A CLINICAL STUDY

OF THE

RELATION OF SYPHILIS TO DISEASES OF THE EYE.

Thesis for the Degree of Doctor of Medicine

by

ANDREW WILSON, M.B., C.M. (Glas).

June 2nd. 1902.

ProQuest LLC.
789 East Eisenhower Parkway
P.O. Box 1346
Ann Arbor, MI 48106 – 1346

I N D E X .

LIST OF ILLUSTRATIVE CASES.

Since Förster's work, on the relation of the eye and its diseases to the diseases of the rest of the body, appeared in the "Handbook of Ophthalmology" by Graefe and Saemisch, many workers have been steadily adding to the store of our knowledge on that subject, and their investigations have proved of great service to the advancement of the science and art of medicine.

In this thesis the author purposes to limit his ob--servations to a study of the relations of syphilis to the diseases of the eye, and hopes to be able to show, by detailing observed cases, that this malady plays a very important part in the causation of eye disease.

Before the discovery of the ophthalmoscope, the affections of the eye known to have a common syphilitic origin were limited to those diseases which could be recognized by inspection. Since the introduction and perfecting of that instrument, more definite knowledge has been attained regarding the pathological changes

to be met with behind the lens, and the statement, that "amaurosis is a disease in which the patient is blind, and the physician sees nothing", has now lost much of its sting.

The examination of the lesions affecting the deeper parts of the eye being thus rendered possible, surgeons have been enabled to arrive at fairly defin--ite conclusions as to the interpretation of the ap--pearances seen, and to estimate more precisely their aetiological significance.

Syphilis, is a specific infectious disease, acquired by direct or mediate contagion. At the point of en--trance of the poison, after an interval (the first period of incubation), the local lesions (the chancre or primary sore and the primary adenopathy) develop, and from the local sore the virus is passed on in small quantity into the body, where it proliferates, and after a certain length of time (the second period of incubation), its toxins cause symptoms of poisoning (constitutional syphilis), the first prominent symptom of which is a cutaneous rash, associated with slight fever and sore throat.

Syphilis, therefore, resembles the exanthemata in its mode of onset, and also in the protection commonly afforded by one attack against subsequent contagion; but differs from them in being essentially chronic in duration and liable to relapse.

In many of the exanthemata, smallpox, measles, scarlet-fever, &c., which are recognized to be infectious, the causual micro-organism has not yet been demonstrated although the disease can hardly be explained except on the theory of infection. In each of these diseases there is a marked uniformity in the period of incub--ation, the course of the disease, and the complicat--ions and sequelae; and variations in the severity of the attack or immunity from attack in different indiv--iduals may be explained by similar reasons as we ex--plain the differences of growth in any particular micro-organism in the various artificial media.

In syphilis, although at present it is equally imposs--ible to definitely state what the characters of the syphilitic virus are, the local reaction after inocul--ation, the local lesions, and the course of the con--stitutional symptoms are thoroughly characteristic of a definite toxaemia due to the entrance into the blood of a specific contagium vivum.

1 Muir & Ritchie, "Manual of Bacteriology"
page 202.

Two organisms have been described as the bacillus of syphilis.

Lustgarten in 1884 described a bacillus found both in the primary sore and in the lesions of the internal organs. It has also been found in tertiary lesions, which are generally believed to be non-infectious. His observations have both been confirmed and denied. The Lustgarten bacillus has not yet been cultivated outside the body. It resembles the smegma bacillus closely, and also the tubercle bacillus. Its causual relation to syphilis is still highly problematical.

Van Neissen has described a pleomorphous bacillus which he found in syphilitic lesions, and claims to have demonstrated it both in the tissues and in the blood, and also to have obtained it in pure culture from a number of cases, but his work is uncorroborat-
-ed.

Hutchinson, "Syphilis" page 100.

Syphilis may be acquired or it may be transmitted by inheritance. In both acquired and inherited syphilis eye affections may supervene in the course of the disease.

The lesions of acquired syphilis are generally classi--fied according to their time of occurrence in the course of the disease, as primary, secondary, and tertiary syphilitic affections.

Hereditary syphilis is likewise subdivided into second--ary and tertiary, or early and late stages.

In each of these artificial divisions we may find dis--tinctive, and often characteristic eye lesions.

Acquired syphilis in the great majority of cases de--velops after impure sexual connection, and consequently the primary sore is usually on the genital organs.

While this is the common site of invasion there is a large class of cases, which have been described by Fournier as "Syphilis in the Innocent", and by Hutchinson as "Erratic chancre", in which the primary sore does not occur on the genitals, and in which the sexual act plays no direct part in the transmission of the disease.

Amongst this class of cases chancre of the eyelids and conjunctiva occasionally occurs, so that the eye may be the point of entrance of the syphilitic virus into the body.

Chancre of the eye structures is not by any means of frequent occurrence. In the author's clinique in the Glasgow Eye Infirmary, chancre has only been met with five times out of a total of over 30,000 cases, and in four of these cases the chancre was on the lower lid.

The most frequent site of chancre in connection with the eye is on the lids, and the site of selection is on the right lower lid close to the internal canthus (Cases 2.3) This is no doubt due to the fact that in rubbing the eye, the skin at this point is most easily reached.

The chancre may appear on the outer aspect of the lid involving the skin alone (Case 3), or it may implicate the lid margin and palpebral conjunctiva or caruncle (Case 2) It may be limited to the palpebral conjunctiva, generally of the lower lid, although cases have been recorded in which it has been found on the palpebral conjunctiva of the upper lid quite clear of the lid margin.

It also occurs, but rarely, on the bulbar conjunctiva, and cases of chancre of the cornea have been recorded.

Chancre of the eyelid generally begins as a papule which sometimes runs its course as an indurated non-ulcerat--ing swelling. More commonly it breaks down.

These ulcers are generally small, and have a typically hard and indurated base. These characteristics, along

with the scanty secretion, and the painless enlargement of the preauricular gland, are generally sufficiently pronounced to suggest the true origin of the destructive process. Chancre of the lid has to be differentiated from other forms of ulceration of the eyelids, particul--arly, lupus, tubercular ulcer, rodent ulcer, epithelioma an ulcer following the breaking down of a gumma, and vaccine ulcer. The author has notes of a case of ulcer caused by accidental vaccination, and seen for the first time about the tenth day, which had all the above characteristics well marked, and whose nature was only identified after careful inquiry into the history of the early appearances and the development of the ulcer, and after ascertaining that the possibility of accidental vaccination was present. The diagnosis was later corrobor--ated by the rapidity of healing under non-specific treatment, and the non-appearance of secondary symptoms.

Sometimes the characteristic appearances of chancre in this position, specially the induration and the primary adenopathy, are not at all well marked, and occasionally the diagnosis is a matter of extreme difficulty, not infrequently only positively made on the appearance of the constitutional symptoms. In these doubtful cases it is always possible to make a positive diagnosis by excising a small portion of the lesion, and examining a section under the microscope.

The secondary stage of syphilis follows rapidly on the primary, and the prominent lesions of this stage are inflammatory in nature. They are generally widespread and symetrical, showing that a systemic infection is present. They are characteristically transitory, and there is a marked tendency towards spontaneous cure, although, in the process of cure, the functional activity of the part may be permanently interfered with.

Symptoms and lesions appearing later than the end of the second year, but before the usual onset of tertiary manifestations, which as a rule do not appear till about the fifth year after infection, are often spoken of as belonging to the intermediate stage, because if lesions occur at all during this period they partake of the characters of both the secondary and the tertiary stages, with a distinct leaning towards being milder and less aggressive than those of the pure tertiary stage, and they are frequently symetrical.

During the early stage of secondary syphilis the macular roseola is generally present on the lids, and the occurr--ence of mucous patches on the conjunctiva, and ulcer--ation of the lid margins have been described.

Commonly there is a slight falling out of the eyelashes and hair of the eyebrows.

1 Quoted by Berry, Diseases of the Eye, page 134

The place of election however for the ocular manifest--ations of syphilis in the secondary period is the uveal tract, and especially the iris and ciliary body.

In all diseases of microbic origin the secondary lesions show a tendency to occur in special structures.

The micro-organisms seem to possess the power of select--ing certain tissues for attack, and this may possibly be explained by the special tissue affected affording to the micro-organism more suitable conditions of nutriment.

Leber held the view that the inflammation of the uveal tract was determined by the entanglement in the capill--aries and small bloodvessels of the iris, of minute coagula containing the specific virus. By this theory he tried to explain the comparative infrequency of iritis in syphilis and also the occurrence of unilateral iritis.

There is however no anatomical proof of the correctness of this theory, and it seems impossible to regard the localization as embolic in nature, for the site of selection is far too constant to be accounted for by any mechanical agency like that.

The uveal tract lies for the greater part between the sclera and the retina, and is a vascular, pigmented, and, in part also, a muscular membrane. It has been subdiv-

1. Quain's Anatomy 1894 Vol III Part II Page 22.

-ided into three main parts, the choroid behind and the ciliary body and iris in front. In addition to these parts the uveal tract must be held also to include the corneal endothelium and Descemet's membrane. "The study of the development of the eye shows that the loose tissue -the ligamentum pectinatum iridis- in which the spaces of Fontana occur, as well as the endothelium of Descemet's membrane and the membrane itself, belong to the vascular layer of the mesoblast which is continuous with the chor--oidal layer of the embryonic eye, but which, as develop--ment proceeds, becomes separated from the vascular layer and then comes to form a part of the cornea owing to the formation of the anterior chamber"(Quain's Anatomy).

This developmental origin of Descemet's membrane and its endothelium shows us why descemetitis, which used to be looked upon as an independent disease, should be regarded as symptomatic of an affection of the uveal tract.

It may be met with in any involvement of the iris, ciliary body, or choroid, and is never a disease per se.

While it is customary to speak of iritis, cyclitis and choroiditis as separate diseases, all these divisions of the uveal tract may be affected at the same time -general uveitis-, although the inflammation may originate and be most severe in any one of them.

The combination of iritis and cyclitis is specially frequent, and it is difficult to understand how it could be otherwise.

Anatomically the iris and ciliary body possess a common vascular supply from the anterior ciliary and the long posterior ciliary arteries. In superficial extent they are relatively small structures, and are in intimate association, and besides, the ciliary body, bounding the posterior aqueous chamber, takes a large part in secreting the aqueous, which, surrounding the iris on all sides, can scarcely fail to influence it by changes in its chemical composition.

The choroid proper on the other hand, although anatomic--ally continuous with the ciliary body, is supplied by the short posterior ciliary arteries, and a choroiditis is more generally an affection by itself, or at all events the inflammatory process is more apt to extend to the overlying retina and to the vitreous than to the ciliary body and iris.

1. Quoted by Berry, "Diseases of the Eye" page 132.
2. Rubarsch et Osterlag, "La Syphilis oculaire d'après les travaux les plus recent" Revieu in "La clinique opetalmologique" Feb. 10-1902 page 43.

3 Knies, The Eye in Jewish Diseases page 405

4 De Schweinitz & Randall, "Textbook of diseases of the Eye, Ear, Nose & Throat" page 338.

5. Quoted by
Rubarsch et Osterlag, "La Syphilis oculaire d'après les travaux les plus recent"

The statistics of syphilologists differ widely as to the frequency with which iritis and irido-cyclitis occur in syphilis. Siegmund[1] states that they occur only in 1% of the cases, and the latest writers, Lubarsch and Ostertag,[2] give the percentage as 8, while Hebra[1] and Fournier[1] both put it down at 4.

The same difference of opinion is shown when we examine the statistics relating to the causes of iritis.

Arlt[3] states that 35% of all cases of iritis are due to syphilis. De Schweinitz and Randall[4] put the percentage at 75. In the author's practice at the Glasgow Eye Infirmary, about 50% of the cases of iritis give a history of recent syphilis. These percentages, while varying largely, at least show that, of the constitutional causes of iritis and irido-cyclitis, syphilis stands easily first.

Baas[5] has found, by microscopic examination, that all syphilitic iritis is characterized by the presence of little parenchymatous nodules in the iris tissue.

Clinically we are unable to find, in the majority of cases, evidence of that contention, and it is customary to divide the iritis of early secondary syphilis into two main forms (1) iritis plastica.

(2) iritis papulosa v. condylomatosa.

Iritis or irido-cyclitis comes on as a rule between the third and the sixth months after infection, and by far the most common type in syphilis is simple plastic iritis or iridocyclitis. If the inflammatory process be very acute, the exudate thrown out by the iris may be excess-ively fibrinous, and may form a coagulum in the anterior chamber similar to that frequently seen in traumatic iritis. To this form the name iritis gelatinosa is frequently applied. The cellular elements in the exudate may be relatively in excess, and, depositing to the lower part of the anterior chamber, a hypopyon is formed.

Generally, in simple plastic iritis or irido-cyclitis of syphilitic origin, (Cases 6, 7, 8, 9, 10, 11, 12, 13) the exudate is fibrinous and moderate in amount, and does not pass readily from the surface of the iris into the aqueous. It acheres to the surface of the iris, and it is owing to this fact that the iris surface early looks dull and lustreless. For this reason too, adhesions form very rapidly between the pupillary border and the lens capsule, and, unless soon influenced by treatment, the pupillary border becomes permanently anchored by these posterior synechiae.

In moderately severe inflammation, the exudate frequently spreads out in a layer across the pupillary area, and leaves a permanent thickening on this part of the lens

capsule. This is rendered all the more easy by the fact that the pupil is usually small owing to the hyperaemic condition of the iris tissue. Even after the adhesions at the pupillary border are broken down, and the pupil has been dilated, this exudate often remains as a perman--ent grey organized opacity.

In a typical case of plastic iritis or irido-cyclitis the eye, without apparent cause, begins to feel uncom--fortable, with aching along the supraorbital margin and lachrymation. Soon the conjunctival vessels become hyperaemic, but the characteristic appearance at this stage is a narrow uniform ring of circumcorneal vascular--ity, due to the engorgement of the anterior ciliary vessels. As the inflammation advances the pericorneal zone becomes deeper in colour, and the pupil becomes contracted and small, and very often eccentric, and the iris becomes discoloured and its surface dulled.

These changes in the iris are due to the increase of blood in the vessels, to changes in the epithelium on the anterior surface of the iris, and to the fibrinous exudate on its surface and suspended in the aqueous.

The pain associated with the inflammation becomes more severe as a rule, especially at night, and is sometimes

referred to the eye, but more often to the eyebrow, down the side of the nose, or to the temple, following the distribution of the ophthalmic division of the fifth nerve.

The pupil forms adhesions to the lens capsule, and these posterior synechiae are best seen on using a mydriatic, which causes the parts of the pupillary border of the iris between the adhesions to dilate, rendering the pupillary margin irregular and crenated.

Synechiae may clear up entirely, or may leave more or less definite permanent change. If recent, the adhesions may give way as the pupil dilates, sometimes leaving traces of their occurrence on the lens capsule as opaque pigmented spots, valuable later as an indication that a previous iritis had existed.

They may become stretched and organized as fine threads, which, while allowing a certain amount of play, remain as permanent adhesions, or they may, not yielding at all, become organized into firm connective tissue which holds the pupillary border firmly and immovably bound down to the lens capsule. These synechiae may be few in number and individually small, or they may form a confluent ring attaching the whole pupillary border to the lens capsule (exclusion of the pupil). This condition

shuts off the posterior chamber from the anterior, and unless relieved by operation is likely to be followed by secondary glaucoma and destruction of the sight.

In the milder cases in which the exudate is not so fibrinous or abundant, and in which there is less tend--ency to form permanent posterior synechiae, the exudate passes more readily into the aqueous, and often deposits on the endothelium of the cornea. At first these punct--ate deposits are not firmly adherent, and it is easy to note that they change their position from time to time. This difference is well seen if the cornea be inspected, and its condition noted, in the morning and again at night. In the morning there is scarcely any deposit to be seen, but at night the typical triangular patch of spots is often well marked.

In a pure iritis the vision is generally impaired but slightly, and the impairment is in proportion to the denseness of the exudate over the pupillary area, the muddiness of the aqueous, and the degree of descemetitis.

If the iritis is combined with cyclitis the impairment of vision is much more marked as the exudation also spreads into the anterior part of the vitreous behind the lens. In the absence of markedly increased pain, oedema of the lids, increased intraocular tension,

descemetitis, retraction of the iris periphery, or ciliary tenderness, which are always associated with cyclitis if at all acute, vision, impaired beyond what one would expect from the external appearances, should always suggest the necessity for very careful examination of the vitreous and fundus. If the anterior part of the vitreous is full of opacity, the ciliary body is certainly implicated, and later when this opacity clears up suffic--iently to allow of an examination of the fundus, choroid--al changes or chorio-retinal and neuritic changes may also be detected.

While simple plastic iritis is the most common form of iris inflammation in secondary syphilis, iritis syphil--itica also occurs in about 15 to 20% of the cases as a parenchymatous inflammation of a special form.

The symptoms and progress are practically similar in both forms, but this latter type is associated with the presence of one or several yellowish red or dirty orange coloured nodules in the tissue of the inflamed iris near the pupillary border (Cases 14, 15).

In other cases the swelling at the pupillary border appears as a slightly raised yellowish red ring, and in both the infiltration is in the depth of the iris tissue and its colour is due to the presence of small visible

1 McKenzie, "Diseases of the Eye"
4th Edition, 1854. Page 544.

2 Beers, par McKenzie Diseases of the Eye
Page 543

vessels on the surface of the iris and the infiltration. These cases are spoken of as iritis papulosa or condyl--omatosa, and the existence of this form of iritis is held by many to be absolutely characteristic of syphilis. At all events it should make one strongly suspicious of the existence of syphilis, although McKenzie[1] records one case of pure rheumatic iritis, in which iritis pap--ulosa was typically present. According to Beers[2] this form of iritis, if associated with eccentric position of the pupil, is absolutely characteristic of syphilis. The author, in his clinique in the Glasgow Eye Infirmary, has never met with a case of iritis papulosa without being able to establish a history of recent syphilis. Eccentric position of the pupil he looks upon as due to compression of the iridian nerves as they pass over the ciliary body, and as an indication that the disease present is an irido-cyclitis, though not necessarily syphilitic.

The inflammatory process occasionally never extends beyond the iris (Cases 6,7,8.), but if typically acute it very seldom runs its course without involvement of the ciliary body to a greater or less degree, and an acute inflammation beginning in the ciliary body even more rapidly extends to the iris.

Acute cases generally last about four weeks before beginning to thoroughly quieten down, and even then there is great risk of relapse if the treatment be stopped prematurely (Cases 9,16.).

The final result depends to a considerable degree on the stage at which treatment has been brought into play, and on the efficiency of the treatment.

Resolution may take place with complete clearing up of all the signs of the inflammation, and restoration of function, or there may be a fairly complete restoration of function, with some pigment spots remaining on the capsule of the lens, marking the site of the temporary synechiae, or even some fine posterior synechiae may remain permanently. On the other hand there may be permanent loss of function and impairment of vision due to posterior synechiae, which in their gravest forms occur as a ring binding down the entire pupillary border to the lens capsule (exclusion of the pupil), or as total posterior synechia, in which the whole posterior surface of the iris is attached to the lens capsule.

The exudate across the pupillary area may become organized leaving a thickened membrane, which gives rise to permanent visual defect in proportion to the dense--ness of the opacity, and if the pupillary border has remained undilated and bound down, this membrane is

continuous with the annular synechiae (occlusion of the pupil).

The exudate around the equator of the lens and in the vitreous may fail to clear up, ultimately leading to opacity of the lens by interfering with its proper nutrition, and often to softening of the eyeball as the exudate becomes organized and cicatricial.

The contraction and organization of the inflammatory exudate leads to the softening of the eyeball by destroy--ing the secreting glands in the ciliary processes.

Usually both eyes are affected, but not simultaneously. Inflammation of one eye alone is by no means rare, especially if treatment be vigorously pushed at the onset and be kept sufficiently long in play. More commonly however one eye suffers acutely, and while the treatment of that eye is being carried out, the second eye becomes inflamed but much less severely.

