

DETACHMENT OF THE RETINA.

For some centuries before the introduction of the ophthalmoscope detachments of the retina coming far enough forward to be seen behind the dilated pupil were confounded with glioma and conditions now known as Pseudo-glioma under the common name of "Amaurotic Cats-eye."

In the "Traite des Maladies des Yeux" by Saint-Yves published in 1722, a very clear description is given of the Anatomical appearances of eyes affected with retinal detachment.

The following description taken from Wharton Jones' "Manual of Eye Diseases" (1847) is a fair summary of what was known of this condition up to the time of the invention of the ophthalmoscope.

"In sub choroidal dropsy, by the pressure of

the accumulated fluid, absorption of the vitreous is apt to be caused and consequent co-arctation of the retina into the form of a cone, having its base at the lens and its apex at the optic disc. The retina thus crumpled together appears as an opaque body behind the dilated and perhaps misplaced pupil, and has been mistaken, sometimes for cataract, sometimes for fundus disease of the eye."

The introduction of the ophthalmoscope has enabled us to detect clinically even very shallow detachments, when they occur in the posterior part of the globe, and to form an accurate diagnosis, in a very great number of cases, between simple detachment and other conditions which to naked eye appearance closely resemble it, but of which the treatment is altogether different.

AETIOLOGY. Detachment of the retina is a not very uncommon result both of injuries and of diseases of the eye. It may also occur without any apparent pre-existing lesion.

The following are the most common conditions of the eye in which detachment is apt to occur.

1. Myopia.
2. Spontaneous Subretinal Haemorrhage.
3. Retinitis, Retino-Choroiditis, Irido - Cyclitis.
4. Cystic degeneration.
5. Subretinal Cysticercus.
6. Tumours.
7. Congenital.
8. Traumatism.
9. Purulent Inflammation.
10. Idiopathic.

1. MYOPIA. Retinal detachment is a frequent result of those diseased processes which cause a high and progressive myopia. In such cases the whole eye is unsound. There is a gradually increasing elongation of the eye ball, and very often there is posterior Staphyloma. The Choroid is stretched

and thinned, and atrophied in places. It generally also shows chronic inflammatory changes, especially in the region of the macula. Floating opacities are often seen in the vitreous.

As the same process generally goes on in both eyes, retinal separation is very apt to occur in both; though very seldom simultaneously, and often with an interval of many years.

But one very frequently finds that eyes in which the retina is detached have quite a low grade of myopia and no apparent choroidal disease. The detachment in these cases could scarcely be due to a mere mechanical stretching. Yet the association of retinal detachment and a moderate degree of myopia is so frequent that it can scarcely be a mere coincidence.

2. SPONTANEOUS SUBRETINAL HAEMORRHAGE. Spontaneous Subretinal Haemorrhage may take place from a ruptured Choroidal or Retinal vessel.

The extravasated blood may strip up the retina from the choroid, to a considerable extent. Sometimes one gets a history of sudden dimness of sight occurring after stooping or violent coughing. I saw an elderly patient at Moorfields last year suffering from detachment, who stated that he "distinctly felt something give way in the eye while stooping to lace up his boots."

More often however the patient complains of dimness of sight or loss of part of the visual field of one eye, without being able to assign any precise cause or date.

The causes of Subretinal Haemorrhage are the same as those of cerebral haemorrhage e.g. degenerative vascular changes with high blood pressure.

It is also said that conditions in which the quality of the blood is altered, as in anaemia and haemophilia, predispose to Subretinal haemorrhage, though I have never seen a case which I have attributed to either of those causes.

3. RETINITIS, RETINO-CHOROIDITIS, IRIDO-CYCLITIS &c. In excised eyes detachment is often seen with plastic inflammation of the above types. Clinically its diagnosis is often a matter of very great difficulty, owing to the intransparency of the media which so often accompanies these conditions.

In retinitis due to renal disease detachment, usually central, may be caused by subretinal exudation. In these cases the media may remain clear so that the detachment may be detected ophthalmoscopically.

In plastic inflammations of the choroid, retina, or ciliary body inflammatory products are thrown out into the vitreous. During the subsidence of the inflammation, these inflammatory products by contraction cause a shrinking of the whole vitreous. This shrinking of the vitreous is, by many authorities, considered to be the cause of the detachments so often found in excised shrunken eyes.

