I.—METASTATIC GONORRHOEAL IRRITIS


v. Hippel's patient was an athletic man of 18 years who developed rheumatism in the right ankle joint four weeks from the beginning of an acute attack of gonorrhoea. Four days later on waking he found he was almost completely blind. He was then found to have much swelling and injection of the bulbar conjunctiva with some haemorrhages. The palpebral conjunctiva was not so much affected and there was a scanty purulent secretion, in which no gonococci were found. Diagnosis, metastatic gonorrhoeal conjunctivitis. In addition there was much exudate in the pupillary area and synechiae had already formed. The right ankle and knee joints were swollen and painful and the temperature was high. Under treatment the pupillary exudation rapidly cleared and the pupils dilated to the maximum, but the anterior chamber and vitreous were full of opacity. The iritis frequently relapsed, and it was not until two months later that the condition of the vitreous allowed an ophthalmoscopic examination. This showed a high degree of papillitis. Vision was only finger counting, and a large relative central scotoma was present. The temperature remained raised for two and a half months from the onset of the disease. The general treatment consisted in urethral irrigation and the injection of arthigon in increasing doses. Each of the injections was followed by a rise of temperature. A month later a white exudation was found near the macula. This suggested the possibility of a syphilitic infection, but the Wassermann test was negative. Sweating and mercurial inunction were carried out for several weeks. No improvement in the eye resulted. Ten months later and two months after the cessation of atropin the iris was very atrophic and remained widely dilated. Two and a half years later the iris was very atrophic, the media hazy with definite cortical opacities in the right lens. The papillae were atrophic with ill-defined borders. Vision R.E. 2/50 L.E. 2/10.

v. Hippel points out that the rarity of the case lies in the early onset of the ocular symptoms, and the lasting nature of the results of the optic neuritis. He is inclined to doubt the value of specific treatment by arthigon and vaccines, and even suggests that the
fever reaction produced may indicate that the treatment is actually harmful in such cases. No gonococci were found in cultures taken from the patient's blood.

E. E. H.


(2) It was shown by Cobbledick in an investigation carried out in 1912-13 (*Ophthalmoscope*, Dec., 1912 and June, 1913), that in a series of nine cases of rheumatic iridocyclitis the gonococcus was present in every one, after periods varying from 7 to 30 years from the date of the last infection. "This investigation," says Cobbledick, "brought to notice a class of gonorrhoeal infection to which little attention has been given. The reason is no doubt due to the fact that they only come under the notice of the ophthalmic surgeon, who in treating them has only treated a symptom, leaving the aetiological factor undiscovered and untreated."

Cobbledick relates some further cases, not all of which are cases of irido-cyclitis, in which the latency of the gonococcus seems to be proved up to the hilt. Longevity of the gonococcus is, of course, no new thing, but from Cobbledick's investigations he concludes that it is capable of residing alive in the prostate without any time limit at all. There may be no perceptible urethral discharge and yet the prostate and vesiculae may be the seat for many years of a gonococcal infection with all other parts of the urinary system unaffected. In investigating cases of iridocyclitis of obscure origin it is the duty of the ophthalmic surgeon to obtain the expert assistance of the genito-urinary surgeon. Massage of the prostate per rectum must be performed, a procedure which, as the author drily remarks, is not popular, and the urine which is passed thereafter must be centrifugalized, and the deposit examined by an expert bacteriologist for the presence of the gonococcus.

Cobbledick's work is of such a nature that nothing would be gained by abstracting the case histories. These must be read in detail to appreciate the conviction which they carry to the mind a conviction, in the author's own words: "that in these so-called rheumatic cases a systematic examination would always reveal, quite apart from the presence of a gleet, a prostate infected by the gonococcus, provided the technique suggested is followed, and I do not doubt that the eradication of the gonococcus would in all probability prevent the recurrences which are such a feature of the disease."