After the inflammation quietens down there is not much tendency to relapse if the treatment be kept up suffic--iently long, but recurrence is not uncommon when the treatment is left off too soon (Cases 9,16.).

At a late period of the secondary stage or in the tertiary stage, a less sthenic type of inflammation some--times comes on. There is little apparent inflammatory symptom beyond the appearance of a narrow pericorneal vascular zone, but the patient complains of impaired vision, and the presence of a punctate deposit on the back of the cornea is noted.

On dilating the pupil there may be one or two synechiae, showing that the iris is slightly involved. These as a rule break down readily under the instillation of a mydriatic. On examination with the ophthalmoscope, the anterior part of the vitreous is found to be full of fine opacity, and very often if you can get a view of the fundus, spots of recent choroidal inflammation are readily detected. Indeed some degree of choroiditis, chorio--retinitis or neuritis is not an infrequent accompaniment of an irido-cyclitis, acute or subacute, and after the inflammation in the anterior part of the uveal tract quietens down, the deeper choroidal affection may go on advancing.

The most prominent sign of this subacute uveitis is the punctate deposit on the back of the cornea. Under the belief that this condition indicated an independent disease it has been variously called serous iritis,

keratitis punctata, aquo-capsulitis, simple cyclitis, and descemetitis.

The terms serous iritis and simple cyclitis have nothing to recommend them as they give a wholly mistaken notion of the pathological condition of such an eye.

Keratitis punctata, aquo-capsulitis, and descemetitis imply that the inflammation is a local disease of the anterior chamber, and are thus inaccurate.

It is however convenient to retain a distinctive name to denote this punctate opacity, and of all the terms used descemetitis seems the most suitable, so long as we remember that primarily it only refers to a symptom which may be found with a general uveitis or with implication of any division of the uveal tract.

The typical involvement of the cornea is best seen in hereditary syphilis, but in the late secondary stage of acquired syphilis, a parenchymatous keratitis is sometimes found associated with an inflammation of the anterior uveal tract. In these cases the corneal inflammation is inclined to be more patchy in distribution than in hereditary interstitial keratitis, and rarely involves the whole area of the cornea (Cases 16, 17, 20.).

The keratitis generally begins at the corneal margin. There is an increased pericorneal vascularity at the

base of the patch of opacity, and from this vascular zone new formed vessels pass in for a short distance under the corneal epithelium and into the cornea proper.

The opacity is not uniform, but is often distinctly spotty, especially near the periphery of the cornea, and it is always situated in the cornea proper, more commonly in the deeper layers, and frequently there is a coincident descemetitis.

The author has never seen this inflammation occurring without primary involvement of the iris and ciliary body It differs from the more common hereditary parenchymatous keratitis in being much more amenable to treatment, improvement at once setting in as soon as the irido--cyclitis begins to quieten down.

In the author's experience in Dispensary practice, the interstitial keratitis of acquired syphilis is most frequently associated with a relapse of the iridocyclitis the patient having stopped treatment too soon owing to his having considered himself well, because of the marked improvement in the initial attack of the iridocyclitis. (Case 16.).

Case 17 is an example of exceptionally early onset, the primary iridocyclitis and the keratitis coming on about the same time.

Choroiditis may accompany an acute iritis or irido-cyclitis, but more usually changes in the uveal tract behind the ciliary body come on not earlier than the late secondary or intermediate stage of syphilis, that is, choroiditis rarely begins as a primary affection before a year after infection. Plastic choroiditis is always a much more chronic affection than a plastic irido-cyclitis and the greater liability of the choroid to chronic and progressive forms of inflammation is probably due to the sluggishness of its circulation.

As has already been pointed out, an inflammation starting in the choroid does not commonly involve the ciliary body or iris secondarily, the more usual extension being in the direction of the overlying retina and vitreous, which are largely nourished by the vessels of the choroid.

In choroidal affections however it is not uncommon to find traces of past iritis, such as synechiae or pigment spots on the anterior capsule of the lens, and the presence of these signs of past iritis strengthen the diagnosis of a syphilitic affection of the choroid.

It is well to remember that the indications of past disease may be present in the other eye from the one now affected.

The most typical syphilitic affection starting in the choroid is a chorio-retinitis. This begins as a diffuse choroiditis, which spreads over the whole choroid, and rapidly extends to the bacillary layer of the overlying retina. It appears to be always most severe behind the equator, and in the neighbourhood of the macula it is often associated with circumscribed patches of denser exudate (Cases 31, 32, 33). Baas states that the reason why syphilitic choroidal affections show such a manifest predilection for the posterior pole of the eye, is due to the fact that the posterior ciliary arteries pass, at this point, through the sclerotic in penetrating to the uvea, and that these vessels are often the seat of syphilitic endarteritis.

Chorio-retinitis is accompanied as a rule by no pain or outward appearance of inflammation. A patient's chief complaint is the defect of vision, and probably he may complain of dyschromatopsia or night-blindness.

On ophthalmoscopic examination, in severe cases, one can often only see an abundant fine punctate cloudiness of the vitreous, which obscures all fundus details (Case 32)

In other cases where the inflammation is not so severe, the dust-like opacity is confined to the posterior part of the vitreous. It is then generally possible to see that the retina is involved in the inflammation as well

as the choroid, although the vitreous opacity always veils the fundus to some extent.

In these cases the whole fundus is seen to be paler than normal, as the colour imparted to the fundus by the larger choroidal vessels is clouded by the exudate in the chorio-capillaris, and the retina is hazy and gray from oedema, and infiltration by inflammatory exudate from the choroid.

The optic disk generally appears to be hyperaemic from the engorgement of the capillary vessels, the disk being largely supplied by branches from the short posterior ciliary vessels, and often there is some degree of neuritis, although it is not always easy to satisfy oneself as to the actual condition of the disk, and especially its margin, owing to the vitreous opacity being most abundant in the neighbourhood of the papilla. As the opacity in the vitreous clears up, and the exudate in the retina and choroid becomes absorbed, the most notable change is a proliferation of the pigment cells in the choroid and retina, and their migration towards the inner surface of the retina. This pigment heaping is always best seen towards the periphery of the retina, and often the arrangement of the pigment produces an appear--ance very similar to retinitis pigmentosa. Often too disseminated spots of atrophy make their appearance in

the fundus after the chorio-retinitis subsides, showing that although the inflammation was diffuse, there were isolated foci in which the inflammatory process was more acute and destructive (Case 33).

While chorio-retinitis is the most typical form of choroidal inflammation in syphilis, the most common form is a choroiditis disseminata (Cases 34, 35, 36, 37).

In this inflammation the disease attacks minute isolated areas of the choroid, which appear in their early stage as yellowish, indistinctly outlined spots, lying deeper than the retinal vessels. The inflammatory process begins generally in the chorio-capillaris, and the retina over these areas of exudation is always involved.

As the exudation becomes absorbed the spots become cicatricial, and take on a white look. If the spot of exudation has infiltrated the whole thickness of the choroid, after absorption the area becomes absolutely white, owing to the sclera shining through. In other cases, where the subsequent atrophy had not been complete, remains of the deeper choroidal vessels may be seen crossing the atrophied area.

Later on the pigment cells proliferate and become heaped together round the margin of the atrophied area or irregularly scattered over its surface.

The vitreous also contains a varying amount of opacity, which renders it often difficult, in the early stages to get a clear view of the fundus.

The vision is diminished at first in proportion to the amount of vitreous opacity, and to the degree of retinal involvement. Where the foci of inflammation are large, or run together, it is often possible to make out scotomata in the visual field, and owing to the exudate in the choroid pushing forward the retina and disturbing the regular arrangement of the elements in the layer of rods and cones, patients often complain that objects appear distorted (metamorphopsia). Early in the course of the disease a frequent complaint is the occurrence of subjective sensations of light, due to retinal irritation from the inflammatory process. Later on these photopsiae pass away, and defective vision, with changes in the field of vision, is the most prominent symptom of the consecutive atrophic changes in the choroid, retina, and optic nerve.

Choroiditis disseminata is apt to run a very chronic course, with fresh recurrences of the inflammation till the whole fundus appears to be dotted over with irregularly pigmented white areas, very little of the original choroid being distinguishable. It is often a

1. Foërster, "Choroiditis areolaris" (Ophthalmologische Beiträge Berlin in-8° page 99.)

2. Königsberger medicinische Jahrbücher, Bd. I, 1859, S. 283

3. Archiv für Augenheilkunde Bd. XX, 1874, S. 33

4. Quoted by [illegible], "La syphilis oculaire d'après les travaux les plus recents"

source of surprise to find fairly good central vision in such cases, as by the ophthalmoscope, the whole macular area seems destroyed. Some cases go on to complete blindness, the retina and optic nerves becoming atrophied and the lens often cataractous.

Förster[1] has described a special form of choroiditis disseminata, which he calls choroiditis areolaris, and which he states is almost invariably due to syphilis. This choroiditis begins first of all in the neighbourhood of the yellow spot, and the more recent spots appear round about this in a gradually enlarging circle. In the early stage the characteristic feature of this form of inflammation is the proliferation of the pigment cells; the recent spots appear quite black, but lose their colour to a large extent as they become older and atrophic.

It has long been a disputed point as to whether a primary specific retinitis ever occurs in syphilis. Jacobson[2] asserts that it does, and Förster[3] maintains as strongly that in all specific retinal affections, the retina is affected secondarily to the choroid. Baas[4] maintains, in accordance with his views on the starting point for the localization of all syphilitic

lesions, that the specific process begins in the arterial walls as an endarteritis or a periarteritis, and that consequently the retinal vessels may be involved independently of the choroidal ones.

In the author's experience the retinitis of secondary syphilis is invariably associated with disease of the choroid, although the retinal part of the inflammation may be so prominent quite early as to make the recognition of the accompanying choroiditis very difficult by the ophthalmoscope. Such cases are often spoken of as retino-choroiditis (Case 33).

The retinal part of the inflammation is generally diffuse, but there may be areas in the neighbourhood of the macula in which the cloudiness and opacity in the retina is much more dense. This retino-choroidal affection runs much the same course as the typical chorio-retinitis, but with greater liability to deterior-ation of vision. It has the same tendency as it subsides to take on the appearance of retinitis pigmentosa.

Owing to vitreous opacity it is often difficult to determine ophthalmoscopically to what extent the retina and choroid are individually involved. While from the objective appearances it is often difficult to arrive at a satisfactory diagnosis regarding this point, valuable

Galezowski, Du Diagnostic des Maladies de Jeux
page 162

assistance is gained by a careful inquiry into the subjective symptoms present, and especially by the result of an examination of the colour sense.

In a pure choroidal affection the chromatic sense remains intact, but if the retina be involved, the colour sense shows marked impairment, varying in degree with the severity of the retinal affection.

A circumscribed form of syphilitic retinitis is occasionally met with. In this form, large patches of exudation are found lying close to one or other of the larger retinal vessels, partially hiding it, and generally situated in the posterior part of the fundus not far from the disk.

This form of retinitis is more apt to come on as a tertiary lesion, and it is often possible to recognize that the retinal vessel is diseased. Haemorrhages are frequently met with if the disease leads to obliteration of the lumen of the vessel (Case 41).

Galezowski states that in these cases the walls of the veins are more subject to disease, than the arterial walls.

Associated with an affection of the uveal tract it is often possible to make out a hyperaemia of the retinal

vessels and optic disk. Although a true neuritis is more frequently an indirect affection in syphilis, due to intracranial or intraorbital causes, still the optic nerve may be attacked directly by the syphilitic disease, and a typical neuritis may develop without any associated choroidal or retinal involvement (Cases 38,39).

It is always difficult to definitely separate the late secondary lesions of syphilis from the tertiary.

Usually there is a well defined interval between these two periods, secondary lesions being rare after the end of the second year, and tertiary lesions uncommon before the beginning of the fifth year after infection.

Exceptions to this statement are by no means infrequent.

There are often "reminders" during the intermediate period which are suggestive both of secondary and tertiary lesions. On the other hand definite tertiary lesions may be precocious, occurring very early, or they may not come on for twenty years or more after infection.

In the tertiary stage syphilis is a disease of the tissues and not of the blood, hence its manifestations are local and irregular, and generally unsymetrical.

1. White & Martin, Genito-urinary Surgery & Venereal Diseases, page 386

They show a marked tendency to spread and no tendency to spontaneous cure, although readily amenable to treatment. This serpiginous tendency is best seen in superficial gummata which go on to ulceration.(Case 5).

The occurrence of tertiary lesions largely depends on insufficiency of treatment, and constitutional want of stamina. Patients now a days run a greater chance of escaping the onset of tertiary lesions, as the necessity for prolonged treatment in the secondary stage is now more fully recognized. Mauriac' states that in cases in which the primary and secondary stages are mild, tertiary lesions, and especially cerebral lesions, are more likely to develop; but the probable explanation of this observ--ation is that, owing to the mildness of these stages, a sufficiently vigorous and prolonged course of treatment had not been enforced.

The typical tertiary lesion of syphilis is the gumma, and while gummata may occur in and around the eyeball, and often give rise to grave local disease of the eye, by far the larger portion of eye affections arising in tertiary syphilis gain their importance, not on account of involvement of the eye structures, but because the eye disease is symptomatic of lesions occurring elsewhere, and specially of lesions in intracranial disease.

Plastic iritis, although nearly always a manifestation of secondary syphilis, sometimes occurs late enough after infection to be classed as a tertiary lesion, and when it does occur late it is often coincident with choroiditis or retino-choroiditis. It may however occur in the purely tertiary period.

Gummata may affect the eyelids. There may be a diffuse gummatous infiltration of the tarsal cartilage, generally of the upper lid, and most marked along its free border, which persists as a chronic thickening; or there may be a localized gummatous swelling on the tarsal cartilage, very liable to be mistaken for a chalazion, when seen before ulceration (Case 4). When breaking down does occur an ulcer is formed (Case 5), which has to be differentiated from the other special ulcers of the eyelid, more particularly from an ulcer caused by lupus, tubercle, epithelioma, or chancre.
Usually the skin around these gummatous ulcers is coppery in colour, and this appearance at once suggests the direction for further inquiry.

In some cases of interstitial keratitis coming on late in acquired syphilis, besides the fairly uniform haze of

that part of the cornea involved, there may be spots of denser opacity in this area which may be quite properly looked upon as gummatous deposits if round and large, and if they give the surface of the cornea an elevated look (Case 20).

Gumma of the iris also occurs, but is not at all common. Iritis gummosa differs from iritis papulosa in so far as the deposit is generally single and situated near the periphery of the iris. It is not nearly so rapidly amenable to treatment as iritis papulosa, and occasionally leads to destruction of the eyeball. Iritis gummosa also occurs in hereditary syphilis (Case 19).

Gumma of the ciliary body cannot be distinguished at the onset from an irido-cyclitis, and if quickly influenced by treatment the diagnosis may remain uncertain. If it goes on developing it either comes forward into the anterior chamber through the corneo-iritic angle, appearing as a yellowish-white rounded nodule, which goes on enlarging and may lead to complete disorganization of the eye; or it may involve the sclera over the ciliary body, and by a process of infiltration and distention, appear as a distinct rounded prominence in this region, associated with marked ciliary and conjunctival hyper--aemia (Cases 30,31).

Probably the majority of anterior scleral inflammations due to syphilis, have their origin in gummatous infiltr-ation involving the ciliary body and sclera, as these inflammations are always associated with disease of the uveal tract (Cases 30,31).

In the worst cases the new formation protrudes through the sclera, and leads to destruction of the eyeball, but in the majority of cases absorption takes place before the sclera is perforated.

As the scleral thickening becomes absorbed and the inflammatory symptoms pass away, the site of the swelling is marked by a dark coloured cicatrix, caused by the uveal pigment shining through the thinned and cicatricial sclerotic. This cicatrix may bulge from intraocular pressure, and as the eye quietens down, one or more ciliary staphylomata are formed. Ciliary staphyloma, however, is not nearly so frequent a sequela of acquired as of inherited syphilis, for in children the tissues are much softer and more apt to undergo distention when further weakened by an inflammatory process.

The involvement of the uveal tract in scleritis is further shown by the presence of iritis and synechiae, and often the inflammation extends to the neighbouring section of the cornea, and permanent opacity remains in the cornea after the keratitis quietens down (Case 20).

Gumma of the choroid has also been described. It is extremely rare, and would require to be differentiated from solitary conglobated tuberculous choroiditis.

Gummata of the orbit originate in the periosteum or in the tendinous attachments of the muscles, and are always associated with swelling and pain, the pain often being violent at night. Often there is exophthalmos, and sometimes paralysis of the extraocular muscles from pressure on the nerves, but these symptoms depend on the position of the gumma or the gummatous periostitis.

If resolution does not take place, the gumma, before it ceases to advance, may perforate the bone, and then may degenerate and become absorbed, or suppuration may occur with caries and necrosis.

The ordinary form of gummatous periostitis is essentially chronic. Sometimes an orbital periostitis may be an early symptom of constitutional syphilis. It is then a fairly acute inflammation, but yields readily to treatment. In hereditary syphilis a periostitis of the same type is much more common, and generally ends in suppuration and cario-necrosis.

Cerebral syphilis occurs very frequently, more particularly as a tertiary affection, and the recognition of any associated or consecutive eye symptoms or ophthalmoscopic appearances becomes very important, not because the eye condition is at all pathognomonic, but it often affords valuable help towards establishing the diagnosis, and in localizing the site of the cerebral lesion. An eye condition may also occur as an early symptom and point to the possibility of cerebral symptoms ensuing, or it may appear late, and throw light on the causation of other ailments, cerebral or elsewhere.

The eye symptoms in cerebral syphilis are chiefly dependent on involvement of the optic nerves or they are paralyses arising from implication of the motor nerves, and the particular symptoms present vary with the site and character of the cerebral lesion.

An examination of the eye may also reveal evidence of past syphilitic disease, such as synechiae or spots of choroidal atrophy, and the discovery of such associated syphilitic changes are of direct help in completing a diagnosis.

Syphilis may attack the brain in the form of:-

(1) a diffuse gummatous infiltration of the meninges at the base of the brain, with or without extension to the brain substance.

(2) gummata or circumscribed tumours in the meninges or brain substance in any position, but generally cortical.

(3) arteritis or endarteritis, with their concomitant brain lesions, and chiefly affecting the basal cerebral arteries.

(4) post-syphilitic degenerative changes, most commonly arising from diminished blood supply caused by past syphilitic endarteritis, or, as attributed by some observers, to the action of a post-syphilitic poison.

The brain lesions occurring in syphilis mainly belong to the tertiary period, but a meningitis may occur as an early secondary lesion, and during its course very pronounced choked disk may be present (Case 40).

In the tertiary period basal gummatous meningitis is one of the most frequent lesions causing paralysis of the extraocular muscles.

A common feature of all syphilitic diseases is an affection of the small arteries, which leads to narrowing

and finally to occlusion of the vessels. Baas' maintains that syphilitic endarteritis is the starting point of all syphilitic lesions in constitutional syphilis.

Syphilitic endarteritis of the cerebral vessels is common, but until it has reached a stage in which the lumen of the blood vessel is so much obliterated that thrombosis readily occurs, it gives rise to practically no symptoms, unless the vascular disease has lasted for a long period of time, as the functional activity of the brain sooner or later suffers from diminished blood supply.

Disease of the retinal vessels can occasionally be recognized before it reaches the advanced stage of total obliteration, the affected vessel having a brilliant metallic-like appearance, with an abnormally conspicuous light streak, very much resembling in appearance vessels which have undergone hyaline degeneration, and sometimes there are patches of circumscribed retinitis or retinal degenerative change. The change in the vessel walls is due to thickening in the outer coats as well as in the tunica intima, and so long as the vessel remains patent there is rarely any visual disturbance.

When a retinal vessel becomes completely obliterated, the artery, owing to the absence of the blood column, is

replaced by a white band, which is seen to lie in the course of the original vessel, and often if the final obstruction has been sudden, as by the formation of a thrombus, retinal haemorrhages appear along the line of its distribution. The recognition of such a change in the retinal vessels affords strong presumptive evidence that a cerebral lesion arising in such a case will also be due to endarteritis obliterans (Case 41).