4. CYSTIC DEGENERATION. Cystic degeneration of the retina may cause its detachment. It is not often found ophthalmoscopically.

Dr. Thompson of Cardiff reports a case in which a cyst was seen projecting forward so as to hide a portion of the retina which was extensively detached. It was semi-transparent and some small branches of the retinal vessels turned up over its surface. (Trans. Ophth. Society Vol. X. P 151.)

5. SUBRETINAL CYSTICERCUS. Cysticercus between the retina and choroid may produce considerable detachment of the retina if it should move from its original position. It can be recognised in the detachment as a sharply defined bluish white body with a very bright spot indicating the position of the head. Wavelike motions can generally be seen in the cysticercus and delicate veil-like opacities in the vitreous. At a meeting of the Ophthalmological Society last year Mr. Nettleship described a case in

which the cysticercus appeared as a large round greyish body on the outer side of the fundus. Later he saw the crown of hooklets and movements of the suckers, and later still, found a large detachment of the retina; the cysticercus being loose in the eyeball.

6. TUMOURS. Tumours of the choroid are often seen covered by the detached retina though more often the retina is deficient over a part of the tumour. The diagnosis between tumour and simple detachment will be considered later.

7. CONGENITAL. Cases which are evidently congenital are occasionally seen. Waller in the Zurich clinic has described two. The following is a brief note of a case which came to the Ophthalmic Department of the West Ham Hospital on the 19th. July 1900.

Mildred Bridge aet 3½ years. Left eye - Total Detachment of retina. The whole retina, deeply

pigmented, and having two or three large rents in it, was seen stretching from the disc towards the ciliary region. In the Right eye she had the so-called coloboma of the macula. Her mother had taken her to Moorfields at the age of 5 weeks, and on the old hospital letter were similar notes.

Her father had the so-called coloboma of the macula and a convergent squint of the right eye which was said to have dated from his birth.

8. TRAUMATISM. Detachment is sometimes the result of a simple blow on the eye. There is no definite relation between the force of the blow and the occurrence of separation of the retina. In some eyes a slight knock will cause it, while in others there will be no detachment even after a very severe blow. Wounds, either accidental or operative, may be followed by detachment, which may be either an immediate effect of the injury, or may be the result of subsequent inflammatory changes.

In the former case the separation may be caused by the entangling of the retina in a contracting scleral wound, or may be due to loss of vitreous as sometimes happens in operations for glaucoma or cataract. In the latter case the separation may be caused by a septic condition of the wound setting up a purulent inflammation of the vitreous. The contraction of the vitreous following this inflammation, would peel off the thickened and inflamed retina.

Foreign bodies lodged in the eye may cause shrinkage of the vitreous and detachment.

9. PURULENT INFLAMMATIONS. Apart from traumatism purulent deposits as sequelae after such febrile processes as Cerebro-Spinal meningitis or the eruptive fevers may form behind the retina and cause its detachment.

10. IDIOPATHIC. In many cases, however, no antecedent intra-ocular mischief can be found to account for the detachment. The patient may have

complained for a few days, of dimness of sight, or of sparks dazzling before his eyes, or of other subjective sensations, but very often sudden partial, or total, loss of sight in one eye comes on without premonitory symptoms. Perhaps on waking in the morning the patient finds that one of his eyes is blind; or a fit of coughing or some sudden exertion may be followed almost immediately by a greater or less defect in vision. Sometimes it is found that the subjects of these idiopathic detachments suffer from one or other of the constitutional diseases such as rheumatism, gout, etc., but, in view of the great frequency of these diseases, no great importance can be attached to the coincidence. A history of acquired syphilis, however, is so often obtained in these cases, that it would seem as though there must often be some causal connection between it and the detachment, although none of the ordinary syphilitic affections such as Iritis, choroido-retinitis etc., are to be found.

MORBID ANATOMY.