ERNEST THOMSON.
II.—DEVELOPMENT OF IRIS


(1) The depression referred to is regarded as developmental in origin, and has been found by the author always in the typical position—downwards or slightly inwards and downwards. It is simply a partial congenital coloboma of the iris. In connection with iris pigmentation three types are distinguished: Heterochromia Simplex in which both eyes are normal or it is doubtful which is the abnormal one; heterohyperchromia in which the darker eye shows a wart-like formation of the iris surface or melanosis sclerae is present indicating—at least for Germans—that the abnormality is in this eye; and heterohypochromia which appears to be the familiar form of pale depigmented iris associated with chronic cyclitis and cataract. This last form the author regards as the result of a pathological course of the pigmentation process dependent on congenital abnormal conditions, as distinct from albinism, which is a cessation of the normal pigmentation process. Under structural types and anomalies of the iris the various modes of arrangement of the trabeculae are discussed. Two chief types may be recognized, the radial in which the trabeculae extend to the pupillary margin and the frilled or bordered form (Krausentypus), in which a frill or rim occurs at a little distance from the pupil. This is due to the rarefaction of the superficial layer over the circumpupillary zone and may be hereditary. The author has found the frilled type more often in myopes, and the radial type more commonly in hypermetropes. Cases of glaucoma simplex have usually the radial type. Finally, the author discusses the developmental relations of these variations in the iris structure. The paper is illustrated by several drawings, and an excellent coloured plate.

H. M. TRAQUAIR.

(2) Cirincione, Prof. Speciale (Cagliari).—On the development of the muscles and of the posterior layers of the iris. (Sullo sviluppo dei muscoli e degli strati posteriori dell’iride.) Annal. di Ottal. e Clin. Ocul., Jan.-Feb., 1922.

(2) Cirincione in this important and beautifully illustrated paper begins with a review of the literature of the subject. As Fuchs pointed out in 1885, even as early as that period, there was no part of the human body of similar size on which so much had
DEVELOPMENT OF IRIS

been written; as Cirincione now points out the output of literature on the same portion still flows freely. Cirincione in his capacity of Director of the Ophthalmic Clinic in the Royal University of Cagliari, has access to an extensive embryological collection of material, and has availed himself of this to make exhaustive histological examination of the iris at all stages of development. He sums up the results of his work as follows:

1. The first indication of the iris is to be found at the beginning of the fourth month of intrauterine life, and is formed from the marginal tract of the secondary optic vesicle, separated from the posterior investment of the cornea in consequence of the formation of a delicate intermediary fissure. Scanty mesoblastic tissue and a vessel with very delicate walls remain attached to the small tracts of separated epithelial layers. The fissure, however, does not extend beyond the level of the vesicle, and when studied in toto (reconstructed) has the appearance of an annular fissure (primordial anterior chamber).

2. The two epithelial folds at the edge of this primordial iris present, at the point where the one fold joins the other, a tract more delicate and formed from a single layer of cubical elements becoming successively less pigmented. It limits a circular space (annular sinus of Szily).

In the foetus of 90-95 mm. the elements of this passage tract proliferate rapidly in the neighbourhood of this edge and are transformed into a germinative zone, to which is due the prolongation of the optic vesicle and the formation of the sphincter muscle.

3. The sphincter of the iris is represented, during the fourth month, by an epithelial slab in the form of a ring, in which pigmented elements, elongated and parallel to each other take origin from the germinative zone and stand in direct continuation with it. During the fifth month the elements of this slab become still more elongated, and are transformed into fibro-cellules inclined with respect to the surface of the iris. In the sixth month the rarefaction of the pigment elements of the slab, and the penetration of connective tissue elements between the fibres of the sphincter determine the process of splitting it up into muscle bundles. All connection with the epithelial layer is only lost in the last two months of intrauterine life.

4. The epithelial layers of the posterior surface of the iris are normally two in number and both are pigmented. These develop differently and separate in the adult structure.

5. The posterior epithelial layer is formed from the proliferation of the elements of the germinative zone nearest to its edge which are generally bent back as the edge advances in development. It is, therefore, a mistake to describe that layer as the
pars iridica of the retina, since the internal layer of the optic vesicle, from which the retina is derived, stops at the ciliary body and is never pigmented.

6. The anterior epithelial layer of the iris is formed from two tracts: one underlying the sphincter, formed in the same way from the proliferation of the germinative zone, the second, on the other hand, derived from the transformation of the voluminous elements of the pigmented layer after it has given place to the pre-epithelial membrane; thus the different aspects that that layer presents in the adult are to be correlated with the differences in development of the pre-epithelial membrane.

7. The pre-epithelial membrane (dilatator according to some authors) is always derived from the underlying epithelium, but does not present a constant structure in the adult. This fact is due to the varying degree of the reunion of the cells of the anterior epithelial layer from which it derives its origin.