If a thrombus forms immediately behind the papilla in endarteritis of the central artery or phlebitis of the central vein, a neuritis may develop and be present in addition to the changed appearance of the fundus due to vascular obstruction, but as a rule inflammatory changes in the optic disk in syphilis arise through involvement of the nerve in its orbital or intracranial parts, or of the tract anywhere behind the chiasma.

The orbital part of the nerve may be involved directly by a primary gummatous neuritis, or secondarily, a gumma or gummatous periostitis implicating the nerve by compression at the apex of the orbit. In such cases the papillitis will be monocular.

When the syphilitic lesion is intracranial, except when the nerve is involved immediately in front of the chiasm, the papillitis is usually bilateral, although the neuritis may be much more marked on one side than on the other.

On ophthalmoscopic examination, the disk may either present the appearance of an intense papillitis in which the degree of prominence from oedema and hyperaemia is very marked, or it may show well marked inflammatory changes without such prominent swelling. In both cases the circulation in the retinal vessels is more or less interfered with, but in the latter, if the neuritis is at all intense, the signs of venous pressure are likely to be more distinctive, as is seen in the greater degree of turgescence and tortuosity of the veins, and in the greater liability to haemorrhages on the disk and into the surrounding retina. In other cases the inflammatory change may overflow on to the surrounding retina, and a pronounced retinal involvement, limited to the area round about the disk, and generally most marked on its macular side, may be associated with the inflammation of the nerve.

These types of optic nerve lesion - choked disk, neuritis

descendens, and neuro-retinitis - met with in cerebral syphilis, differ in no respect from the types of inflammation of the optic nerve ending arising from other causes, and a correct reading of the aetiological significance of any optic neuritis can only be arrived at after a consideration of the whole combination of symptoms present, and the history of a given case.

As has previously been pointed out, optic neuritis of a mild type may be and usually is associated with disease of the uveal tract and retina. As the uveitis and the retinal inflammation subside atrophy of the disk is likely to supervene, with further lowering of the visual acuteness, and the atrophic changes in the disk are associated with a corresponding diminution in the calibre of the retinal vessels.

Papillitis is also followed by consecutive atrophy, which varies in its degree of completeness.

The appearance of the disk by itself often gives one a mistaken idea of the degree of the functional disablement of the nerve. This can be estimated more correctly by ascertaining the impairment in the central visual acuteness and the degree of concentric loss in the field of vision, especially the contraction of the visual field for coloured objects.

The ultimate visual result may only show a slight impairment in the central visual acuteness with very slight concentric contraction of the field of vision, or the atrophy may be total and lead to absolute blindness.

The appearance of the disk in pronounced post-neuritic atrophy is as a rule characteristic. The general surface of the disk appears level and of an unglazed porcelain white colour. There are often atrophic changes in the retina and choroid round about. The retinal vessels are diminished in size and often on the disk appear veiled, while beyond the disk, the veins especially, remain tortuous to some degree (Case 42).

An atrophy of the disk may follow a gummatous inflammation of the nerve behind the eyeball, and there may never be any manifest neuritic change in the disk itself. At the most there may be a doubtful hyperaemia of the papilla, but even that depends on how far behind the eyeball the neuritic process is situated.

The characteristic symptoms of such a retrobulbar neuritis at the onset are rapid and complete failure of central vision, due to central scotoma, with a normal peripheral visual field.

Atrophy of the optic nerve and disk may occur from

simple pressure by a gumma on the optic nerve or tract. There is no preceding neuritis, but there is always marked visual disturbance, monocular or binocular, according to the position of the lesion.

Generally when first seen, while there is grave loss of sight, there is no change in the appearance of the fundus as the atrophic process has not reached the disk. Later, especially when the pressure is exercised on the nerve, the disk becomes pale with clear cut outline, and the vessels diminish in size.

A unilateral visual defect can only occur when the lesion is situated on one side of the optic chiasma, or affects one nerve in front of the chiasma.

If the lesion be situated behind the chiasma, the visual defect is homonymous, and a partial atrophy of each disk can only appear late or never at all, according as the lesion is situated in or in front of, or behind the primary optic centres.

The typical defect occurring in such a lesion is homonymous hemianopsia, and this may be present if the lesion is situated anywhere along the optic tract, in the primary optic centres, in the optic radiation, or in the cortical visual centres.

Oppenheim ; Diseases of the Nervous System page 605

If in the tract or primary optic centres, the hemianopsia is usually associated with symptoms of disease at the base of the brain, especially with paralysis of some of the cranial nerves, and the hemiopic pupil reaction can be elicited.

If in the optic radiation, hemiplegia or hemianaesthesia is rarely absent, and with a right hemianopsia, due to a lesion in this position, there is usually aphasia (Case 43).

With a lesion in the cortical visual centres, a complete or relative hemianopsia may be the only symptom present.

A bitemporal hemianopsia may occur if the lesion affects the decussating fibres in the chiasm alone, and Oppenheim looks upon an "oscillating" bitemporal hemianopsia as particularly characteristic of a basal syphilitic lesion.

Primary atrophy of the optic nerves is also said to be a direct sequela of syphilis. Primary optic atrophy is usually bilateral, and is so often an early sign pointing to degenerative lesions of the spinal cord, some of which may be due to syphilis, and its onset so frequently occurs in the preataxic stage, the atrophy existing for years before the development of any other symptoms, that the correctness of a diagnosis of primary atrophy as a

182 Oppenheim, Diseases of the Nervous System page 449.

direct symptom of syphilis must remain always doubtful.

Ataxic symptoms may not come on till years after the atrophy of the disk has been recognized, and in such cases the true significance of the preceding atrophy remains for long uncertain.

Oppenheim[1] states that it occurs "perhaps rarely in syphilis as a direct symptom", and Uhthoff[2] regards its occurrence as "doubtful".

Paralyses of the ocular muscles may be due to gummatous infiltration of the muscle itself, to a gumma of the orbit pressing on the muscles or nerves, or to the pressure of the effusion in a syphilitic periostitis.

Gummata affecting a muscle most frequently attack it at its tendinous attachment to the bone, and consequently in the orbit gummata are very apt, owing to the close approximation at the apex of the orbit of the different muscular origins and the motor nerves as they enter the orbit through the superior orbital fissure, to speedily involve the motor nerves by pressure.

In cases arising from a gumma or periostitis in this situation, there is likely to be a total ophthalmoplegia or, at all events, an implication of more than one nerve,

some degree of proptosis, and often deep seated pain or pain elicited on pressing the eyeball back into the orbit. (Case 51).

A primary gummatous neuritis or a primary syphilitic atrophy of the motor nerves is very rare, although cases of paralysis arising from both of these causes have been recorded.

More commonly ocular paralyses are due to intracranial lesions. The motor nerves may be compressed at the base of the brain by a gumma, by the exudate in a diffuse gummatous meningitis, or involved in the swelling of a syphilitic periostitis.

The nerve roots and nuclei may be injured by an intra--cranial growth, by syphilitic endarteritis, or by post-syphilitic degenerative changes.

If the lesion be situated above the nuclei, in the corona radiata or cerebral cortex, conjugate paralyses and conjugate deviations may arise (Case 43).

Like affections of the optic nerve these muscular paralyses, which arise from syphilitic intracranial lesions, present nothing distinctive to differentiate them from paralyses arising from other intracranial affections.

The muscle or group of muscles affected also gives information, as although in syphilis every muscle may be occasionally paralysed, the muscles supplied by the oculomotor nerve are most frequently involved alone.

In paralyses of the extraocular muscles, as a whole, the external rectus is most often affected, as the sixth nerve is the nerve of rheumatic paralysis.

It is not uncommonly affected alone in syphilis, but more often in combination with the third, or one or other of the cranial nerves.

The fourth nerve is rarely affected in intracranial syphilis, and when it is it is almost always implicated along with the third nerve.

Total ophthalmoplegia is due generally to a lesion at the apex of the orbit, or at the base of the brain, but it may be nuclear from a degeneration of the nuclei in syphilitic endarteritis. (Case 31).

Ophthalmoplegia externa is generally due to a nuclear affection, but it may be basal, the fibres to the ciliary muscle and the sphincter pupillae escaping the lesion.

A preexisting neuralgia of the ophthalmic division of the fifth nerve is often associated with a basal brain

lesion causing ophthalmoplegia externa, or involvement of one or other of the motor nerves (Case 44).

Isolated paralysis of a muscle supplied by the third nerve is mainly nuclear, although numerous cases of partial paralysis of this nerve in basal lesions are recorded.

A paralysis of the levator palpebrae often occurs as an isolated symptom in a lesion of the higher cortical centres, but, when due to nuclear disease, the sphincter pupillae is commonly paralysed along with it. This com-bination is due to the fact that these centres in the third nerve nucleus have the same vascular supply.

The distinction between paralyses due to peripheral and paralyses due to nuclear lesions is not always an easy one, and in all cases of isolated paralysis it is important to remember that the lesion may have been a peripheral one, and the existing paralysis may be the residuum of a past total paralysis, the muscles supplied by the other branches of the nerve having regained their function.

An isolated paralysis of a muscle supplied by a branch of the third nerve, associated with involvement of a neighbouring cranial nerve, points to a peripheral lesion.

Unilateral mydriasis with paralysis of the accommodation i.e., ophthalmoplegia interna, as an isolated symptom, is specially typical of a syphilitic lesion, the vascular supply of the centres governing the motor nerve supply of the sphincter pupillae and the ciliary muscle being interfered with by an endarteritis.

This conjunction of iridoplegia and cycloplegia has an anatomical basis, as the vascular supply to the anterior part of the third nerve nucleus, in which these centres are situated, comes from the anterior communicating artery of the circle of Willis, while the posterior part of the nucleus is supplied by vessels arising from the posterior communicating artery.

Another pupillary phenomenon frequently met with in syphilis is the Argyll-Robertson pupil. Here the pupil shows no mydriasis, more often myosis, but it gives no direct reflex to light stimulation, while the associated contraction on convergence and accommodation remains active. The Argyll-Robertson pupil is generally held to be caused by a lesion in the afferent fibres just before entering the third nerve nucleus, and its presence proves that a degenerative process is at work in the nervous system. Harris writing in the British Medical Journal

(Sept. 20-00) On the significance of the Argyll-Robertson pupil says, "the loss of the pupil contraction to light may be looked upon as a certain sign of antecedent syphilis, congenital or acquired". (Case 48).

Children of parents who are suffering from syphilis have frequently the disease transmitted to them. In these cases we speak of congenital or hereditary syphilis.

While some children at birth show unmistakable appear--ances suggesting congenital syphilis, the great majority of the children who survive intrauterine life are born apparently healthy, and only show signs of syphilis, if we exclude infantile pemphigus, three weeks or a month after birth.

Eye affections in hereditary syphilis are not common in early life.

The author has frequently suspected congenital syphilis before symptoms manifested themselves, in children under treatment for conjunctivitis neonatorum. In such cases, although the most scrupulous cleanliness was observed and treatment vigorously carried out, the corneae early and rapidly became infiltrated and completely destroyed.

Such a result can only be explained by the disease, though not actively in evidence, rendering the cornea more vulnerable by diminishing its power of resistance to microbic invasion.

Corneal opacities as a result of antenatal keratitis are very rarely met with. During the past year the author

has seen five cases of corneal opacity, arising from instrumental injury at birth. In each of these cases the delivery had been very difficult. Four of the cases occurred in the practice of the Glasgow Maternity Hospital, and the corneal opacity was noticed in three shortly after birth, and in the fourth two days after birth. Each of the cases, except the fourth Maternity Hospital case, presented identical features, and in all, with one exception, one eye alone was affected.

In the fourth Maternity Hospital case there was a fine uniform interstitial haze over the outer half of the right cornea, but in each of the other cases the affected eye presented a limited band of diffuse interstitial opacity running more or less vertically across the cornea with a dense linear opacity running through the centre of the finer haze.

The opacity is due to a traumatic keratitis arising, in the author's opinion, from buckling of the cornea by compression between the blade of the forceps and the inner orbital plate.

This opacity clears up very slowly, and at the end of a year, in those cases still under observation, the characteristic linear scar is still very evident.

A communication on three of these cases was made to the Ophthalmological Society of the United Kingdom by Dr. W. E. Thomson, and as these are the first recorded cases of

such an injury during forceps delivery, it seems probable that an opacity arising from this cause may have been looked upon, up till now, as congenital; and certainly, if the cornea was not inspected till after any evidence of local bruising of the soft parts had disappeared, the error in diagnosis would be quite excusable.

Iritis and irido-choroiditis may be recognized before the sixth month, but this also is exceedingly rare.

A case is here recorded (Case 42), in which iritis appeared in a child of three months, who was apparently blind from consecutive optic atrophy due to antenatal gummatous meningitis, and who after birth showed unmis--takable evidence of hereditary syphilis.

The author has also seen another case, which strongly suggested syphilis as the causual agent, of a child of 4 months, who had posterior synechiae and an anterior capsular opacity in one eye along with a paralysis of both external recti muscles. In this case the strabismus was noticed two days after birth, and had remained unchanged. The child was apparently in good health, and had so far presented no external manifestations of syphilis, and no history of maternal or paternal infection could be obtained. The labour was normal.

Hutchinson, Syphilis. [illegible]

The early symptoms of hereditary syphilis subside towards the end of the first year, and then there follows a long period of latency, during which there are no active symptoms.

The characteristic lesion of hereditary syphilis, Inter--stitial Keratitis, develops generally when the child is reaching the age of puberty, that is between the tenth and the fifteenth year, but its onset may be earlier or delayed till much later.

The affection begins in one eye, but is always in the end symetrical, though the interval between the involve--ment of the two eyes may vary from a few days to many years.

Interstitial keratitis, in its typical form, according to Hutchinson, is always a consequence of syphilis, and is in itself sufficient for the diagnosis.

Other constitutional causes, however, give rise to interstitial keratitis, which at first has all the appearances of the typical syphilitic interstitial keratitis. In scrofulous keratitis, for example, the onset may be exactly like a syphilitic keratitis, but as the disease advances the greater tendency to loss of substance, and breaking down of the surface layers, differentiates these cases from keratitis syphilitica which shows little or no tendency to ulceration.

It is commonly stated that from 50-80% of all inter--stitial keratitis is syphilitic. At all events the majority of cases have this origin, and as a rule it is not difficult to discover additional facts which tend to exclude any other main aetiological factor. Inquiry regarding the family history, the maternal history especially, will often elicit valuable corroborative information, and the early manifestations of infantile syphilis often leave marked structural peculiarities in the patient. Besides the characteristic earthy pallor of the skin, there are usually deformities of the bones, specially of the skull, cicatricial lines about the angles of the mouth (rhagades), or deformity of the permanent central incisors; and associated in point of time with the occurrence of the keratitis, there is frequently deafness due to disease of the middle or internal ear.

The presence in the patient of what Fournier calls the "Hutchinson trias", keratitis, deafness and involvement of the central incisors, is definitely diagnostic.

Interstitial keratitis begins with irritability of the affected eye, slight pericorneal redness, often photo--phobia, and interference with vision. A slight haziness is seen situated in the parenchyma of the cornea, either

not far from the centre or more rarely at the periphery. The haziness rapidly spreads over the whole cornea, and becomes much more dense. On magnification the opacity is seen to lie in the depth of the cornea, and to be more or less finely punctate, and often there are larger individual spots scattered among the fine ones. When very large spots of opacity are present they are to be looked upon as gummata (Case 35).

There is always a zone of deep circumcorneal vascularity and from this circle of vessels, new blood-vessels form and penetrate into the substance of the cornea, passing in towards its centre. The degree of corneal vascularity varies greatly. Sometimes the new formation of vessels is not at all marked, but in other cases the whole cornea may become intensely vascular, and take on a deep yellowish-red or salmon colour due to the colour of the blood-vessels being toned down by the opaque tissue in which they are lying. The new formed vessels as a rule pass directly towards the centre of the cornea and show little tendency to anastomosis.

The corneal epithelium appears steamy and dimpled, but it is very rare to find ulceration throughout the whole course of this affection. When there is not much vascularity and when the opacity is fairly uniform the whole cornea has a non-reflecting ground-glass look.

The corneal opacity is often so dense that the iris and pupil are completely hidden. There is nothing more common than some degree of secondary iritis, which as a rule is mild, but may be severe and lead to occlusion of the pupil.

Extension of the inflammation to the peripheral part of the sclera, and to the underlying portion of the uveal tract is also frequent. At other times the inflammatory process seems to originate in the ciliary region, and a uveo-scleritis may be recognized previous to the corneal involvement, but there is rarely any lengthened interval before the cornea is attacked. When the inflammation of the ciliary region is severe, the sclera often becomes softened by the inflammation, and yields under the intraocular pressure. This ectasia is apt to become progressive, and may involve the whole of the anterior part of the sclera (total anterior ectasia), or only limited areas may show distinct bulging (ciliary staphyl--oma). In youth staphyloma of the sclera is not uncommon owing to the sclera being much more apt to yield under even normal intraocular pressure than is the case in adult life (Case 36).

The corneal opacity after a time begins to clear up from the periphery towards the centre, and the corneal vessels to diminish in size and become less prominent.

Unless the opacity has been very marked, it may gradually quite disappear to ordinary inspection, although, with a corneal microscope, some degree of haziness may be apparent, and traces of the corneal vessels nearly always remain permanent. In other cases nebulae of greater or less density remain permanent, and interfere with the visual acuteness by their opacity and also by causing some degree of irregular astigmatism.

As the cornea clears up posterior synechiae are often detected, and when it is possible to get a view of the fundus, disseminated spots of choroiditis are often seen, showing that the inflammation had extended backwards to the choroid (Cases 26, 27, 28, 29, 30).

The course of interstitial keratitis may be very slow, but the tendency, except in exceptional cases, is strongly towards cure, although in the process of cure permanent damage, involving impairment of sight, is often left. There is little tendency for this form of keratitis to relapse after it has once become quiescent, but during the course of the inflammatory stage there are apt to be frequent recrudescences of greater acuteness.

Choroiditis disseminata is frequently discovered in the adolescent period, in a patient coming for examination on account of defective vision. In young people this condition is invariably due to hereditary syphilis.

The disease may be confined to the anterior part of the choroid,- anterior choroiditis,- or it may extend all over that membrane. It is rare to see it in the stage of exudation unless when associated with keratitis. Usually when occurring by itself, atrophy is fully present before the patient comes up for examination.

The atrophic spots are always small in anterior choroid--itis, but where the disease has extended to the posterior part of the fundus the atrophic patches are sometimes large and irregular from the coalescence of several neighbouring spots. In all these cases the pigmentation is irregular and excessive, there evidently having been a marked proliferation of the pigment cells.

Frequently the choroid round the pigmented spots appears bleached, as if the pigment had been withdrawn from the neighbouring cells, and been heaped up at the immediate focus of actual disturbance.

When the choroiditis has affected mainly the anterior segment, and the atrophic patches are not obtrusive, the arrangement of the pigmented areas, at first sight, suggests a retinitis pigmentosa.

These cases are to be differentiated from true retinitis pigmentosa by the pigment spots not being so regular in their arrangement nor so delicate and lace-like, and by their being situated at different depths in the fundus and not all in front of the retinal vessels.

In true retinitis pigmentosa too there is no exposure of the choroidal vessels, and the central visual acuteness remains good, while the peripheral part of the visual field becomes progressively contracted, Yet many observers hold the opinion that retinitis pigmentosa is always due to a mild congenital syphilitic chorio--retinitis occurring during intrauterine life, and only recognized at a comparatively late stage of its existence.

In young children, the victims of congenital syphilis, blindness from atrophy of the optic nerves is occasion--ally met with. The appearance of the nerve generally suggests a consecutive atrophy, and the condition is likely to arise where there has been a papillitis accompanying an intrauterine basal meningitis (Case 42).

Periostitis or caries affecting the walls of the orbit is also met with. The free border of the orbit and the bony walls of the lachrymal sac and the lachrymo-nasal

duct are most often the seat of the disease.

The bone affection may begin as a true gumma, but more frequently it exhibits no characteristic features.

