of hereditary nystagmus in the Netherlands. In four years, among 220,802 recruits, 117 were rejected on account of nystagmus. Hemmes was able to follow up 56 of these cases and ascertained that in 21 the condition was hereditary. He estimated that one case of nystagmus occurs in 5,082 recruits, and as nystagmus is rarer in women he estimates that one case occurs in 6,500 inhabitants.

S. Spence Meighan.

The Committee, of which Lucien Howe was a member, had to consider what form of law could be proposed that would prove the most practicable and efficient to lessen the continued propagation of hereditary blindness. Apparently only three methods have been suggested, the first two of which are impracticable at the present time, namely, sterilization, and separation of man and wife; the third is by legislation as will be explained. It would be by amendment of the domestic relation law in such States as it already exists, in empowering the authority who issues marriage licences to require a written statement from the parties in the following words: "Neither myself nor, to the best of my knowledge and belief, any of my blood relatives within the second degree, have been affected with blindness. If so, I have been examined by, and submitted evidence in respect to such members of my family, to a physician or expert in heredity, and his report shows that it is improbable that such blindness was transmissible by heredity." The authority may examine such experts under oath to satisfy himself of the truth of their evidence, and he may refuse to grant the licence unless the applicant signs a bond for an amount to be fixed by the authority, and filed with the Treasury. If a child born of the marriage becomes chargeable to the State, the cost thereof becomes chargeable against the signatory to the amount of the bond.

A. F. MacCallan.

II.—TRACHOMA

This is an address delivered by Morax at the inaugural meeting of the Brussels Congress in May, 1925, which was honoured by the presence of Her Majesty the Queen of the Belgians. It is a very interesting review of the world-wide distribution of trachoma and of our clinical and bacteriological knowledge of this disease. In spite of the great number of bacteriological researches made in every country the aetiological agent is still unknown. Its discovery would, of course, be a great advance, but we know from the study of several infections, such as smallpox and rabies, that it is not absolutely necessary to know the parasitic agent of an infection before investigating the aetiology, the prophylaxis, or the treatment.
TRACHOMA

The incubation period after contact with trachomatous secretions proved to be eight days in the case of MacFetridge, Assistant Surgeon to the Royal Victoria Eye Hospital, Dublin, who unfortunately infected himself while expressing granulations. In his case the other eye did not become infected for six months. Meyerhof, a very careful observer, gives four to six days as the incubation period. It is not given to many surgeons, who have much trachoma to treat, to have the opportunity to note the period during which the incubation lasted.

The length of time which may elapse before trachoma declares itself is often considerable, even though the person concerned may have been continually in contact with contagion. The reviewer remembers that Ray reported the case of a physician in America who married a young lady who had trachoma. He lived with her for 15 years before he caught the disease, although his wife had had many exacerbations of the condition with copious discharge during that time.

Such a case, illustrating the occasional slowness of the healthy eye to become infected, enables one to understand the not infrequent occurrence of monocular trachoma, which may exist for years.

A. F. MacCallan.


(2) Pacalin states that in the vast majority of cases of trachoma, in the infiltrated stage after the stage of acute trachoma with its granulations or papillae has passed, the disease affects with its waxy infiltration not only mucous tissue or conjunctiva, but also sub-mucous tissue. This infiltration is, in the vast majority of cases, confined to the region of the upper border of the tarsus and to the upper fornix immediately superior to this.

The treatment he recommends is as follows: (1) Anaesthetization, superficial and deep, after careful cleansing of the field of operation. Details of this are given in full. Points of importance in the anaesthetization by subconjunctival injection are that as much as 2 c.c. of solution are necessary, and that the solution be carried freely to the inner and outer extremities of the tarsal border.

(2) Scarification in this area in a direction parallel with the upper border of the tarsus and brushing with 2 per cent. sublimate solution, according to the method of Abadie and Darier. Numerous incisions are made, especially near the upper tarsal border. Persistence is required in the use of the sterilized brush, but also gentleness.
Several applications, at separate points, of thermocautery or galvano-cautery are made close against the upper border of the everted tarsus into the tissue, water-logged by anaesthetic solution, and to a depth of about 0.5 cm.