The detached retina in recent cases is still translucent, in older cases it is much thickened and opaque from oedema and hyperplastic inflammatory changes, whilst in very old standing cases it becomes very tough and fibrous and may nearly fill the vitreous chamber. The extent of the detached portion varies greatly. There may be only a slight ruffling of the membrane showing as ridges running towards the equator; but generally the displacement from the choroid is much greater and the membrane hangs down or bulges up into the vitreous chamber in folds, often extending as far forward as the ora serrata. It is very often found to be torn perhaps in more than one place. If an eye be examined in which the detachment is quite recent the retina can be generally replaced smoothly over the choroid: but where the separation is of longer standing it will be found that the folds into which the membrane is

thrown, are so rigid that it can hardly be re-adapted to the choroid.

In complete cases the retina is detached from the optic disc to the ora serrata presenting a funnel shaped appearance. It is never detached from the optic disc, and very seldom except in traumatic cases from the ora serrata. Sometimes there is cystic degeneration. And in old cases bone lamellae or lime salts, or pigment deposits may be found and frequently cholesterin crystals.

Microscopically. In recent cases the layer of rods and cones has been found detached from the other layers and is sometimes found to be much thickened. Where the detachment has lasted for some time there is atrophy of this layer, and the whole retina is found to consist of fibrous tissue the blood vessels also becoming sclerosed and obliterated.

The subretinal space contains a fluid rich in

albumen, sometimes clear, more often turbid. Its place in rare cases is taken by coagulated blood.

Occasionally the choroid has been found detached with the retina.

Mr. Adams Frost describes a case in which the choroid was completely detached except at the optic disc, and formed a sheath round the retina. Schobl also mentions a case of detachment of the choroid with the retina.

Mr. Treacher Collins has recorded two cases in which he found on microscopic examination small pieces of retinal tissue adherent to the choroid there being ruptures in the retina corresponding to these pieces.

The vitreous is generally shrunken and retracted from the fundus.

Microscopically it shows proliferation of its connective tissue elements and fibrillary prolongations which are found to be adherent to the anterior

part of the retina. The interstices are filled with serum in which are generally floating opacities, and often cholesterin.

Other morbid changes often found in these eyes are: -

Iritis and Posterior Synechiae.

Posterior Polar Cataract.

Sometimes opacities in other parts of the lens and sometimes in old cases complete cataract.

PATHOLOGY.

In the majority of cases a chronic Choroiditis may be regarded as the ultimate factor in the production of detachment of the retina.

According to Leber and Nordenson this choroiditis, either by exudation into the vitreous or by altering its nutrition, causes it to shrink and also causes a proliferation of its fibrous elements with the production of fibrillae which become adherent to the anterior part of the retina. As the

vitreous contracts, a space is formed between it and the retina which becomes filled with serous fluid. The traction of these fibrillary bands on the retina often causes it to tear and the fluid then makes its way behind the retina which it separates from the Choroid.

They consider that most cases of sudden non-traumatic detachment are to be explained in this manner, but that in cases of slower onset a tear is not necessary as the retina is slowly drawn forward by the contracting vitreous and the fluid filters through into the space thus formed behind the membrane.

Raehlmann (Archiv fur Augenheilkunde Bd. XXVII pt. 1. p.1. 1893) does not accept this explanation. On anatomical examination he has found many cases of detachment in which there was no tear and again many cases of extreme retraction and condensation of the vitreous without detachment, and again cases

of detachment in which the vitreous is not only not shrunken but is fluid. He also thinks that there is no proof that the vitreous condensation occurs before the detachment, but considers that very probably in many cases at any rate, it occurs as part of the general degenerative change which slowly goes on after detachment has taken place.

From the results of many experiments he believes that there is a choroidal exudation behind the retina and that owing to the greater tension of this fluid compared with that in front, the latter will diffuse through, and the pressure of the fluid so accumulated will cause the detachment of the membrane. The weight of this fluid he believes may cause the tears.

Mr. Treacher Collins considers that probably **R**raehlmann's experiments afford the true explanation of most cases of detachment. Mr. Collin's does not

think that mere tears caused by traction of the vitreous would be seen with the Ophthalmoscope; but, as occasionally breaks in the continuity of a detachment have been seen where the retina would appear to be more firmly attached to the choroid, and as he has in two cases of detachment which he examined microscopically found small pieces of retinal tissue on the choroid and corresponding ruptures in the retina, he is of opinion that the pressure of the accumulated subretinal fluid forces the retina forward and that it tears at these patches which are left attached to the Choroid, and that the ruptures are thus produced.