The special importance of disease of the bony walls of the tear passages arises from the fact that it often leads to acute or chronic inflammation of the lachrymal sac and the lachrymo-nasal duct, and their sequelae (Case 53).

Paralysis of the extraocular muscles, and paralysis of the sphincter pupillae have been reported, but are rare sequelae of congenital syphilis. A case of bilateral paralysis of the external recti has already been referred to, and occurring as it did in a child who had also suffered from iritis, the probability is that congenital syphilis was the cause of its onset. Without a true paralysis of the sphincter, rigidity of the pupil, that is absence of the light reaction, is more common.

Gummata may also occur in hereditary syphilis. Cases of gumma of the iris (Case 19), and gummatous keratitis (Case 20), are here recorded.

Diagnostic indications of the eye lesions.

During the course of syphilis, eye lesions may begin in any part of the eye or its appendages except the lens, and the lens is often involved indirectly by its proper nutrition being interfered with.

While a few of the eye lesions found in syphilis are absolutely characteristic, the majority present appearances and symptoms which, considered alone, fail to differentiate them from a similar disease arising from other causes.

It is thus always necessary to make as full an investig--ation into the history of the patient as possible, so as to leave no doubt regarding the aetiology of the lesion.

The primary sore on the lids or eyeball only requires to be identified to make the diagnosis certain, as it can be due to syphilitic infection alone, by whatever means conveyed;and although a difficulty in immediate diagnosis sometimes arises, one can never be left long in doubt as to its real nature, owing to the appearance of secondary symptoms.

During the secondary stage of syphilis, the syphilitic poison pervades the whole body, and the changes produced by its presence depend partly on a process of inflammation,and partly on a process of tissue formation. These two processes are generally combined in varying degree,according to the lesion and according to the stage of the disease. In secondary syphilis the inflammatory element is most marked, while the process of new growth is most evident in tertiary lesions, the gumma being the characteristic lesion of that stage.

In the secondary stage the eye lesions are mainly confined to the uveal tract, and tend, as first pointed out by Förster,to involve the tract from before backward, beginning in the iris.

1 Mackenzie, "Diseases of the Eye", 1854. page 544.

2. Bailey & Stephenson, Norris and Oliver, System of Diseases of the Eye Vol. III page 289.

Plastic iritis is so frequently associated with recent syphilis that it is probably safe to always look upon a primary iritis in the middle period of life as syphilitic even although you cannot establish a definite history, especially if broad synechiae are present, or areas of vascular looking iris, except in those cases in which the patient's past history enables you to clearly associate the iritis with another constitutional cause.

It must be borne in mind that a history of syphilis is frequently denied on a first examination; in some cases this is purposely done, but in others the symptoms have been so slight and unobtrusive that the patient unconsciously forgets to remember them, and yet, on thinking over his past history in the light of the questions which have been put to him, he may be quite prepared to give a definite history if further inquiry be made.

The occurrence of iritis papulosa is pretty generally held to be absolutely characteristic of syphilis.

Mackenzie[1] says "the existence of tubercles ought immediately to arouse the suspicion that the case is syphilitic".

Brailey and Stephenson[2] write "it is important to note that a certain proportion of cases(of iritis in syphilis)

1 De Wecker, De Wecker et Landolt, Traité complet
D'ophtalmologie. Vol II page 288

2 Hutchinson, Syphilis 1887. page 245

3. Fick, Diseases of the Eye, page 294

4. Swanzy, Diseases of the Eye, page 384.

manifest characteristic signs which permit the surgeon to identify the case literally at a glance. To begin with, there are the so-called papules or condylomata,.....".

De Wecker[1] refers to it as "cette véritable forme spécifique".

In the author's experience iritis papulosa has never been met with except in cases in which a history of recent syphilitic infection was readily proved.

A primary iritis in childhood, in the absence of injury or general disease, should always excite well-grounded suspicion of syphilis. According to Hutchinson,[2] it is amongst the rarest of the symptoms of hereditary syphilis. It comes on most frequently about the fifth month, and seldom occurs, in his experience, without other well recognized symptoms of hereditary taint being present.

Chorio-retinitis in its typical form is quite diagnostic of syphilis about the end of the active secondary period. Eugene Fick[3] says "it is undoubtedly due to syphilis". The exceedingly fine dust-like opacity in the posterior part of the vitreous associated with the onset of syphilitic choroidal and chorio-retinal affections is very characteristic and "almost pathognomonic".[4]

1. Carter & Frost, Ophthalmic Surgery page 340

2. Hutchinson, Syphilis, page 217.

Often this opacity in the vitreous makes it impossible to get a view of the fundus on a first examination, but one can be quite confident that the deeper disease will be discovered as soon as the opacity has cleared up sufficiently under treatment.

Choroiditis disseminata is not indubitably of syphilitic origin. "Perhaps half the cases of choroiditis occur in patients with a definite history of syphilis."[1] Still any choroidal affection resulting from an inflammatory process in a patient in the middle period of life, especially if bilateral, stands a strong chance of being due to syphilis, and the suspicion becomes all the stronger if there is evidence of past iritis in one or other of the eyes, if the choroidal spots are circular in form, if there is an excessive degree of pigmentation round or over circular, punched-out atrophic spots, or if the walls of the choroidal or retinal vessels show pathological change. Hutchinson[2] states that "evidence of past choroiditis is a symptom of great importance when it corroborates others, but untrustworthy when it stands alone".

Choroiditis disseminata occurring in children is pretty conclusive evidence of hereditary taint. It is occasion-

1. Jalezowski, "Du diagnostic des Maladies des Yeux par la Chromatoscopie Rétinienne" page 197.

-ally congenital, and very often comes on during the first three years. In these early cases the choroidal change is spread over the whole fundus, and is usually very marked round the posterior pole. Its onset may, however, occur much later and is often coincident with the appearance of the characteristic keratitis. In these cases the choroiditis is never so widespread, and usually takes the form of an anterior choroiditis.

All inflammatory choroidal affections implicate the retina, and in the author's opinion, retinitis in syphilis is always secondary to the choroidal inflammation, except in the late form associated with retinal arteritis.

Sometimes the retinal involvement is the more prominent, and the evidence of the choroiditis is only to be made out after the retinitis has subsided. More often the choroiditis is manifest from the first, and while by the ophthalmoscope it is also possible to recognize that the retina is involved, this is more apparent by the degree of failure in the central visual acuteness, and "by the impairment and change in the colour vision".

Galezowski Du Diagnostic [illegible]

Primary atrophy, post-neuritic atrophy, or retino-choroidal atrophy of the disk cannot be differentiated by their appearance alone from similar conditions having a different aetiology.

The presence of an optic neuritis or a choked disk only means, as a rule, that there is some kind of irritative process going on within the skull, and before the syphilitic nature of the lesion can be proved, facts positive to a diagnosis of syphilis and negative to any other causation, must be fully established.

According to Galezowski the presence of an acute primary optic neuritis is pathognomonic of syphilis, if the other eye shows traces of a past iritis. The author relates a case (Case 39) in which an acute neuritis developed in one eye while an iridocyclitis was subsiding in the other.

Similarly, paralyses of the extraocular muscles show no pathognomonic features, and differ in no way from other varieties of paralysis. By experience however it is well known that syphilis is the most frequent cause of these paralyses, and such being the case the probab-ility of their specific origin has always to be kept in mind.

When we come to deal with ophthalmoplegia interna, and especially a unilateral ophthalmoplegia interna, the likelihood of syphilis being the predisposing factor in its causation is very much greater, as we know that the lesion causing such a condition is almost necessarily in the nucleus on the floor of the aqueduct of Sylvius, and that lesions of the nuclei are caused most frequently by endarteritis obliterans.

Affections of the optic nerve and paralyses of the ocular muscles frequently occur in cerebral syphilis, and a complete examination of the fundus and the ocular muscles is of first importance in the presence of cerebral symptoms, as, by the help of the results arrived at, much information is often thrown on the character and the site of the lesion.

Syphilis of the brain occurs in the great majority of cases as a basilar gummatous meningitis, and the cranial nerves are compressed in or by the newly-formed gummatous tissue. One of the characteristics of this newly-formed tissue is its rapid growth followed by its equally rapid shrinkage. Hence, in cerebral syphilis the symptoms may come and go, showing a regular ebb and flow, temporary improvement alternating with sudden recurrence.

1. Hare, Practical Diagnosis, [illegible]

The results of repeated examination, more especially in the earlier stages of the disease, show this variableness very markedly, by the differences which are obtained in the visual acuteness, in the extent of the visual fields, or in the limits of the field of fixation.

If the lesion be a localized gumma, the symptoms do not show the same marked variability, and in the later stages of meningitis or gumma, when atrophic changes are taking place in the nerves, the symptoms get slowly and progressively worse.

A form of ocular paralysis which is said to be very suggestive of a syphilitic lesion is the so-called alternate ptosis. This is in reality a paralysis of the third nerve due to a basal lesion.

The author had notes of one such case, but cannot give them in detail as part of the record got lost.

The patient was first seen in June 1896 with a complete paralysis of the right third nerve, which got well under specific treatment. Six months later she returned with a complete paralysis of the left third nerve. This also got well, and two years later a paralysis of the right sixth nerve developed.

The patient denied the possibility of infection, but there were a number of copper coloured spots on the face

1 Quoted by Dejl, in Norris & Oliver -
System of diseases of the Nervous
Vol III Page 600

2. Powers, Phonographic Medical Record,
April 1902

3. Oppenheim, Diseases of the Nervous System
page 283

4. Harris - British Medical Journal, Sept 20th 1900.

and chest, and the presence of these, along with the rapid effect of mercurial treatment, removed any doubt as to the cause of the paralyses.

Choked disk is not so frequent in gumma as in other forms of intracranial tumour, as gummata are usually located in or under the cerebral cortex, while the neoplasms which most readily give rise to choked disk are those which originate near the base, and especially those growing in the posterior fossa.

Uhthoff[1] states that choked disk is met with in 14% of the cases of cerebral syphilis, in 8% as the result of gummatous basilar meningitis, and in 6% as the consequence of true syphilitic cerebral lesions.

Reflex pupillary rigidity is a symptom of great diagnostic value. Gowers[2] states that inaction of the pupil to light, especially as an isolated symptom, is very strong evidence of previous syphilis, and Oppenheim[3] states it may be the only sign of syphilitic cerebral disease.

Harris[4] writing on the significance of the Argyll-Robertson pupil says "the loss of the pupil contraction

Quoted by

1. Hare, Practical diagnosis, page 186

2 Sulzer, Annal. de dermatolog. et de Syphilis, March 1901.

to light may be looked upon as a certain sign of antecedent syphilis, congenital or acquired".

Sachs[1] asserts that hemiplegia with immobility of the pupil to light is quite distinctive of a lesion due to syphilitic endarteritis, and the author here reports a case (Case 45) bearing out that opinion.

Sulzer[2] calls attention to the frequency of anomalies of the pupillary reaction in the early stage of syphilis, and states that the Argyll-Robertson pupil may appear within three months of the primary affection, but in these cases it is usually transitory.

This would suggest that in such early cases, the lesion was a congestive or mildly inflammatory one interfering with the afferent tract of the light reflex.

The Argyll-Robertson pupil is usually bilateral, and most frequently points to a degenerative change, occurring as a part of the pathological change in tabes or general paralysis. These diseases of the cerebro-spinal system undoubtedly have their origin in syphilis in many cases, and probably arise from nutritional interference, the result of arterial disease.

If the degenerative change affects Meynert's fibres, pupillary rigidity is bound to follow, as the afferent connection to the third nerve nucleus becomes impaired,

1. Reader Thomson, British Med. Journal [illegible]

and this pupillary phenomenon may occur as an isolated symptom or in association with evidence of wider cerebro--spinal disease.

The author has seen cases of reflex pupillary rigidity in patients who gave a long alcoholic history, and without any history or manifestations of syphilitic infection. Lauder Brunton, in a note on the pupil reflex in alcoholic neuritis, states that he has more generally found the pupil reflex the exact converse of the Argyll-Robertson pupil, i.e., active to light, and slight and sluggish or entirely wanting on accommodation.

Syphilis being essentially a chronic form of toxaemia, the inflammatory changes in the different eye structures are very infrequently complicated by haemorrhagic extrav--asations from the vessels.

The arteries are frequently the seat of a diffuse inflammatory interstitial change, which may affect all the coats of the vessel, but specially the tunica intima.

The retinal vessels are sometimes affected by this endarteritis obliterans, and if total obliteration of the lumen of a vessel takes place, the artery becomes changed

Hutchinson, Syphilis, page 7

into a grey or white band, with patches of retinal degeneration and sometimes haemorrhages along its course. The recognition of such a change by the ophthalmoscope is important, as from it we may conclude that a syphilitic affection of the cerebral vessels is also present.

Gummata, if recognized as such, are diagnostic of a tertiary syphilitic lesion. In the iris a difficulty may arise at first in the diagnosis between tuberculous iritis and gumma of the iris; and in the ciliary body if a neoplasm shows, a diagnosis between gumma, tubercle, and sarcoma has to be made.

In all doubtful cases the most important aid towards establishing a correct diagnosis is to be got by obtaining a trustworthy personal history from the patient and by the result of an examination for other stigmata of syphilis.

The relation of interstitial keratitis to inherited syphilis has already been dealt with (page 56).

All observers are agreed that typical interstitial keratitis is, in a preponderating percentage of cases, the result of inherited syphilis, although probably few would acquiesce with Hutchinson in his statement that by

itself interstitial keratitis was sufficient for the diagnosis.

Disease of the lachrymal sac and passages is met with frequently in hereditary syphilis. The disease begins most commonly as a periostitis, and a cario-necrosis of the bony wall early takes place. If the sac suppurates, rupture generally occurs at its upper part, and the prelachrymal abscess points above the internal palpebral ligament. An abscess or fistula in this position in a young patient, with extensive bone disease, is very suggestive of hereditary syphilis, but otherwise lachrymal affections in syphilis are in no way different from those arising from the more common causes.

The eye evidence of old syphilis.

Some of the eye lesions described leave permanent changes and it is important to be able to identify the eye signs of old syphilis, as their recognition may be very helpful in forming conclusions regarding an obscure illness.

For a time interstitial keratitis leaves a mottled opacity in the cornea, which to some extent obscures the reflection from its surface. Ultimately, in the majority of cases to an ordinary inspection, the cornea becomes quite clear. By the aid of a corneal loupe a certain amount of haziness and probably the remains of corneal vessels can always be made out, but when the cornea to inspection is clear, the existence of this finer haze does not arise as evidence.

Posterior synechiae are always strong evidence of past syphilis, if recurrent rheumatic iritis can be excluded.

Reflex pupillary rigidity is always very strong evidence of previous syphilis (see page 73).

Opacities in the vitreous in recent syphilis are very characteristic, but in syphilis of older date their value from a diagnostic point of view is very small.
No doubt, in many cases, hyalitis is caused by syphilis, but it may be due to many other causes, and there is no recognizable distinction in the opacities left.

The appearance of choroidal atrophy of the disseminated type in young children is probably conclusive evidence

of hereditary taint. In the adult, choroidal atrophy of this kind, although very suggestive, has not the same diagnostic value as in childhood.

In many cases when the choroiditis has taken the form of a chorio-retinitis, the fundus is found years later to have the appearance as if it had been peppered all over with fine black spots, very fine in the macular region, and becoming slightly larger and more numerous as the equator is reached. This appearance is, in the author's opinion, diagnostic of old syphilis.

The author also considers the combination of posterior synechiae and choroiditis disseminata conclusive evidence of past syphilis.

ILLUSTRATIVE CASES.

Case 1. Chancre of the eyelid.

David Y., aet. 22, miner. Seen on June 30th. 1901. Two months ago he received an injury to the left upper eyelid by a chip of coal while at work, which caused a small wound at the margin of the lid. Several of his fel--low workmen examined the wound to see if there was any foreign body adhering to it.

The injury did not heal well, and the lid became swollen slightly and had the appearance as if a stye were devel--oping. A week ago the surface ulcerated, and the eye became inflamed.

On the margin of the left upper lid at the junction of the inner and middle thirds there is an ulcerated surface which involves the intermarginal space, the edge of the lid, and the conjunctiva. The ulcer has an irregular hard, raised margin, and is about 5 m.m. in diameter.

The surface is slightly irregular and ragged looking, and there is little discharge. The preauricular gland is enlarged and painless. There is a fine macular eruption on the chest, which has only appeared during the past week, and his throat has felt dry and sore in the morning.

Under treatment with bichloride of mercury locally, and

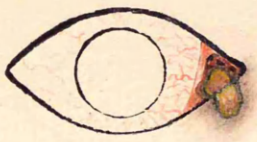
grey powder internally, the ulcer rapidly healed, and the skin eruption faded.

This chancre of the lid presented no difficulty in diagnosis, as the patient did not come up for treatment till the secondary symptoms were present.

The infection had no doubt been communicated by one of his fellow workmen when examining the original injury.

Case 2. Chancre of eyelid and caruncle.

William M., aet. 31, labourer. Admitted to the Glasgow Eye Infirmary on Feb. 27th. 1891. Four weeks ago a little raised spot appeared at the inner end of the right lower eyelid, the skin being slightly red. It remained com--paratively stationary for two weeks, and then the surface ulcerated and the ulcer slowly spread.



There was an oval ulcerated surface, the long diameter being about 8 m.m. in length, with raised edges, and indurated base, occupy--ing the outer surface of the right lower lid, near the junction of the lids at the inner canthus, the lid margin and the caruncle.

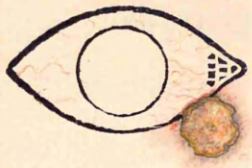
The surface was very irregular and worm-eaten looking, and from the conjunctival half of the ulcer there was some discharge. The preauricular gland was enlarged, hard, and painless.

The chancre healed up quickly under antisyphilitic treatment, and while the patient was under observation and treatment a mild rash of a specific character appeared on the forehead and chest.

The mode of inoculation was not ascertained.

Case. 3. Chancre of eyelid.

P. C., aet. 28, labourer, was admitted to the Glasgow Eye Infirmary on May 3rd. 1896, with an ulcer on the right lower eyelid. The ulcer was fairly circular, 10 m.m. in diameter, and involved the outer surface of the lid margin just outside the punctum. The sore began about a month previously. The edges were raised, the surface irregular, and the base very hard.



The preauricular and submaxillary glands were enlarged, hard, and painless. There was a history of a blow on the right eye about two months previously, but the patient could not state whether the skin was broken or not.

How the inoculation had been brought about could not be discovered.

The ulcer healed rapidly under antisyphilitic treatment, and no secondary symptoms had appeared before the patient was lost sight of.

Case 4. Gumma of the eyelid; Tertiary ulcer.

William G., aet. 47, collector, was admitted to the Glasgow Eye Infirmary on June 30th. 1898.

Syphilis contracted six years ago.

For the past three months there has been a painless swelling of the right lower lid near the inner canthus.

Two weeks ago the skin ulcerated, and the ulcer has extended rapidly. There has been a good deal of discharge from the ulcer, and since the skin gave way he has had a good deal of pain.

The ulcer involves the outer surface of the lower lid and skin of the cheek, and has a distinctly serpiginous look. The edges are raised and hard, and the degenerated tissue forminf the floor of the ulcer appears to be rapidly breaking down.

The ulcer was scraped, and dressed with bichloride of mercury compresses, but it tended continually to progress until internal treatment by biniodide of mercury was begun. Then healing quickly took place.

Case 5. Gumma of the eyelid; Tertiary ulcer.

John S., aet. 31, engineer, was admitted to the Glasgow Eye Infirmary on May 5th. 1899.

For the past two months there has been a circumscribed swelling over the tarsal cartilage of the right upper lid at its centre. This swelling began as a small hard nodule, which gradually enlarged till it was about the size of a horse bean. Two days ago the skin over the most prominent part of the swelling ulcerated.

Patient contracted syphilis four years ago, and was treated for six months. He has never been quite so strong since, although having no special ailment.

He now looks very anaemic.