The differentiation is most frequently limited to the basal portion of the cell which portion is fused with that of the neighbouring cell so as to give origin to a continuous membrane, refractile, homogeneous, and placed on the back of the remaining cellular elements. At other times the cellular portions are transformed into concealed and arcuate protrusions, which covering each other like roof tiles (embricanosti), do not form a true membrane, but form instead in front of the epithelial cells a protoplasmic layer which is obliquely striated, and in which the limits of the single portions which constitute it may be recognized. A final variation occurs in which all the epithelial cells are transformed into an element so crushed that it is adherent obliquely to the back of the neighbouring elements and in sections gives the appearance of a fibro-cellule.

Each of these three appearances may be met with alone in a perpendicular section of the iris, and this is the most common occurrence, but, on the other hand, less frequently all three may be present simultaneously in the same section. This is the explanation of the tenacity with which various authors have denied the appearance of one or the other structure of the pre-epithelial membrane of the iris.

8. The dilatator of various authors and the muscular sphincter, in spite of both having an epithelial origin, differ histologically, inasmuch as while the pre-epithelial elements which are transformed into fibro-cellules and give origin to a true muscular structure, are entirely absorbed in the formation of the sphincter; only a portion of the epithelial elements, on the other hand, (exceptionally the internal cell, which does not in every case retain its proper pigment) goes to the formation of the so-called dilatator, and the membrane thus formed, lacking nuclei, must be
ENCEPHALITIS LETHARGICA

regarded as a contractile epithelial membrane with a muscular function.”

A useful bibliography, going back to Bruch in 1844, accompanies the paper as well as five coloured plates. E. E. H.

III.—ENCEPHALITIS LETHARGICA

(1) Zarzycki, Pierre.—Ocular complications of cerebrospinal meningitis. (Des complications oculaires de la méningite cérébrospinale.) Arch. d’Ophtal., July-August, 1918.

(1) Zarzycki reports five cases observed by him in a general hospital since the beginning of the war, giving clinical notes of each. The ocular manifestations were: (1) iridoplegia incomplete, with bilateral papillitis; (2) neuro-retinitis of unequal severity in the two eyes; (3) intermittent strabismus, with glaucoma, followed by shrinking of the eyeball; (4) suppurative dacryo-cystitis; (5) bilateral metastatic ophthalmitis.

J. B. Lawford.

(2) Terrien, F.—Purulent irido-choroiditis and meningococcaemia. (Irido-choroidite suppurative et méningococcémie.) Arch. d’Ophtal., July-August, 1918.

(2) Terrien published a detailed clinical account of this case, with a report of the microscopic examination of the affected eyeball.

The case presents several points of interest. It occurred in a healthy male aged 18 years. The ocular lesions showed themselves on the third day and rapidly became severe: the iris was swollen and adherent, a large hypopyon formed, vision was reduced to hand movement. Although the cerebro-spinal fluid showed no abnormality and remained sterile, haemoculture revealed a characteristic growth of meningococcus. Treatment by anti-meningococcic serum injected into the spinal canal and subcutaneously was followed by amelioration of the general symptoms. No improvement in the ocular conditions occurred until after the injection of 4 mm. of serum into the A.C. This was followed by disappearance of the hypopyon and of the exudation in the pupil.

J. B. Lawford.

(3) Dickinson, Dr. G. (Syracuse, N.Y.)—Ocular notes on lethargic encephalitis, with two case reports. Amer. Jl. of Ophth., p. 587, August, 1920.

(3) The difficulty of differentiating between lethargic encephalitis and syphilis of the central nervous system is of special interest to the ophthalmologist, and Dickinson gives a report
of two cases which presented trouble in diagnosis. The first case was that of an apparently healthy man of 26 years who was referred to the author on account of sudden diplopia. No history of venereal or other disease. Pupils were active to light and accommodation; fundus normal, and refraction practically normal. Limitation of external movement of the right eye, and marked esophoria were present. With rest and attention to diet, esophoria almost disappeared, and diplopia ceased, in about a week. Recurrent attacks of somewhat longer duration occurred, the paralysis shifting from one muscle to another, and patient was ultimately referred to a neurologist who diagnosed lethargic encephalitis. Wassermann reaction was negative. Under treatment by the neurologist, muscle balance became normal, and the patient remained well. A slight drowsiness passing into some confusion of ideas during the early part of his treatment by the oculist were put down to atropin idiosyncrasy, but in the light of the later diagnosis these symptoms were attributed to the underlying pathological condition.