The after-treatment is as follows: daily for five days, cocainization, irrigation of conjunctival sac with a 20 c.c. syringe and a Morax cannula filled with $1/1,000$ cyanide solution. Instillation of a few drops of argyrol (20 per cent.). The application of moist compresses. In about twenty days cicatrization is complete.

About the sixth day, the application of solid copper sulphate is made, and once weekly afterwards. On the intervening evenings, the instillation, after eversion of the lid, of copper sulphate drops (2 per cent. copper sulphate, 5 per cent. cocain hydrochloride, dissolved in equal parts of glycerine and distilled water). Every morning a few drops of 20 per cent. argyrol are instilled, which is believed by the author to check secondary infection.

Humphrey Neame.


Terson divides his paper into two parts. The first deals with active trachoma with infiltration; the second, with refractory and complicated cases. His methods of treatment include: (1) the use of silver nitrate solutions, in strength from 1 to 2 per cent.; (2) when the activity of the disease and the discharge are lessened, the application of glycerole of copper (2 per cent., 5 per cent. or 10 per cent.), with 2 per cent. of novocain and synthetic guiacol; (3) as a change of treatment, salicylarsinate of mercury (enesol) in 3 per cent. solution, as obtainable in ampoules, is applied. This solution is unstable if kept in air. As an alternative (4) 1/1,000 sublimate solution; (5) or bluestone, which should not be applied on a freshly-scarified surface; (6) scarification and multiple puncture with a tattoo needle. This may be followed by the application of a mercurial salt; (7) only in exceptional cases, is the actual cautery applied to the tarsal conjunctiva, but deep and separated points of cauterization of the upper fornix are sometimes very efficacious.

The pain which follows the use of copper sulphate is controlled by the use of 1 per cent. oily solution of acoin. The cornea may be isolated from the copper-impregnated conjunctiva by a layer of special taffeta-chiffon ("Gommciffon") covered on each side with a layer of sterilized vaseline. This can be left in place for a few moments after the everted lid has been allowed to return to its place.
TRACHOMA

To aid the examination and treatment of the superior fornix, an instrument called a “propulseur” of the cul-de-sac is employed. (Terson, Ann. d'Ocul., 1923). This may be employed without the use of an anaesthetic.

(8) Conjunctival injections of cyanide (presumably oxycyanide of mercury), a few drops of 1/3,000 to 1/1,000, or of enesol, 1/1,000 to 1/500 are used. These require the use of subcutaneous and subconjunctival injection of 4 per cent. novocain with adrenalin.

In intractable cases with corneal ulceration the application, at separated points, of the actual cautery to the depth of the upper fornix gives in some cases a favourable result. In a somewhat similar manner and for the same reason, excision of a strip of lozenge-shaped portion of the cul-de-sac is sometimes successful. Excision of the tarsal plate is discountenanced.

For cases of moderate pannus, periektomy with removal of a circular band of conjunctiva around the cornea except for two bridges of conjunctiva which are always allowed to remain, has a beneficial effect. In cases of extreme pannus, nothing is so successful as the use of jequirity. This drastic method of treatment is only employed when the trachoma is of the dry type and the pannus is almost of a fatty appearance.

HUMPHREY NEAME.

(4) Terson.—Trachoma League, Scientific Session. (Ligue du trachome, séance scientifique.) March 28, 1925.

(4) Terson (son) gives a warm appreciation of his empirical methods in the treatment of trachoma. He describes an instrument for exposing to view the conjunctiva of the upper fornix. Those of us who are unable to get a satisfactory view by pressing lightly on the globe through the lower lid after evertting the upper lid, can usually get an excellent view by using a strabismus hook applied from the skin surface of the everted lid. He says that he has never seen the utility of excisions of the tarsus in the treatment of trachoma. This is not the opinion of Barrada of Egypt, who is quoted in Spaeth's recent book on “Plastic Ophthalmic Surgery” (Blakiston, Philadelphia), as reporting a series of 325 excisions of the tarsus with the overlying conjunctiva, many of them in cases of trachoma in which there was neither trichiasis nor entropion.