There is a small tumour in the right upper eyelid attached to the tarsal cartilage, which has ulcerated at its most prominent part. The ulcer is crater shaped, and there is not much discharge. The appearance is very suggestive of a chalazion which has suppurated, but the absence of distinct inflammatory symptoms renders the correctness of such a diagnosis improbable. The skin of the lid all round the ulcer is distinctly coppery in colour. The glands in the groins, and the posterior

cervical glands are enlarged and shotty.

The ulcer was scraped, and the patient put on iodide of potassium and bichloride of mercury.

Almost immediately all the swelling disappeared, and the ulcer healed leaving a fine brownish coloured cicatrix.

After continuing the biniodide mixture for some time, the patient's general health was markedly improved.

Case 6. Plastic iritis.

Mary G., aet. 38, house-wife, was seen on July 15th. 1901. Secondary eruption on skin, and sore throat three months ago.

Pain and inflammation in left eye of three weeks dur--ation, the pain being specially severe at night, and radiating over forehead and temple.

Slight general conjunctival injection with marked peri--corneal vascular zone. Aqueous muddy, iris dark in colour and lustreless. Pupil contracted.

V.A.R. 6/9. V.A.L. 6/18.

After instillation of a mydriatic the pupil dilated irregularly showing numerous pigmented synechiae, and after dilatation the vision had improved to 6/12.

Atropine was used every four hours, with fomentations for an hour night and morning, and pil. calomel $\bar{c}$. opio at night. By the end of a week the inflammatory appear--ances were practically gone, the aqueous was clear, and the pupil fully dilated, all the synechiae having yielded.

In this case the inflammation appears to have been con--fined entirely to the iris, and the defect of vision on admission was due to the fibrinous exudate held in sus--pension by the aqueous. Recovery of function complete.

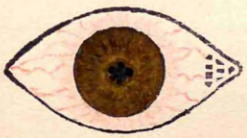
Case 7 . Plastic iritis.

Henry T., aet. 31, miner, was admitted to the Glasgow Eye Infirmary on July 31st. 1899.

Primary sore four months ago. Secondary rash one month later.

Both eyes have been inflamed for the past two months, but the inflammatory symptoms are now subsiding.

Numerous fine posterior synechiae in both. In the right



the exudate deposited on the pupillary area of the lens capsule has left a fine capsular opacity stretching right across the pupil. Under atropine the pupil dilated between the synechiae, and the limitation of the capsular opacity to the undilated pupillary area was then seen.

V.A.R. 6/24. V.A.L. 6/9.

In this case it was impossible to make any examination of the vitreous owing to the binding down of the pupill--ary margin, but the degree of visual acuteness still present suggested that the condition was a simple iritis, the greater defect in the vision of the right being due to the anterior capsular opacity.

Case 8 . Plastic iritis; Descemetitis.

Thomas J., aet. 33, architect, Seen for the first time in July 1898, complaining of inflammation of the right eye of four days duration, and haziness of vision. There was a distinct zone of circumcorneal injection. The aqueous was hazy, and a fine punctate deposit was present on the back of the cornea. The iris was darker in colour than that of the sound eye; the pupil was small, and under atropine showed several fine pigmented synechiae.

V.A.R. 5/12 J 1. V.A.L. 5/9 J 1.

Primary sore five months ago, with a mild skin eruption, and slight sore throat about two months later.

Grey powder gr.1 three times a day, and atropine drops were ordered, and in a week the inflammatory appearances had entirely subsided. The pupil was widely dilated, a few pigmented dots remaining on the anterior capsule.

The media were clear, and the visual acuity in both was 5/9. The patient had always been myopic, and with correction the V.A. was easily brought up to 5/5.

This must be looked upon as an unusually mild case of plastic iritis in syphilis, in which the inflammation never extended beyond the iris, and rapidly cleared up without loss of visual acuteness, and with complete restoration of function. The occurrence of the descemet-

-itis did not in any way interfere with the recovery, and the spots of deposit rapidly became absorbed as the iris inflammation subsided.

Case 9. Simple plastic iritis; Recovery; Recurrence as a plastic irido-cyclitis.

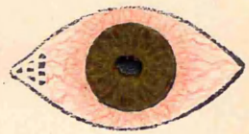
George L., aet. 31, engineer. Seen on April 17th. 1902. Primary sore in Oct. 1901. Rash, sore throat, and falling out of hair in Dec. 1901. In February 1902, the left eye became inflamed, and as it got well the right became in--volved. After the right eye appeared to get well, the patient stopped all treatment, and two weeks ago, that is six months after the first eye symptoms, the left eye a--gain became inflamed. The vision of both eyes had re--mained good up till this last attack came on. Since then the sight of the left eye has become very defective.

V.A.R. 6/6. V.A.L. less than 6/60.

The right eye looks normal and the pupil is active. The pupil dilates fully and equally, and on the anterior capsule there is then seen a ring of fine pigmented dots, the ring having the diameter of the undilated pupil. There is no diffuse opacity on the capsule, and the media are clear and the fundus normal.

The left eye shows a slight general conjunctival vascul--arity, with well marked pericorneal vascular zone. The aqueous is not muddy, but the anterior chamber is shallow and the tension is slightly plus. Under atropine, the

pupil dilated very irregularly, showing numerous fine pigmented synechiae, most abundant below.



The pupillary area of the anterior capsule appeared veiled over by a fine grey exudate, which is densest at the pupillary border below, and thins off as the upper border of the pupil is reached. The fundus can be illuminated, but no details can be made out owing to the presence of the capsular and vitreous opacities.

In this case the primary attack in either eye seems to have been a simple plastic iritis. In the right eye this is now evident, as shown by the rapid recovery of funct--ion and visual acuteness, the only trace of the past ir--itis being the ring of pigmented dots on the anterior capsule. The condition of the left eye had in all prob--ability been identical previous to the recurrence of the inflammation, which is now present in the usual form of a plastic irido-cyclitis. Some of the synechiae now pre--sent are likely to remain permanently, and the visual acuteness will remain long impaired, possibly to some ex--tent permanently, owing to the presence of the capsular exudate and the vitreous opacity.

Case 10. Plastic irido-cyclitis.

Sarah M., aet. 39, house-wife, was seen on Feb. 7th. 1901. She had been revaccinated two weeks ago, and when the arm was most painful, the left eye began to be inflamed.

Specific rash and sore throat four months ago. Mucous patches now present at the angles of the mouth.

General conjunctival injection, with distinct pericorneal pink zone. Aqueous hazy. Iris discoloured and steamy looking. Pupil dilates very irregularly under atropine, but after repeated instillations, the pigmented synechiae broke down leaving pigmented dots on the anterior capsule.

The anterior part of the vitreous contains a good deal of fine opacity.

V.A.R. 6/6. V.A.L. 6/24.

Under treatment the eye had become quite quiet, the vitreous opacity had cleared up, and the visual acuteness had returned to 6/6. in the course of three weeks.

Fine remains of the pigment dots on the capsule were still present.

This is a mild case of plastic irido-cyclitis, which

speedily recovered under vigorous mercurial treatment.

It is by no means uncommon to get a history of slight injury or other cause, revaccination in this case, which may temporarily upset the circulatory or nervous balance of the eye sufficiently to allow a constitutional ailment to become manifest, and which appeals to the patient as the sole cause of his complaint.

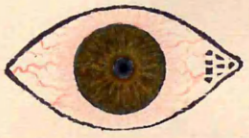
Case 11. Irido-cyclitis.

Rebecca H., aet. 22, weaver, was admitted to the Glasgow Eye Infirmary on Nov. 19th. 1899.

Inflammation of the right eye of two weeks duration, with pain only felt at night and in the morning. Vision has been gradually getting more defective since the onset of the inflammatory symptoms.

V.A.R. letters of J 20. V.A.L. 6/9.

Specific rash all over the body. Patient has been hoarse for the past two months, with throat slightly sore in the morning, and the hair has been coming out for the same length of time.



Circumcorneal injection. Iris discoloured. Aqueous fairly clear. Numerous posterior synechiae, with exudate spreading over the lens capsule, but leaving the central part of the pupill-ary area clear. Slight ciliary tenderness.

Under treatment the synechiae broke down, the pupil dilating fully, and the exudate on the capsule almost entirely disappeared. The vitreous opacity, which was detected as soon as the pupil dilated, gradually cleared up, and vision was restored to 6/9.

No pathological change in the fundus could be recognized.

Case 12. Irido-cyclitis; Descemetitis.

Patrick L., aet. 31, miner, was admitted to the Glasgow Eye Infirmary on July 17th. 1899.

Syphilis contracted four months ago. The patient has been under treatment for a month past.

The right eye became inflamed two weeks, and the left one week ago. Pain severe, specially at night.

Right eye. Circumcorneal injection. Aqueous hazy. Punctate deposit on the back of the cornea. Pupil dilates very irregularly.

Left eye. Inflammatory appearances much less acute. Pupil dilates sluggishly, but shows no synechiae.

In both eyes ther is anterior vitreous opacity.

V.A.R. 6/24. V.A.L. 6/18.

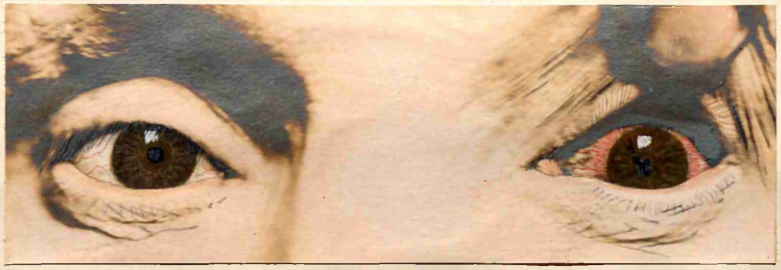
Biniodide of mercury internally and atropine drops every four hours were ordered, with fomentations applied to the right eye for an hour night and morning.

When seen ten days later, the inflammatory appearances were rapidly subsiding, the descemetitis had cleared up, and both pupils were widely dilated and regular.

Case 13. Plastic irido-cyclitis.

John D., aet. 45, labourer, was seen on April 17th. 1902. Primary sore five months ago; rash on body and hair fall--ing out four months ago. Has never been well since, and had to give up work five weeks ago on account of weakness and loss of appetite. No treatment. He was confined to the house for four weeks, and after going out a week ago the left eye became inflamed.

V.A.R. 6/6. V.A.L. letters of J 20.



Slight general conjunctival hyperaemia, with pericorneal injection. Aqueous hazy, and iris discoloured. Pupil small with fibrinous exudation along its border.

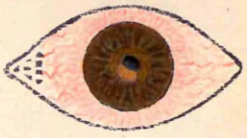
Under atropine the pupil dilates irregularly, and the synechiae are then very evident.

It is impossible, owing to the small size of the pupil and the haziness of the aqueous, to make any satisfactory ophthalmoscopic examination, but the marked diminution in the V.A. makes it certain that the ciliary body shares in the inflammatory process.

Case 14. Irido-cyclitis (Iritis papulosa).

Peter W., aet. 34, basket-maker. Seen on Nov. 19th. 1896. Primary sore four and a half months ago. Rash all over body and sore throat, three months ago.

The left eye became inflamed a week ago, and the inflamm--ation has been attended with pretty severe pain in the eye, and severe frontal headache, worse at night. Circum-corneal injection. Iris discoloured and lustreless. Pupil obliquely oval, and displaced upwards and outwards. At the pupillary border below there is a single large parenchym--atous nodule of a reddish yellow colour. At this point the iris is bound down to the anterior lens capsule by an opaque exudate, which spreads over the lower half of the pupillary area, and is continued down on the anterior sur--face of the iris over the nodule, slightly veiling it. Punctate deposit on Descemet's membrane.



V.A.R. 6/6 J 1. V.A.L. 6/36 J 18.

Under atropine and pil. calomel c opio, the adhesions broke down, the descemetitis cleared up, and the pupil dilated widely, except at the site of the iris nodule. The nodule took three weeks to disappear, and at the end of that

time the irregularity of the pupillary border was no longer evident.. When the pupil yielded a mass of ex--udate was left adhering to the capsule below its cen--tre, but this cleared up almost entirely, leaving on--ly a fine dotted pigment deposit. The vision had by this time improved to 6/12, the remaining defect being due to the presence of opacity in the anterior part of the vitreous.

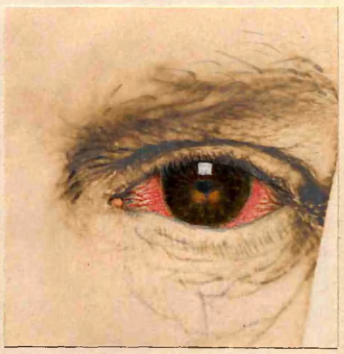
Case 14a. Irido-cyclitis (Iritis papulosa).

John G., aet. 28, moulder, was seen on July 18th. 1901, complaining of pain and inflammation in the left eye, with dimness of vision.

V.A.R. 6/6 J 1. V.A.L. J 20.

Primary sore four months ago. Specific skin rash still present on chest and face.

Conjunctival hyperaemia, with narrow pericorneal pink zone. Aqueous slightly muddy. Iris discoloured and dull. Pupil small and bound down to the anterior lens capsule all round. At the lower margin of the pupil there are two yellowish-red nodules in the iris, lying close together. Pupil dilates upwards very irregularly, and not at all below. Vitreous, behind lens, full of fine opacity.



Under treatment by pil. calomel c. opio, atropine every four hours, and fomentations, the pupil yielded fully, and the parenchymatous nodules began to disappear.

A month later some pigment spots remained on the lens

capsule, and fine cicatrices, in the position of the iris papules, could be detected, but otherwise the eye appeared normal. The vision had improved to 6/9 with the dilated pupil.

Case 15. Plastic iridocyclitis (Iritis papulosa).

Mary F., aet.23. Seen on Feb. 21st. 1901. Rash, sore throat, and very slight falling out of hair four months ago. The right eye began to inflame, and the vision to get hazy two weeks ago, and the inflammation was accom--panied by severe pain in the eye and forehead.

Has been under treatment, and pupil is slightly dilated and irregular. There are numerous pigmented synechiae all round, but specially below. Single interstitial nodule in iris close to pupillary border, below and to inner side.

V.A.R. 6/60. V.A.L. 6/6.

Under treatment the inflammatory symptoms rapidly sub--sided, and the nodule became absorbed. All the synechiae gave way under atropine, except those at that part of the pupillary border corresponding to the parenchymatous nod--ule, but fine pigmented spots were left on the anterior lens capsule. The anterior part of the vitreous was now seen to be full of fine dust-like opacity, and the disk appeared hyperaemic.

When last seen, three months after first attendance, the pupil appeared quite active, but, on dilatation, a single

synechia was found to be permanent below. The opacity in the vitreous had completely cleared up, and the fundus appeared normal. V.A.R. 6/9.

This was a typical case of irido-cyclitis in which the iritis took the form of an iritis papulosa.

As a mydriatic had been used before the patient came under observation, the position of the pupil in relation to the cornea was to some extent disturbed, but there must have been some eccentric displacement upwards by the interstitial swelling in the lower part of the iris, as the lower margin of the pupil came up to the horizontal meridian of the cornea.

Case 16. Plastic iritis; Irido-cyclitis; General uveitis.

James M., aet. 27, engineer, was seen on Sept. 15th. 1901. In March 1901 he had had an iritis in the right eye, and after two months treatment he was supposed to be well. In June the inflammation returned, and he was again recovering when a second relapse occurred. On this occasion the pain in and around the eye had been and still was very severe.

When seen in Sept. the conjunctival vessels were very hyperaemic, and there was a broad pink zone all round the cornea. The deeper layers of the cornea appeared hazy and vascular, and on the posterior endothelium, all over, there were large punctate spots of exudate. The pupil was small, the iris looked thickened and vascular, and the pupillary border was bound down to the anterior capsule.

V.A.R. barely fingers. V.A.L. 5/5 J 1.

Under specific treatment, the inflammatory symptoms began to subside, and the pupil to dilate. The vitreous was full of opacity, and no view of the fundus could be obtained.

Six months later the cornea was quite clear, and the iris active, two fine synechiae remaining on the inner side of the pupil. There was still an appreciable amount of vitreous opacity, but a clear view of the fundus could be had.

The disk was pale on its temporal side, and its margin was blurred. The vessels looked fairly normal in size, but on the disk and beyond for a disk's breadth, they were accompanied by white lines. All over the fundus the choroid generally had a disturbed look, with numerous large atrophic and pigmented spots scattered principally over the posterior pole. V.A.R. 5/50.

The central colour vision of this eye was very defective and the visual field for white was considerably restricted, and showed numerous small scotomata, corresponding to the atrophic spots (visus reticulatus).

This case undoubtedly began as an iritis, which apparently recovered. With the first relapse the ciliary body became involved, and later the inflammatory process extended to the choroid, retina, and optic nerve.

When seen in September, the plastic choroiditis was very acute, and the descemetitis most marked. He at first denied specific infection, but later admitted contracting syphilis a year previously.

Case 17. Plastic irido-cyclitis; Relapse; Keratitis interstitial.

Sarah B., aet. 37, house-wife. Sore throat, with falling out of the hair, and a rash on the body, in February 1901 No treatment.

In June 1901 she came to the Dispensary of the Glasgow Eye Infirmary with an acute plastic irido-cyclitis of the right eye. There were a few coppery coloured papul--ar spots on the body, forehead, and cheeks.

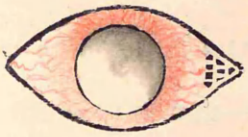
The vision was very defective, chiefly owing to anter--ior vitreous opacity; the pupil was small, and showed numerous posterior synechiae.

Under specific treatment the condition rapidly improved, and the synechiae yielded leaving fine pigmented dots on the anterior capsule.

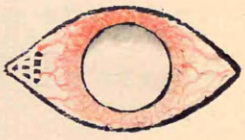
Owing to loss of employment she became an inmate of the Poorhouse in July 1901, and while there all treatment was stopped. The inflammation in the right eye relapsed soon after leaving off treatment, but she remained in the Poor--house till the end of September 1901. At this time the left eye became inflamed and she returned to the Dispens--ary.

The right eye was now acutely inflamed, and vision was reduced so that she was only able to count fingers.

The pupil was contracted and bound down to the anterior capsule at several points, but in the lower half the synechiae formed a continuous band of adhesion between the lens capsule and pupillary border. The cornea showed marked interstitial opacity above and to the inner side, the opacity being most dense close to the corneal periphery, and becoming less dense gradually as it approached the centre. There was practically no new formation of blood vessels. Pain severe. Tension slightly plus.



The left was much less acutely inflamed. There was a well-marked zone of pericorneal redness, iris lustreless, and pupil small, with two fine posterior synechiae below. The cornea in its upper part showed a faint interstitial haze. Pain slight Vision gradually failing.



During the subsequent treatment the right cornea became more opaque, and there was a scanty formation of new ves--sels. Descemetitis appeared and remained present till the irido-cyclitis began to yield to treatment.

The inflammation gradually quietened down, the corneal opacity began to clear up, and the vision to improve.

The synechiae at the upper part of the pupillary border

yielded, but below the adhesions remained permanent.

The condition of the left eye was much less severe, and more amenable to treatment. The pupil readily dilated and the corneal opacity, which never got more dense than it was on admission, rapidly cleared up.

In this case the primary irido-cyclitis rapidly improved under treatment, but readily relapsed when treatment was interrupted, the relapse being associated with the onset of an interstitial keratitis, and later on with a descem--etitis.

The right eye was left permanently impaired by the syn--echiae, and some opacity of the vitreous, and the vision was reduced to 6/18.

After the keratitis cleared up no choroidal changes could be detected by the ophthalmoscope, and the disk appeared normal.

The left eye recovered completely.

Case 18. Irido-cyclitis; Keratitis interstitial.

John B., aet. 28, miner, was admitted to the Glasgow Eye Infirmary on January 11th. 1897.

Primary sore three months ago, still unhealed. Secondary rash six weeks ago, followed by inflammation of the eyes, pain in head, and dimness of vision which gradually got worse. Very marked specific rash all over the body, with loss of hair of head and beard. No treatment.

Broad circumcorneal vascular zone, with general conjunct--ival hyperaemia.