The second case was that of an unmarried woman of 33 years, who was healthy, but who had led a sedentary life. The first symptom noticed was that her left pupil was larger than the right. On examination the left eye showed a typical Argyll Robertson pupil. Vision normal; external muscle balance normal, and fundus showed nothing unusual. Field of vision normal. Blood tests negative for syphilis. Beyond a general slowness in reaction time, and a tendency to drowsiness nothing definite could be determined, but the diagnosis of a mild case of lethargic encephalitis was returned by the neurologist. After a course of treatment extending over seven weeks the condition had improved, and the pupil reacted to light almost completely.

Dickinson thinks it would be interesting to know how many mild cases of this disease have been diagnosed as syphilis, and treated as such, and vice versa. The fact of the predominating symptom of both conditions being partial or complete paralysis of the external ocular muscles (particularly those supplied by the third nerve), confuses the diagnosis. The fact, however, that in syphilis the paralysis is of an intractable nature forms a guide, the paralysis in encephalitis yielding more readily to treatment. The typical Argyll Robertson pupil met with in the second case refutes the doctrine that this symptom is invariably a luetic one.

J. Hamilton McIlroy.


(4) Symonds first of all refers to the fact that he has found very little reference in the literature of this disease to changes
in the fundus oculi or disturbance of visual function. Macnalty (L.G.B. Report for 1918) failed to find one case of true papilloedema in 50 cases of the disease in which the fundi were systematically examined. Nor have Morax and Bollack found impairment of acuity or intraocular changes. Buzzard has reported one case of papilloedema in proved encephalitis lethargica and one in an unproved case. Vincent had two cases of grossly impaired acuity but without fundus examination. Bramwell has not had experience of actual optic neuritis in any proved case of this disease.

Symonds then records very fully four cases, seen in America, in which "definite changes were seen in the fundus oculi, together with clinical signs and changes in the cerebro-spinal fluid which favoured their inclusion in the encephalitis lethargica group." The remainder of the paper is taken up with arguments in proof of the correctness of the diagnosis of encephalitis lethargica in these four cases, and the author summarizes his observations, and concludes that his cases are consistent with the diagnosis of encephalitis lethargica if the definition of Barker, Cross, and Irwin be accepted. This definition discards the title encephalitis lethargica and includes encephalitis, encephalomyelitis, poly-neuritis, and meningo-encephalo-myelo-neuritis. These authors assume as the cause a single infectious agent which attacks the central and peripheral cerebro-spinal nervous system and its coverings in a widespread, though at the same time a patchy or disseminated way.

In an editorial note in the same issue of the Lancet reference is made to Symonds' article, pointing out that Symonds depends for his diagnosis chiefly on the exclusion of other possible diagnoses, but that other means are in sight now that experimental proof is complete that the disease is caused by a living virus. McIntosh (Brit. Jl. of Exper. Path. Oct., 1920) has described the successful inoculation of one monkey with material from another, which had been inoculated from a human case and had developed the disease. It remains to discover the organism.

ERNEST THOMSON.

IV.—OCULAR PROTHESES


(1) This is a description of an ingenious apparatus, devised by Dr. Valois, which was made and fitted to a soldier in whom, as the result of severe burns by molten metal, the right eye was
destroyed and total symblepharon was produced. When cicatrization was complete, the eyelids were adherent in their whole extent, but beneath them the stump of sclera, after evisceration of the contents of the globe, preserved its movements and these movements were transmitted to the eyelids. A very accurate mould of the whole orbital region was made, and it was possible to determine that the maximum movement was limited to a small central area. An artificial eye was constructed of hemispherical shape, the posterior surface of which was in very accurate coaptation with the skin of the adherent lids, so that the movements of the latter were transmitted to the eye. The eye was kept in position by light pressure from an additional and surrounding portion of the apparatus which represented the normal lids and palpebral fissure, and which was placed over the eye. The whole mechanism was attached to a spectacle frame, by which it was maintained in position.

The description of the apparatus is rendered easy of comprehension by two diagrams. The cosmetic result is said to have been satisfactory. It is regrettable that a photograph of the patient wearing the spectacles has not been added.

J. B. Lawford.

(2) Ramsay, A. Maitland (Glasgow).—An oculo-palpebral prosthesis. Lancet, May 12, 1917.