ABADIE must have horrified his audience when he stated that in particularly serious cases of trachoma he is in the habit of inoculating the conjunctiva with the secretion from a case of purulent conjunctivitis; to cure this, when purulent conjunctivitis declares itself, he uses two or three times a day applications of
3 or 4 per cent. solution of silver nitrate. This method of treatment is not then a legend culled from ancient text-books as the reviewer had supposed.

Morax and also Sédan spoke favourably of the subconjunctival injection behind the retrotarsal fold of a solution of copper sulphate in strengths of 0.25 to 1 per cent., containing adrenalin and novocain. The reaction, however, in spite of the analgesic action of the novocain may be very severe. There is usually a great deal of oedema and the pain is great. This method was first used by Nicati in 1924.

Sédan related a remarkable case of infection with trachoma of four small boys in the family of a rich stockbroker, who lives at Marseilles. The first boy affected had been under constant observation by Sédan on account of his myopia, and his conjunctivae were perfectly normal until the engagement of an English nurse. This nurse was born at Margate, and had been in the service of the family of an English official at Cairo; at the end of three years' service she had complained of her eyes, “like all the children in the family.” She was found to be trachomatous by Sédan. It is an extraordinary rarity for the child of a British official to become infected with trachoma, owing to the care which is taken to prevent all contact between native servants and the younger members of the family.

A. F. MacCallan.

(5) Anti-trachoma measures in France. Prophylactic instructions drawn up by the Superior Council of Public Hygiene of France. (Instructions prophylactiques élaborées par le Conseil Supérieur d'Hygiène Publique de France.) Revue du Trachome, April, 1925.

(6) Trachoma is a notifiable disease in France, and the Superior Council of Public Health have issued prophylactic instructions as to the disease which are here reproduced in English:

"Trachoma is a chronic contagious disease characterized by a lesion visible to the naked eye, the trachoma granule, situated on the conjunctiva (especially on the palpebral conjunctiva and principally on the tarsus); it is of slow development, and is often complicated at all its stages with serious alterations in the eyesight.

This disease may attack man at any age. The children of trachomatous parents are almost always infected in their earliest years. It is due to a specific virus, which passes through a porcelain filter, and which causes hypertrophy of the lymphatic follicles of the conjunctiva; it provokes the formation of little swellings, at first soft, bursting by pressing between the nails, or against a curette, and which, when they are old, become fibrous, and provoke in their contraction a change in direction of the eyelashes.
Contagion is effected by the tears, by direct contact with the fingers, or for example by kissing, and often by means of flies which can transport the virus from a distance. It is provoked or facilitated by irritating dust, by sand which is inclined to make one rub one's eyes with the hand, or with soiled linen. The incubation period is barely more than a few days. The disease lasts for months, often even for years without ceasing to be transmissible at all its stages.

Trachoma is particularly met with in Northern Africa, in the Levant and in Indo-China. It is to-day very widely spread in all the tropical and subtropical countries where flies abound, and no race is exempt. Commercial relations, navigation, railroads, and the interpenetration of the peoples, especially since the world war, have facilitated its diffusion in Europe. One sees it now almost everywhere in France and it constitutes a danger against which it is important to be armed.

**Prevention of Trachoma**

The only means actually known to avoid the propagation of the disease consist:

1. In seeking and treating as early as possible trachoma cases.
2. In instructing people who live in contact with these cases as to what measures they should take to keep themselves and their children from contagion.

When a trachomatous person is discovered the case will be notified to the Health Office, which in conjunction with the medical man treating the case, will follow it up to complete cure by an ophthalmologist, and will arrange, if possible, for sending the patient for treatment in a special hospital, or in certain cases for the return of the patient to his own country.

The surroundings of the patient will be examined, and everyone who has been exposed to contagion will be provided with the necessaries for washing, with droppers and solutions of glycerinated sulphate of copper, 1 in 40, and taught how to use them, as well as with any prophylactic instructions which may be necessary.