There is a diffuse interstitial haze over the whole of the cornea, but denser over its lower half, in which there are areas of much denser opacity situated in the substance of the cornea and showing the triangular form--ation which is more often associated with deposit on the corneal endothelium.

The condition of the cornea is similar in both. The iris in both is involved, and probably also the ciliary body.

The great breadth of the pericorneal vascular zone suggests this. The pupils dilate very irregularly under atropine.

V.A.R. 6/60. V.A.L. 6/60.

In this case the irido-cyclitis and the keratitis came

on at a very early date after infection, and from the way in which the patient states the visual acuteness diminished, the two conditions seem to have developed simultaneously. This, in the author's experience, is a very rare occurrence, the usual incidence being as recorded in the previous case (Case 17).

Case 19. Gumma of the iris.

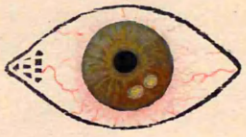
Mary T., aet. 15, shop-girl, was admitted to the Glasgow Eye Infirmary on January 23rd. 1899.

The left eye had been inflamed for a week. There had not been much pain, but the eye felt sore in the morning and in gas-light.

Ciliary injection around the lower half of the cornea. Pupil displaced slightly upwards, but the iris was active in its upper half. There were no pupillary synechiae.

Lower and outer two thirds of the iris appear darker in colour than the remaining third.

In the lower and outer quadrant of the iris there are two yellowish white rounded nodules, lying together, near the periphery.



The iris tissue surrounding these nodules appears vascular, and, on magnification, small vessels can be seen running on the surface of the iris, and continuing over the interstitial nodules.

Aqueous muddy in the lower half of the anterior chamber.

V.A.R. 6/6. V.A.L. 6/18.

Hutchinson's teeth, cicatricial lines at the angles of

[1] De Wecker et Landolt, "Traité Complet D'Ophthalmologie" Vol II page 288

[2] Von Arlt, Diseases of the Eye (translated by Ware) page 258.

the mouth, and slight deafness, all pointed to the exist--ence of hereditary syphilis, and a diagnosis of gumma of the iris was accordingly arrived at. Under iodide of potassium and syrup of the iodide of iron, absorption took place, and in the course of eight weeks the eye was practically well again.

This case is specially interesting as it is generally held that iritis gummosa is very rare in hereditary syphilis.

"Fort rarement l'iritis gommeuse est un symptôme de la syphilis héréditaire."[1]

Von Arlt[2] states that in his experience gummata of the iris and of the ciliary body do not occur in hereditary syphilis.

Case 20. Iritis; Gumma of the ciliary body; Gummatous keratitis.

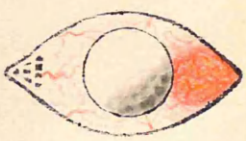
Susan S., aet. 26, house-wife, contracted syphilis at the age of 22 years, which was followed by an iritis in the left eye six months later. Was under treatment at the Glasgow Eye Infirmary for some months, and recovered, a few pigmented dots remaining on the anterior capsule.

In Dec. 1901 the patient returned with a gummatous anter--ior uveo-scleritis in both eyes, mild in the right and more severe in the left. In both the site of the scleral swelling was on the outer side of the cornea in the line of the external rectus insertion.

V.A.R. 6/9. V.A.L. 6/24.

In both eyes the pupils were active, and both pupils dilated fully and regularly. There were fine spots of opacity on the anterior capsule of the left eye, as a result of the past iritis.

On the outer side of either cornea, extending from the corneal border backward,



there was an oval, slightly raised vascular patch with a horizontal diameter of 10 m.m. In the right eye there was a fine opacity in the vitreous, just behind the lens,

confined to the outer side, and corresponding in situa-
-tion with the scleritis.

In the left eye the same dust-like vitreous opacity was present in the anterior layers, but in this eye it ex-
-tended right across the pupillary area.

No change could be made out in the choroid or retina.

Under treatment the inflammatory appearances began to subside, and the vitreous opacity to clear up, but the patient at this time developed influenza and treatment of the eye condition was stopped.

On returning to the Infirmary two months later, the right eye was nearly well, but the inflammation in the left had become much more active and the scleral swelling was more prominent. The vitreous opacity was also greater, and at the corneal periphery, outwards and downwards, there was a well marked patchy interstitial keratitis.

V.A.R. 6/9. V.A.L. 6/36.

Treatment by bichloride of mercury and iodide of potass-
-ium seemed to have little effect on the course of the affection, but when the treatment was changed to iodide of potassium and syrup of the iodide of iron, the inflamm-
-atory symptoms disappeared very rapidly, and the scleral swelling soon subsided. The vitreous opacity cleared up considerably.

Case 21. Irido-cyclitis; Gummatous uveo-scleritis.

Jessie McK., aet. 28, house-wife, was admitted to the Glasgow Eye Infirmary on August 9th. 1897.

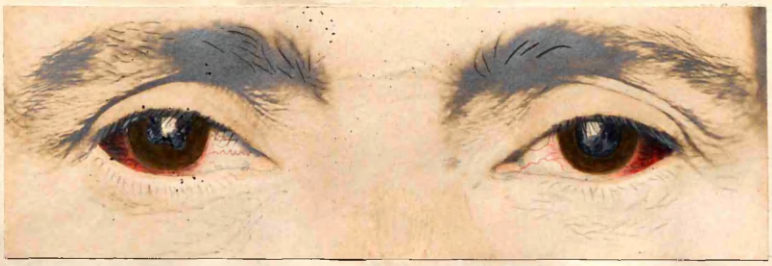
She had been confined three months before coming to the Infirmary, and a month after her confinement the left eye became inflamed, the right becoming similarly involved two weeks later. There was an abundant specific rash all over the body, and this had appeared two weeks before her confinement. Mucous patches were also present at the angles of the mouth.

On admission she was found to be suffering from a pretty acute plastic irido-cyclitis in both eyes, and there was severe pain in the eyes and headache. Pupils contracted, dilating very irregularly, showing numerous synechiae.

V.A.R. J 16. V.A.L. J 12.

She remained under treatment for six months, and recov--ered with slight impairment of the visual acuteness in both, due to the persistence of anterior vitreous opac--ity. The left iris recovered without adhesion, but a number of posterior synechiae remained in the right.

She returned to the Infirmary on March 26th. 1902 with a uveo-scleritis in both. The eyes had been inflamed for eight or nine weeks, and she had been suffering from severe frontal headache. The visual acuteness had grad--ually been failing since the onset of the inflammation.



On the outer side of either cornea there was a slightly raised oval vascular patch, which extended from the scleral border backwards over the insertion of the exter--nal rectus. The iris in both reacted normally, but sluggishly. Under atropine the right pupil dilated irregularly, showing several posterior synechiae, and the left pupil dilated equally and fully.

The anterior part of the vitreous in both was full of fine opacity, with a few large opacities, making it impossible to get any clear view of the fundus, although no gross changes could be detected.

V.A.R. 6/24. V.A.L. 6/36.

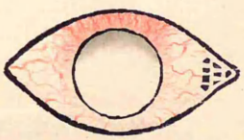
In these two cases (Cases 20,21.), which have an almost identical history, the uveo-scleritis came on about four and a half years after infection. In the first case the prominence of the scleral swelling was much more marked than in the second, but in both the pathological change, in the author's opinion, began as a gummatous infiltra--tion of the ciliary body.

Case 33. Interstitial keratitis.

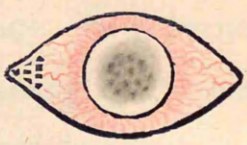
Patrick K., aet. 21, painter, was seen on Aug. 16th. 1900. Inflammation of the left eye for the past four or five weeks, with gradually increasing defect of vision. The right eye had been watering for the past week, but patient was making no special complaint regarding it.

Patient slightly deaf, and the central incisors are typically peg shaped and notched.

In the right eye there was a localized patch of vascul--arity above, with a fine peripheral interstitial opacity at the correspond--ing part of the cornea. Pupil active



In the left eye there was a well marked ring of circum--corneal vascularity. The central area of the cornea was opaque, while the periphery all round was quite clear. In the opaque central area there were circumscribed spots of very dense opacity lying deep in the corneal substance Pupil contracted and difficult to see.



Both pupils dilated well under atropine, the inflammation subsided rapidly, and the corneal opacity began to clear up under treatment with bichloride of mercury and iodide of potassium internally.

Case 23. Interstitial keratitis.

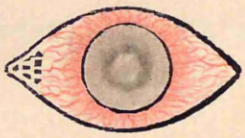
John P., aet. 16, blacksmith, was admitted to the Glasgow Eye Infirmary on Sept. 5th. 1896.

The left eye had been inflamed for the past ten days.

Typical facial appearance of hereditary syphilis, with notched central incisors.

Zone of ciliary injection at the upper part of the corneal periphery. Fine interstitial opacity in the upper half of the cornea, which shaded off in density from above downwards. The pupil dilated fully and equally under atropine.

The opacity gradually spread over the whole cornea, and a ring band of much denser opacity developed round the central area. The zone of vascularity extended all round the corneal periph--ery, and the conjunctival vessels generally became hyperaemic. At this stage new formed vessels began to pass in from the periphery all round, but chiefly from above, towards the central opaque ring, and the corneal vascularity became very pronounced before the keratitis began to quieten down.



The corneal opacity ultimately cleared up completely, but many of the corneal vessels remained visible as fine lines when the patient was last seen.

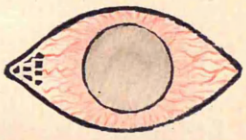
The iris recovered completely, and no fundus change could be detected.

Case 24. Interstitial keratitis; Uveo-scleritis.

Mary M., aet. 11, schoolgirl, was seen on Mar. 5th. 1900. Inflammation began in the left eye three weeks ago, with watering and photophobia, and now the visual acuteness is considerably diminished.

V.A.R. 6/6. V.A.L. hand movements.

Marked pericorneal injection, with general conjunctival hyperaemia. Fairly dense interstitial opacity, spreading completely over the cornea, with newly formed blood vessels penetrating into the substance of the cornea from the periphery. Pupil small, and not easily seen. It dilates fully under atropine.



The inflammation gradually subsided, and the opacity in the left eye had cleared up considerably, when, four and a half months later, the right cornea became involved. This eye suffered severely, the whole cornea becoming intensely opaque and vascular, and the visual acuteness diminished till the child could only tell light from darkness.

Three months later the opacity in both corneae had cleared considerably, and the visual acuteness had improved to R. 6/24. L. 6/9.

At this time a further development occurred in the right. A patch of scleritis appeared on the outer side of the cornea, and the adjoining cornea again became infiltrated, the opacity being distinctly spotty.

The ciliary body, and probably the anterior part of the choroid were also involved, the anterior part of the vitreous being full of fine opacity.

Soon after improvement had again set in, the patient disappeared, and the further history of the case cannot be given.

The patient was well nourished, and so far as could be ascertained had never presented any signs of congenital syphilis during early childhood. The teeth were sus--picious, but not characteristic.

The maternal history suggested strongly the syphilitic origin of the child's eye condition. The mother had suffered from iritis soon after marriage. She had had two miscarriages previous to the birth of the patient, which was followed by other two miscarriages, and then a second living child was born, who is at present four months old, and apparently healthy.

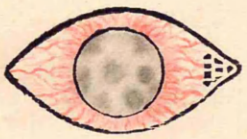
Case 25. Interstitial keratitis (Keratitis gummosa).

Marjory S., aet. 38, house-wife, was admitted to the Glasgow Eye Infirmary on Sept. 30th. 1899.

The right eye had become inflamed two weeks previously and she had suffered severe pain. The vision had been gradually becoming more defective.

The patient has been slightly deaf since childhood, and the central incisors are typically notched.

The whole right cornea was uniformly hazy, with limited areas of denser opacity at the periphery. The opacity was



distinctly interstitial, and the surface of the cornea appeared steamy and non-reflective. Over two of the denser areas of circumscribed opacity, the surface looked somewhat raised above the general corneal level.

The pupil dilated quickly and completely under atropine; the inflammatory symptoms rapidly subsided, and the opacity had cleared considerably when the patient was lost sight of.

The presence of the "Hutchinson trias" made it definitely certain that the patient was the victim of hereditary syphilis.

The age at which the keratitis developed is unusually late, and probably the systemic changes connected with the menopause in an unmarried woman in some way accounted for its occurrence. For a year past the menstruation had been irregular and the discharge excessive, and her health had suffered from the repeated loss of blood.

This case of interstitial keratitis is classed as a keratitis gummosa on account of the definitely circum--scribed areas of dense opacity, and because of the distinct elevation of the surface of the cornea over two of these spots. The late period of the onset may have had some influence in bringing about this particular type of inflammation.

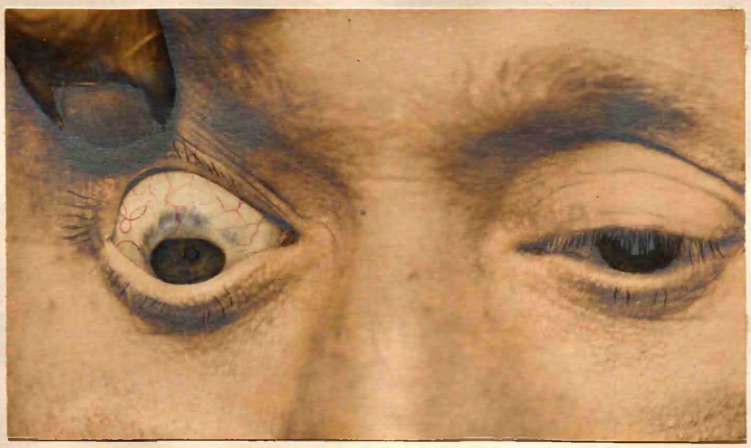
Case 36. Interstitial keratitis; Ciliary staphyloma.

William W., aet. 38, moulder, was admitted to the Glasgow Eye Infirmary on July 7th. 1900, suffering from an acute interstitial keratitis of the left eye.

The patient had the typical facial appearance of hered--itary syphilis, sunken nose, fine cicatricial lines ab--out the angles of the mouth. The central incisors were peg shaped, and he was slightly deaf.

He had been treated in the Royal Infirmary for locomot--or ataxia.

The right eye had been blind from early youth. Cornea clear, anterior chamber deep, pupil small and occluded, iris degenerated and atrophied. The anterior zone of the sclera was thinned and distended forward as a whole, and above there were localized prominences in the ciliary re--gion. Vision nil.



The left eye had never been affected till ten days previously. On admission there was an acute general keratitis, but the opacity was much less dense over the inner half of the cornea. The pupil dilated equally but sluggishly. Vision was reduced to 6/60.

After admission to the Infirmary, the keratitis advanced till the cornea was so completely opaque that the iris could not be seen. This was followed by a very marked development of new blood vessels in the substance of the cornea, so that after a time the term vascular keratitis was specially appropriate. Gradually the inflammatory process subsided, the vascularity diminished, and the cornea began to clear up at the periphery. The absorption of the opacity went on rapidly, and, when the cornea had cleared up sufficiently, large punctate spots were seen on the posterior endothelium. At the present time (April 1902) the cornea only shows a fine nebula on the outer side, and the vision has improved to 6/12. The pupil is circular and active, and on ophthalmoscopic examination the posterior part of the fundus appears normal, but in front of the equator there are several isolated and pigmented spots of choroiditis disseminata.

In this case we must look upon the affection of the

right eye as a uveo-scleritis anterior occurring early in life and permanently destroying the sight. Whether the cornea was affected in this eye or not remains a matter of doubt, as at present there is no evidence of opacity. The eye shows the marked deformity which is so likely to occur in anterior scleral inflammations in young children not only in the general ectasia of the anterior segment, but in the more limited ciliary staphylomata above.

The typical interstitial keratitis occurring in the left eye after so long an interval is also worthy of note, as it is rare to find corneal manifestations in hereditary syphilis occurring so late in life. The question of acquired syphilis was considered, but no history or other symptoms could be obtained. The intensity of the corneal inflammation, and the very slight involvement of the iris and choroid, negative, in the author's opinion, the idea of the keratitis being due to the acquired disease.

The occurrence of locomotor ataxia in this case of hereditary syphilis is also remarkable, as degenerative nervous diseases, while of frequent occurrence as sequel--ae of acquired syphilis, are much more rare in the her--editary disease.

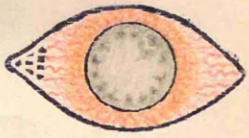
The descemetitis, which was only recognized after the

cornea had cleared considerably, made it likely, in the absence of any distinct iris involvement, that there was some choroidal change; and as soon as the cornea was clear enough to examine the fundus, evidence of the existence of a mild choroiditis disseminata was detected.

Case 27. Interstitial keratitis, Choroiditis disseminata.

Annie G., aet.19, shop-girl. Seen for the first time on Sept. 5th.1901. Inflammation of the left eye for the past two months. Has been under treatment at home.

Left Eye. Conjunctiva generally, hyperaemic. Ring of conjunctiva round the cornea very vascular and slightly chemotic. General interstitial corneal haze, with loss of surface reflex, and close to the corneal periphery there is a ring of spots of much denser opacity in the substance of the cornea. Pupil dilated to 6 m.m. Pain at times severe.



Right Eye. External appearances normal. Pupil dilates regularly and completely, and the media are clear.

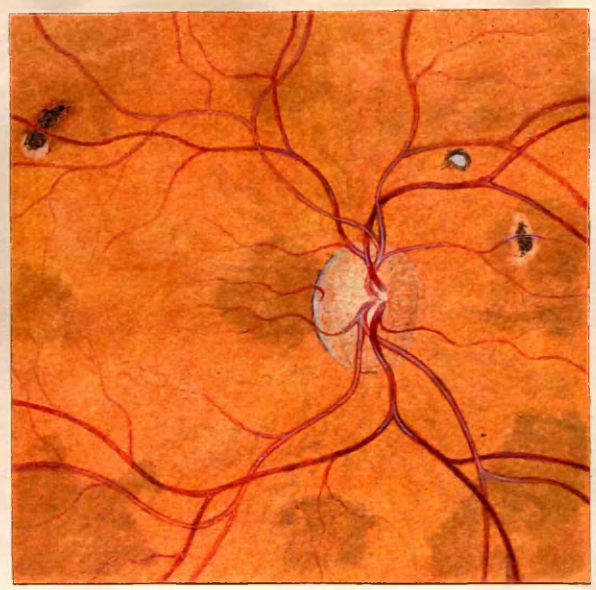
V.A.R. 6/24 J 1. V.A.L. 3/60 J 16.

Has been wearing - 2.50 D Sph. for some years past.

V.A.R. $\overline{c}$. - 2.50 D 6/12. V.A.L. $\overline{c}$. - 2.50 D 6/60.

O.E. left. Fundus appears normal, but it is difficult, owing to the corneal opacity, to see details. Refraction myopic.

O.E. right. Refraction - 3 D. Disk normal. About one and a half disk-breadths to the nasal and upper side of the disk there are two spots of choroidal change, which are becoming atrophic. The upper spot shows completely



atrophied choroid, and the edge of the spot is outlined by pigment. The lower spot has evidently been more sup--erficial, and the change is chiefly a pigment disturb--ance. The irregular mass of pigment is crossed by a retinal vessel, and is surrounded by a lighter zone of bleached looking choroid, from which the pigment ap--pears to have been withdrawn. Above the macula there is another pigment mass, which, from the hyperaemic look of the choroid round its upper end, suggests a com--paratively recent change.

The keratitis in the left quietened down fairly quick--ly, and the vision with correction came up to 6/12, two months later, being then equal to the V.A. of the

other eye. The pupil remained completely under the in--fluence of atropine, and the iris recovered without apparent involvement. When the cornea cleared up, re--peated examination failed to discover any choroidal change in the left eye, and the changes noted in the right became more completely atrophic, showing that the choroidal affection was comparatively recent.

In this case a brother had suffered from a prolonged and severe inflammation of the eyes. The incisor teeth were decayed, and gave no help in arriving at a conclus--ion regarding the cause of the keratitis. A suggestive sign was present in the form of fine cicatricial lines at the angles of the mouth, but conclusive evidence of its origin in hereditary syphilis was furnished by the discovery of a disseminated choroiditis in the other eye.