(2) Ramsay, after referring to the different methods of forming an oculo-palpebral prosthesis, and especially to the case reported by Sir W. Collins (Lancet 1916, 1, p. 1217), and to the article by Coulomb and Ruppe (Annal. d'Ocul., April, 1916), says that for various reasons he has adopted vulcanite. The parts to be reproduced are carefully modelled in wax, and from the model a plaster of Paris impression is taken. The soft rubber is then moulded on the plaster of Paris and thoroughly vulcanized. The artificial eye is cemented to the vulcanite lids, and after these have been coloured to match the surrounding parts, the prosthesis is attached to a spectacle frame. The lens in front of the sound eye corrects any error of refraction which may be present, while that in front of the artificial eye is of the curvature which is found to give the best cosmetic result. Four cases, all of them soldiers are described and illustrated with photographs.

Ernest Thomson.

(3) Roche, Charles.—Improved ocular prosthesis. (A propos de l'amélioration de la prothèse.) Arch. d'Ophth., Jan.-Feb., 1918.

(3) In this article, accompanied by a number of photographs illustrating the results obtained, Roche describes in detail the
method of operating which he employs. He advocates the implantation of a graft of fat taken from the buttock (the fat graft of Sourdille). He operates under local anaesthesia induced by the deep injection in the orbit of a 0.5 per cent. solution of cocain, and by a subcutaneous injection of the same strength in the buttock. He begins by the excision of the graft which is wrapped in a sterile compress. He then removes the eyeball in the ordinary way, inserting a purse string suture. The graft is then placed in position and the suture tightened and tied. Not infrequently two additional stitches are inserted, in the conjunctival wound. The author is well satisfied with the immediate results he has obtained, but expresses some doubt as to their permanence.

J. B. Lawford.


(4) In the present article Pouillard and Real express their disappointment with the results generally obtained by the use of epidermic and dermic grafts, and of movable glass or rubber masses placed in contracted sockets, and bring forward a piece of apparatus which they have devised for the purpose of keeping the cicatricial bands, once cut, from re-forming, and through the medium of gradually larger casts, of actually enlarging the socket in any required direction.

A metal plate, held in place by head bands (one of which has a spiral spring and goes under the occiput), is carefully moulded over the eyebrow and forehead on the affected side; to this plate is fused a metal sleeve in which runs vertically a steel rod controlled by a screw; near the lower end of this rod is an antero-posterior sleeve in which runs sagittally another steel rod also controlled by a screw—the posterior end of this fore and aft rod carries a metal disc on to which is fastened the plastic material, and later the vulcanized cast of the socket. By means of these two rods, sleeves and screws, any height or depth in the socket can be obtained. A preliminary mould in three pieces of the socket is obtained, then the bands are cut across and a mass of softish material on the disc is pressed into the socket to distend it completely, especially at the parts where the bands are. The cast of the socket thus obtained is in a few days replaced by a vulcanized one, which is worn night and day for ten days without discomfort, any adjustment to the rods being made as needed, and the plastic mould having been altered in any way to give the correct effect. The usual course lasts fifteen days, supplemented by nocturnal wearing of the splint and obturator for some months afterwards to keep the effect obtained. If the socket has no bands
so much the easier will the case be, while narrow palpebral fissures can be comfortably enlarged by the use of gradually increasing sizes of casts.

The article is well illustrated, but the name of the maker is not stated, nor are any details of cases given.

W. C. Souter.

**BOOK NOTICES**


The Miners' Nystagmus Committee, appointed in 1920 by the Medical Research Council, issued a first report in 1922, which was fully reviewed in these columns in June of that year. The report in question dealt generally with miners' nystagmus as an occupational disease, and concluded that defective illumination was the essential cause of the disease, and that improvement in lighting was the preventive.

The second report now issued by the Committee deals with two subjects: (1) Incapacity from miners' nystagmus; and (2) relative importance of errors of refraction in miners' nystagmus. Both sections appear under the name of Mr. G. H. Pooley, a member of the Committee, but the introduction states that another member of the Committee, Dr. T. L. Llewellyn, had helped with part one, and that the Committee is in entire agreement with it.

1. As regards the incapacity from miners' nystagmus, a distinction is drawn between the prevalence of physical signs distinctive of nystagmus, and the existence of incapacity arising therefrom. Information as to the former can only be obtained by the medical examination of underground workers. Romée in 1877-1908 in four Belgian pits found a high percentage of coal-getters suffering from nystagmus. When he examined the coal-getters in the same pits in 1908, after the lamps had been improved in three of them, the proportion affected had fallen considerably, but had not fallen in the fourth pit where the lamps had not been improved. The figures are interesting and may be quoted in full:

*Percentage of coal-getters showing nystagmus in four Belgian pits.*

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