**Protection against Flies**

Very special attention will be paid to protection against flies, to driving them away, and to their destruction. In hospitals and at home trachomatous persons will be preserved from contact with them by mosquito nets for the bed, and by wire netting, of two millimetres gauge, fixed on doors and windows.

**Disinfection**

Instruments, linen, and dressings, which have been soiled with trachomatous virus will be immersed as soon as possible in a
solution of sodium cresol, 4 per cent., or sterilized by boiling in carbonate of soda solution, 2 per cent. The patient will be advised never to rub his eyes except with thin linen, and to plunge his hands after washing with soap in a solution of copper sulphate, 2 per cent.

These excellent instructions are signed officially by Calmette and Roux, and, we believe, have been adopted on the recommendation of "La Ligue contre le Trachome," of which Morax is the moving spirit.

A. F. MacCallan.

(6) Sédan, J. (Marseilles).—Seven cases of trachoma in children infected by their nurses. (Sept las de contagion trachomatouse infantile, du fait de "nurses.") Ann. d'Ocul., Vol. CLXII, p. 437.

Sédan reports the occurrence of trachoma, four cases in one family, three in another, in which there appears to be clear evidence that the infection was spread from the children's nurse in each case. The disease occurred in well-to-do families, private patients whose children had been under repeated observation and examination for several years. There had in none of them been any sign of conjunctival inflammation previously. In each case, a recent type of trachoma developed in the children, while signs of considerable duration of the disease were present in the two nurses. In the case of the former family all the children of the class which they attended at school were examined and found free from signs of trachoma. The children of the second family were educated at home.

Humphrey Neame.

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III.—ANATOMY AND PHYSIOLOGY

(1) Johnson, G. Lindsay (Durban).—A new theory of accommodation. (Une nouvelle théorie de l'accommodation.) Arch. d'Ophtal., December, 1924.

After a brief summary of the theory of Helmholtz, with which he is not in accordance, Johnson explains his views thus:

The two ciliary muscles (radial and circular) contract and draw forward the choroid, at the same time compressing the ciliary processes which are pushed into the circumlental space by the action of the muscle of Müller. This exerts pressure on the fluid which fills this space. Fluids being incompressible, some
structure must yield. This can only be the capsule, which is pressed inwards compressing the circumference of the lens. The posterior surface of the lens resting on the vitreous cannot change, the anterior alone becomes more convex. In doing so it exerts pressure on the fluid in the circumlental space and anterior chamber, and in its expansion drives some of this fluid into the spaces of Fontana. As soon as accommodation is relaxed the fluid flows back into the anterior chamber. Thus, in the author's view, the increase in curvature of the anterior surface of the lens is produced by hydraulic pressure, and not as explained by Helmholtz.

J. B. Lawford.

(2) Noiszewski, Kazimierz, Prof.—The hydraulic mechanism of accommodation. (Le mécanisme hydraulique de l'accommodation.) Arch. d'Ophtal., August, 1925.

(2) A recent communication to the "Archives d'Ophtalmologie" by Lindsay Johnson,* induced Professor Noiszewski to reiterate his views on the mechanism of accommodation which he had communicated to the Congress of Oculists of Poland, in 1921.†

Noiszewski's theory is as follows: During accommodation the circular ciliary muscle compresses the fluid in the posterior chamber; this fluid imprisoned in this chamber by the contraction of the sphincter pupillae compresses in its turn the equator of the lens. The aqueous humour flows from the anterior chamber at the filtration angle, but the fluid from the posterior chamber cannot reach this outlet owing to the obstruction due to the contracted sphincter of the iris. Consequently the pressure in the anterior chamber is lowered and the higher pressure in the posterior chamber compresses the crystalline lens. The only part on which the increased pressure in the posterior chamber cannot exert an effect is the anterior pole of the lens, unprotected by iris. Owing to the lowered pressure in the anterior chamber this expands and becomes more convex.

In support of his views the author quotes the observations of Foerster and others who noted that a keratocele of Descemet's membrane disappeared during the act of accommodation (when the anterior chamber pressure became lowered) and re-appeared during the period of relaxation.