Case 28. Keratitis interstitial;
Choroiditis disseminata.

Maggie B., aet. 19, house-keeper, was seen on Sept. 17th. 1896, complaining of defective vision.

V.A.R. J 20. V.A.L. J 19.

The patient had suffered from interstitial keratitis four years previously, and in both corneae a fine diffuse opacity was present. The iris was bound down by posterior synechiae in both eyes. The pupil gave no response to light. The central incisors were decayed, but the existence of hereditary syphilis was further made manifest by the presence of a perforation in the soft palate, and deafness.

Under atropine both pupils dilated upwards quite freely, leaving the lower halves fixed by adhesions to the anterior capsule.

In both fundi there was found typical choroiditis disseminata in its atrophic stage, with very marked pigmentation. The disks had a dull, dirty white look, and the retinal vessels were small.

The choroiditis in all likelihood in this case came on at the same time as the interstitial keratitis.

In many cases of keratitis in hereditary syphilis, the inflammatory process seems to start in the ciliary region, and to spread from there, forward to the iris and cornea, and backward to the choroid.

Case 29. Gummatous uveo-scleritis;
Keratitis interstitial.

Catherine M., aet. 11, was admitted to the Glasgow Eye Infirmary on April 2nd. 1900, complaining of inflammation of the left eye.

This eye began to inflame eight days ago, and had gradually got worse.

On the outer side of the sclera almost coming up to the corneal margin there was a yellowish, flat, circular swelling about 8 m.m. in diameter, with deep vascular injection, most marked in the ciliary region.

Superficial vessels very hyperaemic.

The pupil was slightly irregular, and dilated sluggishly under atropine. No synechiae. Cornea clear.

Hutchinson's teeth; cleft palate, the mouth and throat having been sore eight months previously; otitis media.

A week after admission, interstitial opacity appeared in the outer side of the cornea, and gradually extended over the whole cornea, starting from the neighbourhood of the scleral focus. The outer part of the cornea was at first much more densely infiltrated than the remainder, but gradually the opacity became uniformly dense, and a marked formation of new blood-vessels, superficial and deep, penetrated into the substance of the cornea from the periphery.

The tension of the eyeball became lowered, and the cornea seemed to become softened and tended to bulge.

The child was admitted as an in-door patient, but was removed by her parents in a few days, and did not return to the Dispensary.

In this case the inflammatory process began in the ciliary body and sclera as a gummatous infiltration, and extended from there over the cornea. From the very marked general inflammatory appearance of the eye before the patient was lost sight of, the presence of a plastic choroiditis was also suspected.

Case 30. Interstitial keratitis;
Choroiditis disseminata.

Mary G., aet. 5, was seen on December 5th. 1901.

Both eyes had been inflamed for about a week, the right being most severely affected. The whole of the right cornea was uniformly opaque, and the iris could just be seen through the opacity. Pupil small.

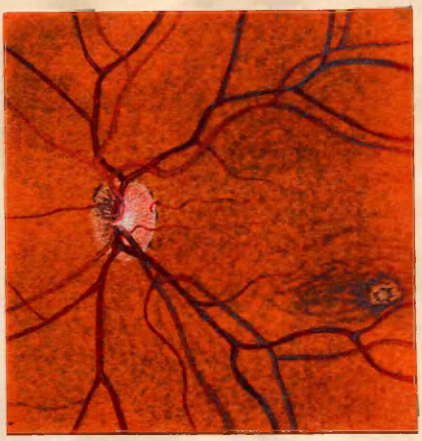
In the left eye the interstitial opacity was confined to the periphery of the upper and outer quadrant.

Both pupils dilated fully under atropine, and remained dilated throughout the whole course of the keratitis.

The patient presented no other evidence suggesting congenital syphilis, but the maternal history was quite definite.

Under treatment the inflammation soon began to subside, but a month later there was a relapse in the left eye owing to the treatment being stopped, and at this time a well marked descemetitis appeared.

The child was admitted as an in-door patient, and the inflammation again began to quieten down, the descemetitis disappeared, and gradually the corneal opacity cleared up.



In the left eye six months later a single small area of recent choroidal change, about a disk's breadth below the macula was noted.

The right fundus was normal.

The early age at which the interstitial keratitis developed in this patient is interesting. The other point of interest was the appearance of a descemetitis in the left eye at the time of the relapse, and the recognition afterwards of a choroidal change in that eye, and no choroidal affection in the right.

Case 31. Chorio-retinitis.

Elizabeth L., aet. 34, housewife, was seen on Nov. 24-98, complaining of defective vision which had been getting worse during the past four weeks. Previous to the onset of the visual defect, she had got a blow on the left side of the face by the slamming of a railway carriage door, and to this injury she attributed the failure of vision, which had started in the left eye.

Soon after the visual defect appeared she thought objects looked distorted, the divisions between the window panes no longer seemed quite straight, and she had often sensations of bright light before the eyes.

These symptoms had not been so prominent since the visual acuteness got so defective, but now she complains that in a dull light she is almost quite blind.

Central vision for coloured objects up to 10 m.m. square at 20 c.m. is lost.

V.A.R. 6/24 J 12. V.A.L. 6/36 J 16.

She contracted syphilis from her husband 14 months ago; the secondary symptoms were mild.

Both pupils dilated normally. The appearance of both fundi was practically identical.

The posterior part of the vitreous was full of a fine dust-like opacity which veiled the fundus; the disk was intensely red, and its nasal margin indistinct.

The retina in the neighbourhood of the disk and out towards the macula, while diffusely opaque, had a speckled look as if there was considerable pigment disturbance, and the cloudy appearance extended for some distance along the line of the larger blood-vessels. The blood vessels themselves appeared fairly normal.

Under treatment by full doses of biniodide of mercury, the vitreous opacity cleared up, the oedema and opacity in the retina disappeared, and the vision improved to 6/12 in either eye.

The speckled appearance of the fundus remained, although when last seen about six months after the first examination, there was no pigment heaping discovered at any part of the fundus. The night-blindness was not nearly so troublesome, but she was still conscious of the fact that her vision was much worse in a dull light.

This case had all the characteristic symptoms and appearances of a typical specific chorio-retinitis.

Case 32. Chorio-retinitis.

Alfred H., aet. 26, porter, was admitted to the Glasgow Eye Infirmary on Dec.22nd. 1898, complaining of defective vision in the right eye which had been gradually getting worse during the past 8 or 9 weeks. The patient also complained of photopsiae, but there was no complaint of night-blindness.

V.A.R. J 20. V.A.L. 6/6 J 1.

Primary sore 12 months ago, with secondary rash soon after.

When first seen, the pupil dilated fully under atropine but no details could be made out in the fundus, owing to the existence of a very abundant punctate opacity in the anterior part of the vitreous.

Under treatment the vision, two weeks later, had improved to 6/36. The vitreous opacity was now much less marked, but no very definite fundus change could be detected, except the presence of a very red disk, which in colour closely resembled the surrounding fundus, and whose outline it was difficult to define. The retinal vessels were unchanged in size.

Six months later the vitreous was clear, and the disk

looked pretty normal. Pigmentary changes were detected in the equatorial region, the fundus here being peppered over with fine black dots, apparently retinal.

Around the macular area there were some small circular spots of partial choroidal atrophy, bordered by pigment.

The vision had improved to 6/12.

In the author's experience it is rarely possible in cases of syphilitic chorio-retinitis, seen about 8 or 9 weeks after onset, to recognize ophthalmoscopically, on a first examination, anything beyond the very abundant vitreous opacity, as this masks all the details of the fundus.

The finely punctate appearance of the opacity is characteristic of a uveitis due to syphilis, and from its abundance suggests an inflammatory change sufficiently severe to involve the retina as well, and this is borne out by the rapid decline in central vision.

When one eye alone is affected, the patient, as in this case, may complain of photopsiae, but it is uncommon to get any complaint of distortion of objects or night blindness, which are so commonly present early when the affection is bilateral. In these unilateral cases, diminution of the light sense and metamorphopsia may be detected on examination of the affected eye alone.

Case 33. Retino-choroiditis.

James P., aet. 40, shoemaker, was admitted to the Glasgow Eye Infirmary on Jan. 15th. 1900, complaining of dimness of vision in the left eye, which had been gradually getting worse during the past month.

V.A.R. 6/6 J 1. V.A.L. J 30.

Syphilitic infection 15 months ago, with well marked secondary symptoms two months later.

Pupils active. Right fundus normal

The left fundus was seen through a mist due to fine punctate opacity in the posterior part of the vitreous, specially dense in front of the papilla.

The disk appeared hyperaemic and hazy. From the disk outwards beyond the macula, the fundus was generally pale and in this area there were several small circumscribed patches of grayish-white opacity. The retinal arteries appeared unchanged, but the veins were full and turgid.

At one or two points small vascular branches seemed to disappear under an area of retinal opacity and again reappear beyond. No haemorrhages.

Under specific treatment the retinal oedema cleared up, the patches of effusion disappeared, and the vision improved. Later on small pigment spots were seen dotted over the posterior part of the fundus from the disk outwards, beyond the macula. The larger number of these pigment spots seemed superficial, but others were more massive and looked deeper.

This case when first seen had all the appearances of a pure retinitis, but the character of the secondary pigmentation suggested that there had been a choroidal element present as well. The absence of prominent symptoms, except the complaint of defective vision, is probably to be explained by the fact that the affection was unilateral.

While the fine punctate vitreous opacity, and the tendency to develop circumscribed spots of effusion in the midst of the more diffuse oedema point pretty conclusively to syphilis, the history of recent infection removes all doubt as to the correctness of the diagnosis.

Case 34. Choroiditis disseminata; Iritis.

Thomas McC., aet. 38, mason, was admitted to the Glasgow Eye Infirmary on Dec. 19th. 1898.

The left eye had been injured in a fight four years previously, and since then he has only been able, with this eye, to see large objects when held to the outer side. The right eye had been gradually getting defective during the past six months. A year ago this eye was inflamed for four weeks, but after recovery the vision was not impaired.

V.A.R. 6/18 J 10. V.A.L. J 20.

Contracted syphilis 18 months ago, and was under treatment till the secondary skin rash and sore throat got well.

Rupture of choroid in left. The rupture is complete, and begins below the macula and runs upwards and outwards for about six disk breadths. The disk appears atrophic, and on its surface there are connective tissue bands, passing between the upper and the lower vessels.

The veins are tortuous; the arteries not much changed.

In the right eye, on dilating the pupil, one fine synechia was seen on the inner side of the pupil.

On ophthalmoscopic examination a fine punctate opacity was detected in the vitreous at different depths, but not very abundant. The disk was hyperaemic, and between the disk and the macula there were some spots of recent choroiditis. These spots looked pale, yellowish-red in colour, and were surrounded by a narrow hyperaemic looking zone of choroid. There were no pigment changes. The retinal vessels were normal.

Under treatment the vitreous opacity cleared up, the choroidal spots gradually became paler and more atrophic looking. Pigmentary changes appeared at their borders and increased till each spot was outlined by a dense, irregular black ring. The choroidal atrophy only involved the chorio-capillaris.

The hyperaemic appearance of the disk passed off, and the disk was looking fairly normal when the patient was last seen. The vision had improved to 6/12. J 4.

This was a typical case of mild choroiditis disseminata, and is interesting specially from the occurrence at a previous date of another lesion,-iritis-, the presence of which confirms the specific origin of the choroiditis.

Case 35. Choroiditis disseminata.

George H., aet. 36, soldier, was admitted to the Glasgow Eye Infirmary on Feb. 7th. 1902, complaining of defective vision.

He had been in India with his regiment for some years, Three years ago he contracted syphilis, and had suffered from malarial fever on several occasions.

Two years ago he went with his regiment to South Africa, and a year later had enteric fever. While in Hospital in Pretoria his vision began to get defective, and after he was convalescent, he was invalided on account of his defective sight.

V.A.R. 6/24 J 6. V.A.L. 6/60 J 16.

In the right eye there were several fine posterior synechiae, below and to the outer side of pupil.

Fine opacity in the anterior part of the vitreous.

Disk pale, with ill-defined margins. No change in the retinal vessels. Circular spots of complete choroidal atrophy, with marked pigmentation of their edges, dotted all over the fundus, but more numerous towards the periphery.

The left pupil dilated fully and showed no evidence of

past iritis. The appearance of the disk and choroid was similar to that of the right eye, but in the macular area the spots of choroidal atrophy were distinctly more abundant. In this eye there was also a fine anterior vitreous opacity.

From the presence of old iritic adhesions, the fine dust like opacity in the vitreous, and the circular areas of complete choroidal atrophy, even without a definite history of infection, one would be quite justified in concluding that the cause of the disease was syphilis.

Circular punched out looking spots of choroidal atrophy, outlined by pigment, are a fairly constant feature in the atrophic stage of choroiditis disseminata of syphilitic origin.

Case 36. Choroiditis disseminata.

Retino-choroiditis.

Walter S., aet. 41, pattern maker, was admitted to the Glasgow Eye Infirmary on July 11th. 1896, complaining of dimness of vision in right eye of three weeks duration. There had been no pain, and the external appearances were normal.

V.A.R. J 20. V.A.L. 6/6 J 1.

History of syphilitic infection three years previously.

The right pupil dilated equally and fully under hom--atropine. Fine vitreous opacity in the posterior part of the vitreous. Around the posterior pole, the fundus appeared pale, the retina being oedematous and cloudy. Scattered through this area of general pallor, there were rounded spots which had a distinctly paler look. The disk appeared hyperaemic. The nasal side was nearly uniform in colour with the surrounding fundus, but the temporal margin was indistinct, the pallor of the neighbouring retina shading over on to the disk. Retinal vessels unchanged in size. The branches passing out on the temporal side of the disk appear and disappear in their course through the oedematous retina.

Below and to the outer side of the macular region, towards the equator, there are a number of circular spots of choroidal atrophy, some of which are densely outlined by pigment.

With this eye central colour vision for red and green is lost.

Left fundus normal.

Under treatment, the vitreous and retinal opacity cleared up quickly, and the disk margin became defined, and vision improved to 6/18. As the retinal condition subsided the spots of choroidal exudation in the macular region became more evident. Absorption followed by atrophic changes was taking place when the patient ceased attending.

In this case the involvement of the retina was very pronounced in the early stages, although the condition most probably commenced in the chorio-capillaris.

The spots of choroidal atrophy noticed on the first examination, below and to the outer side of the macula, most probably followed a choroiditis at a slightly earlier date.

Case 37. Choroiditis disseminata;
Atrophy of the retina.

Gavin B., aet. 17, pupil-teacher, was seen on Sept. 15th. 1894, complaining of defective vision in both eyes.

The left eye had been defective, to his knowledge, for 5 years past, but the defect in the right was said to have come on since he began to teach 18 months ago.

V.A.R. 6/36 J 4. V.A.L. 6/60 J 16.

This patient had the typical physiognomy of hereditary syphilis, the cicatricial lines around the angles of the mouth being specially marked. The typical Hutchinson teeth were also present.

Disk rather pale and dull looking, and the retinal vessels appeared small.

Over the whole posterior part of the fundus there were numerous circular patches of choroidal atrophy, many of which were only separated from one another by a narrow band of normal looking choroid. A thick irregular border of pigment surrounded most of the spots, and scattered over the fundus there were patches of pigment

approximately circular, without being connected with any apparent atrophic patch. Towards the equator the pigmented areas were smaller and more irregular in shape, and many of the spots were in front of the retinal vessels.

The ophthalmoscopic appearance in both eyes was similar, except that in the left eye a patch of atrophied choroid seemed to involve the macula.

In this patient the choroiditis had evidently been severe, and the area of destroyed choroid large.

The circular shape of the areas of atrophy, and the excessive increase in the choroidal pigment were characteristic of congenital syphilis. The secondary pigmentation of the retina and the atrophic appearance of the retinal vessels and the disk showed that, during the time the choroiditis was present, the retina had also shared largely in the inflammatory process.

Case 38. Neuro-retinitis acute.

Mary D., aet. 40, housewife, was admitted to the Glasgow Eye Infirmary on Mar. 18th. 1901, complaining of defective vision. Her sight had been failing for two months past, and was gradually getting worse.

V.A.R. 6/12. V.A.L. 6/18.

Syphilis was contracted from her husband six years ago. The infection was followed by a well marked secondary skin rash, sore throat, and falling out of the hair. She was under treatment for six months, but stopped then as all the symptoms had disappeared. She has had several miscarriages since infection, and two children born at full time, both of whom suffered from early syphilitic lesions.

The external appearances of the eyes were normal; the pupillary reactions normal, and the media clear.

The fundus in both eyes presented similar appearances. The disk was intensely red, and prominent to the extent of 2 dioptres. The margin was blurred and streaky, and the striated appearance extended over the retina for about a disk's breadth round about. The veins were full and tortuous near the disk. There were no haemorrhages present,

and the fundus appeared normal except in the immediate neighbourhood of the disk.

Under treatment, the neuro-retinitis gradually subsided and two months later the visual acuteness was 6/6.
The appearance of the disks had then become fairly normal, except for slight indistinctness at the temporal margins. The retinal veins still showed a slight degree of tortuosity just before reaching the disks, but the turgid appearance was gone.

In this case the optic neuritis was very acute, but quickly resolved when vigorously treated. As there were no symptoms suggesting that the affection was associated with cerebral or intraorbital disease, this case must be looked upon as an instance of papillitis arising as a direct syphilitic lesion.

Case 39. Optic neuritis during the secondary period.

John D., aet.45, labourer, was first seen on April 17th. 1902, suffering from an acute irido-cyclitis of the left eye of a week's duration, and was admitted to the Infirmary.

V.A.R. 6/6. V.A.L. J 20.

Primary sore five months previously; rash on body and hair falling out two months later.

The irido-cyclitis in the left eye slowly improved, the pupil dilating circularly, but never quite fully.

Bands of pigmented exudate were left on the lens capsule from near the centre outwards, marking the position of the stretched synechiae. The vitreous was full of opacity behind the lens.

About a fortnight after admission, when the inflammatory symptoms in the left eye had considerably subsided, the patient complained that the vision of the right eye was nearly as bad as that of the left.

On examination the visual acuteness was found to be very much affected (V.A.R. 6/36. V.A.L. 6/60.), and on ophthalmoscopic examination a well marked neuritis, limited to the disk, was discovered. The prominence measured 1.50 D., and the disk was intensely red with blurred margin, specially on the nasal side. The veins appeared very full, and on the disk were partly obscured by the swelling. There were no haemorrhages, and no other change could be detected in the fundus.

No ophthalmoscopic examination of this eye had been previously made, as the vision when first seen was 6/6., and the patient made no complaint regarding it.

Presumably the neuritis had developed after that time and the visual acuteness had declined very rapidly.

Case 40. Basal gummatous meningitis; Choked disk; Paralyses of cranial nerves; Death.

Mary M., aet. 41, housewife, was seen on Dec.7th. 1900, complaining of violent headache, worse at night, and rapidly failing vision.

She was confined of her second child five weeks previously. The progress to convalescence for the first three weeks had seemed quite satisfactory, and at the end of the third week she appeared so well that she was allowed to go out for a short time.

During the first three weeks she had occasionally complained of headache, but after being out the headache became pretty constant and increased greatly in violence, and while generally worse in the occipital region, the head pain was felt all over the head.

The sight began to fail and she complained of diplopia at times.

Temperature normal throughout. Pulse generally about 100.

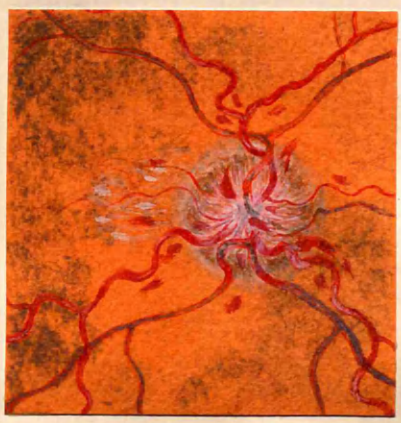
V.A.R. J 14. V.A.L. J 16.

Syphilis contracted from her husband nine months previously, with very mild secondary symptoms.

The first child was healthy at birth, but died at the fourth month after measles. Second child presented the

skin lesions of early congenital syphilis, and there were mucous patches on the lips, and the nasal breathing was obstructed.

Homonymous diplopia from paresis of the left external rectus. Pupillary reactions normal, but sluggish.



Choked disk very marked in both eyes, the prominence measuring 5 D, with numerous haemorrhages on the disk, and in the retina immediately round about. The swelling appeared strictly limited to the area of the disk. Veins tortuous and dilated.

Under treatment by mercurial inunction, the headache all disappeared, and the paresis of the external rectus became less marked, but the vision gradually failed, and a month later there was no perception of light; the pupils were dilated to 5 m.m., and gave no response to light; slight convergence response still present.

The improvement so far as the cephalalgia was concerned only lasted for two weeks. At the end of that time the violent headache returned, and afterwards was always worse on the right side. Both sixth nerves were now involved, the paralysis of both external recti being complete.

Oedematous swelling of the eyelids and scalp all over the head, but most marked on the right side, appeared, indicating that thrombosis had occurred in the cavernous and lateral sinuses. The choked disk had become much more prominent (7 D), and the haemorrhages more abundant on the disk and in the retina all over the posterior part of the fundus along the line of the main retinal vessels. There was no proptosis.

The symptoms of sinus thrombosis were followed by a progressive involvement of the other cranial nerves, and death took place two and a half months after the first onset of the symptoms.

Case 41. Syphilitic endarteritis.

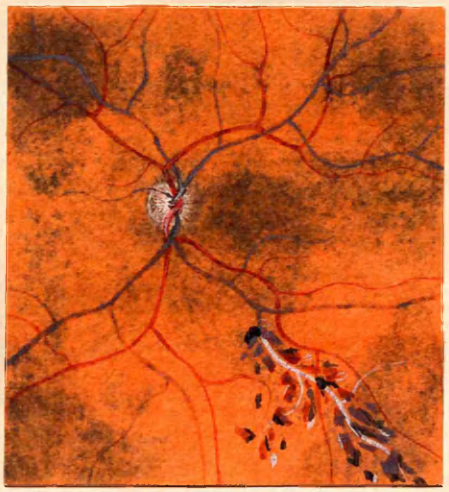
Robert H., aet. 47, engineer, was seen on Jan. 18th. 1901. During the past 18 months he had had several attacks, on rising in the morning, coming on like fainting fits, with momentary loss of consciousness. Till the last attack he felt all right again in a few minutes, and was able to go to business as usual. During this time he has been troubled a good deal with headache, always worse while he was in bed. After the last attack in Dec. 1900, he had difficulty in articulating, and this dysarthria is still noticeable, but only amounts to the occasional clipping off of the last syllable of a word.

There has never been any impairment of power in the arms or legs, and no anaesthesia, but there is well marked fibrillary tremor in the right side of the tongue, and paresis of the right side of the face.

He has worn glasses for many years on account of a hypermetropic error, and for the past six months he has been conscious that the sight of the right eye was not so good as it used to be.

Unaided	V.A.R.	5/50.		V.A.L.	5/18.
$\bar{c}$ + 3 D.Sph.	R.	5/9.		L.	5/5.

Contracted syphilis 8 years ago, and was under treatment for close on two years.



Right disk and vessels as they emerge from the disk are normal. About four disk breadths from the origin of the inferior nasal artery, the vessel is lost in a white band, which appears to follow the course of the original vessel. Lying close to the transformed blood-vessel, there are numerous flame-shaped haemorrhages, irregular black patches of pigment, and several small white atrophic looking spots.

The left fundus was normal.

The discovery of the endarteritis of the retinal vessel at once suggested that the cerebral condition arose from a similar cause, and under treatment by potassium iodide and syrup of the iodide of iron, the headache disappeared, the facial paresis became less marked, the speech defect cleared up, and during the following year there had been no recurrence of the cerebral symptoms.

The haemorrhages into the retina became absorbed, but the pigmented and the atrophic looking spots remained, and the retinal vessel itself appeared to remain unchanged.

Case 42. Post-neuritic atrophy; Plastic iritis.

John S., aet. 3 months, was seen on March 6th. 1895, with inflammation of the right eye of three days duration.

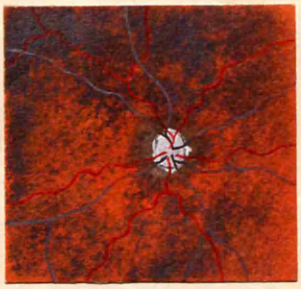
The child looked weak and ill-developed. Since birth he had never appeared to take any notice of his surroundings and a bright light failed to attract his attention.

Soon after birth the skin about the buttocks became red and excoriated. This syphilitic roseola was still present about the genitals and round the mouth. At the angles of the mouth mucous patches were present, the voice was hoarse, and the nose stuffed up.

The mother was a primipara, and had contracted syphilis shortly after marriage, but had only been under treatment for a month.

The conjunctiva of the right eye was uniformly and deeply injected, the iris was very dark in colour, the aqueous was hazy, and the pupil small. Atropine dilated the pupil very irregularly, revealing numerous synechiae attaching the pupillary border to the anterior lens capsule.

Under treatment by mercurial inunction and atropine locally, the adhesions broke down, the exudate became absorbed, and gradually all the inflammatory appearances passed off.



On examination of the fundus later, by the indirect method, both disks presented the typical appearance of a consecutive atrophy. The disks appeared porcelain white in colour, with irregular outline, and an incom--plete ring of choroidal pigment. For a disk's breadth all round the disk, the fundus had a pale bleached look. The retinal vessels appeared small, and the veins were tortuous.

There was no paresis of the external ocular muscles.

The pupils were inactive to light, and were 3 m.m. in diameter. Vision nil.

The atrophy of the optic nerves in this case must have followed an optic neuritis or choked disk occurring during intrauterine life, brought on most likely by an ante-natal meningitis. That the condition was due to congenital syphilis was rendered pretty certain by the development of the early lesions, including the iritis, in the child, and from the maternal history.

Case 43. Syphilitic endarteritis;
Homonymous hemianopsia.

Claud S., aet. 36, sea-captain, was seen on Dec. 13th. 1899. Two days previously a right hemiplegia had developed. The onset was acute, the paralysis beginning in the right leg, and extending in the course of 12 hours to the right side of body, arm, and face.

The patient had never been deeply unconscious, and could always be roused by speaking loudly to him.

When first seen both pupils were equal, measuring 3 m.m., and gave no response to light. Conjugate deviation to the left was marked. The right hemiplegia was complete.

On fully recovering consciousness, aphasia with right hemianaesthesia was noted, and a right homonymous hemianopsia was also found to be present.

The fundus was normal in both eyes.

The aphasia entirely disappeared in the course of a fortnight; the paralysis of motion cleared up slowly and almost completely, the right leg only showing a slight drag on walking; the hemianaesthesia improved in a less marked way, sensation remaining considerably impaired.

The hemianopsia remained unchanged, and the Argyll-Robertson pupil was persistent throughout.

Four months after the first attack a second haemorrhage occurred, with right hemiplegia and profound coma, and death took place four days later.

The patient had contracted syphilis six years previously, and had been treated for a year.

The lesion here was evidently a haemorrhage due to disease and rupture of one of the lenticulo-optic arteries supplying the posterior limb of the internal capsule.

Case 44. Paralysis of the third nerve.

Archibald A., aet.28, clerk, was admitted to the Glasgow Eye Infirmary on Feb. 2nd.1899, suffering from a complete paralysis of all the external muscles supplied by the third nerve of the left eye, and a paresis of the sphincter pupillae and the ciliary muscle.

For the past five weeks he had had severe supraorbital neuralgia, usually very severe at night, and two weeks ago the upper eyelid began to droop and he saw double. Latterly the ptosis had been so complete as to prevent the diplopia causing him any trouble.

On raising the lid the eyeball was found to be rotated downwards and outwards, and it was in this direction alone that any movement of the eyeball could be made. The pupil measured 5 m.m., but the ophthalmoplegia interna was only partial as a sluggish response was obtained to light and accommodation.

V.A.R. 6/6 J 1. V.A.L. 6/9 J 6.

On holding up the eyelid, the typical crossed diplopia of a third nerve paralysis was readily obtained.

History of gonorrhoea and syphilis three years ago.

As the paralytic symptoms showed that the whole third nerve was implicated, the lesion was presumably basal, and any doubt on that point was removed by the association of the third nerve lesion with a lesion of the ophthalmic division of the fifth.

The diagnosis was "a limited intracranial gummatous meningitis near the sphenoidal fissure", and treatment by biniodide of mercury brought about a cure in the course of six weeks.

Case 45. Mydriasis; Facial paralysis.

Mary W., aet. 37, housewife, was admitted to the Glasgow Eye Infirmary on June 12th. 1899, complaining of inequality in the two pupils for the past two weeks. She denied having used any drug.

The vision of the right eye had been defective from childhood, and on the cornea of this eye there was a fine central nebula, such as might be left after a superficial ulceration during conjunctivitis neonatorum.

V.A.R. 6/60. V.A.L. 6/6 J 1.

The right pupil was widely dilated (7 m.m.), and made no response to light or accommodation. There was no evidence of past iritis, and the pupil contracted readily and circularly on the instillation of eserine. With the contracted pupil distant vision was improved to 6/24.

The movements of the extraocular muscles were normal.

The left side of the face was distinctly flat and expressionless, from obliteration of the facial lines, There was a distinct paresis of the muscles supplied by the left facial nerve. This facial condition had not attracted the patient's attention, and was probably recent.

Syphilis contracted 7 years previously.

In this case there was a lesion of the anterior part of the third nerve nucleus on the right side, and of the seventh nerve nucleus on the left, and from the length of time that had elapsed since infection, the probability was that the lesion was due to vascular disease.

This patient only attended the Dispensary twice, so that a note of the further history cannot be given.

Case 46. Ophthalmoplegia interna.

Jane M., aet. 41, housewife, was admitted to the Glasgow Eye Infirmary on July 25th. 1898, suffering from defective vision in the right eye, which was said to have come on gradually during the past two weeks.

V.A.R. 6/60. V.A.L. 6/24.

Pupils unequal. Right 8.5 m.m. Left 2.5 m.m.
The right pupil gave no response to light, while the left was active to direct and consensual stimulation.
Fundus normal in both eyes. Refraction hypermetropic.

V.A.R. $\bar{c}$ +2.25 D. 6/12. V.A.L. $\bar{c}$ +1.50 D. 6/12.

History of specific infection 8 years ago. General health had been very poor for some years past.

Under treatment by biniodide of mercury, and later by iodide of potassium and syrup of the iodide of iron, the ophthalmoplegia finally got well, although during the time the patient was under treatment, the condition showed a great tendency to recur after temporary improve-ment.

The lesion here was diagnosed as nuclear, as there was never any further involvement of the third nerve, or implication of any of the other cranial nerves.

Case 47. Ophthalmoplegia interna bilateralis.

Annie L., aet. 32, housewife, was admitted to the Glasgow Eye Infirmary on June 7th. 1900, complaining of defective vision for near work for the past three months.

V.A.R. 6/6 J 4. V.A.L. 6/9 J 8.

Hypermetropia 1 D. Fundus normal in both eyes.

V.A.R. $\bar{c}$ +1 D. 6/6. V.A.R. $\bar{c}$ +1 D. 6/6.

V.A.R. $\bar{c}$ +2 D. J 1. V.A.L. $\bar{c}$ +3 D. J 1.

Pupils unequal. Right 3.5 m.m., and reacted sluggishly to light and accommodation. Left 6 m.m., and giving no reaction.

The movements of the extraocular muscles were normal.

Syphilitic infection 6 years ago, and since then the patient had had two miscarriages.

The lesion in this case must have been due to a syphilitic endarteritis, implicating the vessels supplying the anterior part of both third nerve nuclei, and the left one more than the right.

Case 48. The Argyll-Robertson pupil.

Peter J., aet. 50, engineer, was seen on Dec.15th.1899., complaining of defective near vision. Up till that time he had worn no presbyopic correction.

V.A.R. 6/6 J 2. V.A.L. 6/6 J 2.

Both pupils were equal and measured 2.5 m.m. in diameter. The direct pupillary reflex to light was absent, but the pupils were active on convergence and accommodation. The fundus was normal in both eyes. No refraction error.

V.A.U. $\overline{c}$ +2 D. Sph. J 1 easily.

Knee jerks absent, but no other symptoms suggesting tabes, and the patient considered himself in good health.

Contracted syphilis 12 years previously, and had been treated for a year. Never any further development of the disease to his knowledge.

This patient was again seen recently, and the Argyll-Robertson pupil was still typically present, without any further symptoms of cerebral or spinal degenerative change, beyond the continued absence of the patellar tendon reflex.

The persistence of the Argyll-Robertson pupil certainly

points to a degeneration of Meynert's fibres, and in combination with the absent knee jerks, suggests that at some future period tabes is likely to develop.

Case 49. Paralysis of the sixth nerve.

Elizabeth D., aet. 36, housewife, was admitted to the Glasgow Eye Infirmary on Dec. 13th. 1898, complaining of diplopia of two months duration.

History of specific infection 5 years previously.

For two weeks before the onset of the diplopia there had been severe headache, specially severe at night, and always confined to the back of the head.

After the diplopia appeared the headache was even more violent.

Convergent strabismus in left, and this eye could not be rotated out beyond the middle line. Diplopia homonymous, the separation of the images increasing as the object was carried to the left.

The paralysis of the sixth nerve was the only symptom of cerebral syphilis, and the severe headache made it prob-able that the condition was due to a gumma, rather than to a nuclear affection.

The patient was put on biniodide of potassium. Two weeks later all the head pain had disappeared, and the eye could now be carried outwards beyond the middle line.

In a month the corneal margin could be buried under the outer canthus, and the diplopia had entirely disappeared.

Case 50. Paralysis of the sixth nerve;
Secondary atrophy of the optic nerve.

James G., aet. 30, traveller, was first seen on Feb. 9th. 1900. He had suffered from diplopia for about a year past, and had been under treatment for six months without apparent benefit.

History of syphilitic infection six years previously.

The left external rectus was completely paralysed, with secondary contracture of the internal rectus.

The eye was in the position of a convergent strabismus, and could not be brought out to the middle line.

Homonymous diplopia. The visual acuteness of both eyes was equal, and the ophthalmoscopic appearances were normal.

V.A.R. 6/6 J 1. V.A.L. 6/6 J 1.

The patient was next seen on June 23nd. 1901, when he came stating that for the past three months the visual acuteness of the right eye had been gradually failing, and that since the visual acuteness became so defective the diplopia had disappeared.

V.A.R. 6/60 J 19. V.A.L. 6/6 J 1.

On looking straight forward there was little apparent squint, but abduction was defective in both eyes, and on reaching the limit of abduction, nystagmus appeared in the abducted eye.

Pupils active in both eyes to light and convergence.

Left side of face showed a lack of expression from obliteration of the facial lines, and on speaking the facial muscles of that side became tremulous and their movements appeared exaggerated.

Ophthalmoscopic examination showed that the right disk was atrophic, the pallor being specially marked on the temporal side. The arteries were small, and the veins appeared unchanged in calibre. The visual field of this eye showed marked peripheral contraction for white, and even more pronounced contraction for coloured objects.

The left fundus was normal.

When first seen the lesion was supposed to be nuclear, as the paralysis of the left external rectus was, and had been, his only complaint. It was further thought unlikely that the condition would improve as it had been in evidence for a year. Yet, on being seen 18 months later the power of contraction in the left external rectus had

returned to some degree, and there was then a partial paralysis of the right external rectus, with involvement of the facial nerve on the left side, and a secondary atrophy of the right optic nerve.

The only syphilitic lesion likely to involve all these structures must have been a basal one, either a widespread chronic gummatous meningitis, or multiple gummata. It is also possible that a number of different focal lesions, nuclear and basal, could have given rise to the condition, but the history of the case renders that improbable.

Under treatment by iodide of potassium and syrup of the iodide of iron marked improvement took place in the paresis of the sixth nerves, and in the facial condition. The secondary atrophy of the optic nerve, as was to be expected, became more marked, and vision was further reduced to the bare perception of light.

This case exhibited some of the marked characteristics of cerebral syphilis, viz., a random association of symptoms, a tendency to remission and relapse, and a ready amenability under appropriate treatment.

Case 51. Gumma of the orbit.

Elizabeth S., aet. 41, housewife, was seen on Sept. 6th. 1901, complaining of drooping of the right eyelid, diplopia, and protrusion of the eyeball.

The diplopia had been present for three weeks, and the proptosis for one week past.

Ptosis, with distinct exophthalmos. On raising the eyelid, the eyeball was found to be slightly abducted, and the only direction in which voluntary movement could be made was a very limited rotation inwards. The pupil was 5 m.m. in diameter, and gave a feebly perceptible response to strong light, and none to accommodation.

Crossed diplopia.

On pressure on the eyeball through the closed lids backwards towards the apex of the orbit, discomfort, which did not amount to actual pain, was complained of. No tumour could be felt on palpation, merely an undefined feeling of resistance.

Syphilitic infection 10 years previously.

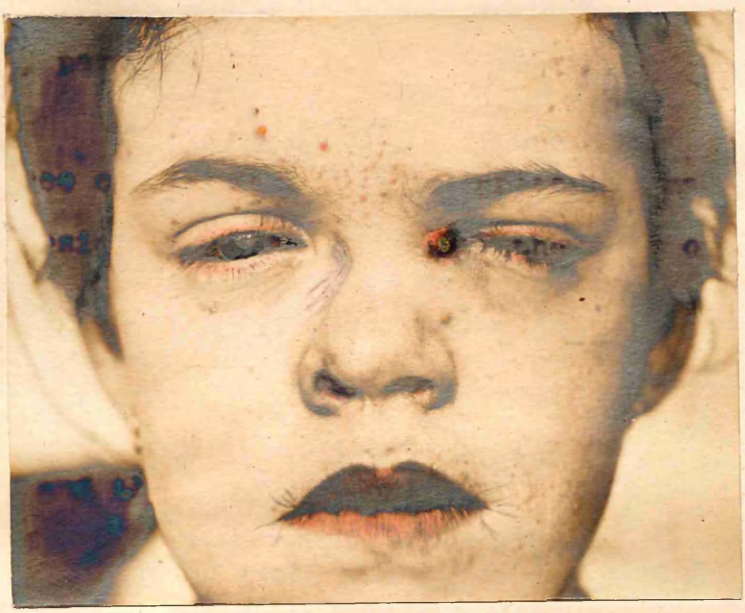
In this case there was an ophthalmoplegia affecting all the muscles of the eyeball, partial so far as the third

nerve was concerned, as the pupil reflex was not quite absent, and the internal rectus still made an effort to adduct the eyeball. The fourth and sixth nerves were completely paralysed.

The absence of acute pain on pressure made it likely that the lesion was a gumma at the apex of the orbit, rather than a periostitis.

Under treatment by biniodide of mercury, the proptosis subsided, and the normal movements of the eyeball slowly returned.

Case 53. Orbital periostitis; Lachrymal fistula.



This patient was admitted to the Glasgow Eye Infirmary, under the care of Dr.Hinshelwood, to whose kindness the author is indebted for having been able to obtain the characteristic photograph, and for permission to include it here.

The physiognomy is quite typical of inherited syphilis. The teeth were also characteristic, and the patient suffered from interstitial keratitis in both eyes.

There had been a periostitis and lachrymal abscess in

the right at a previous date, from which recovery had been complete. The skin over the region of the lachrymal sac was cicatricial and adherent to the deeper parts.

The affection of the left sac had begun as an orbital periostitis, going on to suppuration of the sac, prelachrymal abscess, and fistula.

The site of the prelachrymal abscess and fistula is characteristic of an acute dacryocystitis originating in an orbital periostitis implicating the orbital margin of the lachrymal grove, as the abscess has pointed above the internal orbital ligament, and the fistulous opening is situated above the inner canthus, while the usual site of pointing in lachrymal abscess arising in the ordinary forms of acute dacryocystitis, is below the ligament.