J. B. Lawford.

* Lindsay Johnson.—Une nouvelle théorie de l'accommodation. Arch. d'Ophtal., December, 1924.
† Noiszewski.—Gazeta Lekarska, No. 15, Klinika Oczna, 1923.
Viguri, Adolfo V. (Mexico).—Ocular tension and general arterial tension. (Tensión ocular y tensión arterial general.) Anal. de la Soc. Mexicana de Oftal. y Oto-Rino-Laringol., Tomo IV, No. 5, p. 114, 1923.

Viguri has conducted an exhaustive statistical investigation into the relation between ocular tension and the systemic arterial tension, making measurements upon 290 individuals of varying ages, using a MacLean tonometer, and adrenalin-cocain as anaesthetic. He finds that the normal tension of the eye varies from 20 to 30 mm. Hg., and that the variations above and below these limits are few and unimportant. In persons of less than 15 years the tension is usually somewhat higher than in adults, fluctuating between 25 and 30 mm. Hg.

The arterial tension, on the other hand, as measured by the oscillometer of Pachon, was found in adults to vary from 100 to 130 mm. Hg., and in persons under 15 to be considerably less—between 60 and 100 mm.

The general lack of correspondence between the two sets of figures, the small age variation in the ocular tension and the marked difference in arterial tension, with their inverse relative change, lead the author to infer “the lack of direct influence of the general arterial tension on the ocular tension.”

W. S. Duke-Elder.


In a series of more than a hundred patients Wegner has tested the effect of repeated tonometric applications on the ocular tension, using the Schötz instrument with the 5.5 grm. weight. With the patient in the horizontal position, and taking tonometric readings using one short application of the tonometer at one minute intervals for ten minutes, he finds a drop in tension averaging 3.2 mm. Hg., or of about 16.5 per cent. The fall is greatest after the first few applications; it becomes negligible after the fifth or sixth. He does not accept these results as beyond the limits of experimental variation under the conditions necessarily obtaining clinically.

By means of a small amount of massage the tension of the normal eye can be lowered distinctly and rapidly, a decrease of from one-third to one-half of the original value being readily obtained. The effect of massage in lowering the ocular tension is less marked in the glaucomatous eye than in the normal eye; while
in the former a lowering of 10 mm. Hg. is obtained, as for example, from 50 to 40 mm. This cannot be compared on a percentage basis to a lowering of from 20 to 10 mm. Hg. (i.e., of 50 per cent.).

The ocular tension is influenced by the attitude of the body—a vascular effect. In the normal eye a change of position of the body through an angle of 30° involves a variation of tension of about 3.5 to 4 mm. Hg., with the head raised producing a decrease, with the head lowered an increase of tension. In the glaucomatous eye this reaction is much more marked than in the normal eye; in the former the author obtains with a similar declination a variation of from 8 to 10 mm. Hg.

Comparative references given are:

Cestelli.—Arch. di Ottal., Vol. XX, p. 181.
Wessley.—Heidelberger Kongress, 1912.
Lohlein.—Heidelberger Kongress, 1912.

W. S. Duke-Elder.

(5) Libby, George F. (Denver, Colorado.)—Medullated nerve fibres involving the macula. Amer. JI. of Ophthal., September, 1925.

(5) Libby's case occurred in the left eye of a boy aged 6½ years, the right eye being normal. The refraction of the left eye was −18D., and medullated nerve fibres were seen to overlap the entire periphery of the optic disc, extending for 1.25 to 4.5 disc diameters from it and covering the macula. A striking V-shaped area of clear retina showed below the macula. There was loss of central vision and fixation, and the only part of the field showing vision was an area 150° vertically by 20° horizontally, in the lower temporal quadrant. The clear area of retina below the macula showed no response whatever in taking the field. A second case is reported by Edward Jackson occurring in one eye only, which again was myopic (12D.), and had medullated nerve fibres passing over the macula. An interesting feature is that the course of these fibres was directly over this area, i.e., there was no anatomical macula or fovea. In attempting to fix with this eye, the patient used a part of the retina to the nasal side of the disc and slightly below the level of its centre.

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