Many other theories have been advanced to account for the incidence of detachment of the retina. Amongst others may be mentioned:-

1. THE DISTENSION THEORY. Von Graefe thought that in myopic eyes the outer tunics elongated to a greater extent than the retina could, and

that the latter thus became detached.

2. THE SECRETION THEORY. Arlt, Schmidtwinckler and others considered at one time that detachment might be due to subretinal secretion caused by a chronic choroiditis, the vitreous at the same time shrinking from exudation into its substance. It seems very probable that some of the slowly developing cases of detachment are caused in this way.

3. HAEMORRHAGES BEHIND THE RETINA. Cases of detachment occurring after wounds with loss of vitreous are likely caused directly by the extravasation of blood beneath the retina. We can hardly account for ordinary cases of detachment in this way as in them the tension is generally lowered or at most normal, while after extravasation of blood into the eyeball one would expect to find the tension raised.

On the whole Raehlmann's theory seems to

account most satisfactorily for the clinical and pathological appearances seen in detachments.

Fibrous bands are no doubt sometimes found in the vitreous in excised eyes, but more often than not in these eyes there is no detachment - on the other hand in the great majority of cases in which detachment is found on pathological examination bands in the vitreous cannot be demonstrated.

It has been urged in objection to this theory that detachments which are supposed to have occurred almost instantaneously could not have been due to this cause, but it is highly improbable that detachments other than those due to haemorrhage or traumatism ever do occur with this extreme suddenness. It is extremely common for a patient who has previously had two good eyes to present himself with a detachment in one eye, and to declare that the blindness in this eye came on instantaneously. In all probability, however,

the patient having one good eye, did not notice the defect in the other till some accidental circumstance drew his attention to it. It is extremely rare for a patient who has previously lost the use of one eye to assert that the blindness in the second came on instantaneously.

SYMPTOMS. One sometimes gets a history from the patient of various subjective sensations, such as dark spots floating before the eye, flashes of light and attacks of dimness of sight: but very often the first thing he notices is the sudden loss of a greater or less part of the visual field of one of his eyes. If the other eye be sound it may happen that he cannot give the exact date of the onset, some chance closure of the sound eye having revealed the defect.

A waving black cloud hanging across the affected eye seems to interfere more or less with its vision. Objects if still seen are more or less indistinct and distorted. Pain is not complained

of except there by some complication.

The light sense is always reduced from the first and generally gets worse as times goes on. Sometimes even perception of light is lost.

Central visual acuity may be normal if the detachment only occurs in a more or less peripheral part: but even in these cases is most commonly much impaired from the first.

The impairment of the field of vision is very characteristic. The peripheral field may be quite lost, while fair central vision is ^{re}obtained. Most often the defect is confined to a greater or less segment of the field and generally extends to the periphery.

OPHTHALMOSCOPIC APPEARANCE.

Where the detachment comes very far forward it may be seen as a grey reflex by oblique illumination or even sometimes with the naked eye.

In ordinary cases the detachment is readily seen by the indirect method. It shows as an ashy grey or opalescent bulging on the general red of the fundus, hanging down in loose folds or rising up somewhat wavelike from the lower part of the field. If the eye be moved in various directions a tremulous motion is set up in the detachment, the retinal vessels look smaller and darker in colour than over the rest of the fundus, they are tortuous and appear to be broken where they dip into the furrows.

With the erect image the detached portion is found to be out of focus with the rest of the fundus, a stronger plus or weaker minus lens being required to make it distinct, which shows that it is in front of the focal plane of the eye.

Parallactic movement too, can often be made out between it and the choroid. The vessels have lost their light streak and often appear chocolate

coloured and shrunken. Rents may be found through which the red choroid is visible.

Sometimes however there is no difference in colour, in recent cases, between the detached portion and the rest of the fundus, the retina retaining its transparency and the sub-retinal fluid remaining clear.

The detachment in these cases can only be recognised by the difference in refraction from other parts of the fundus; by the parallax between retinal and choroidal vessels; and by the tortuous course of the vessels and the loss of their central light streak. Sometimes whitish striae running equatorially can be seen: very seldom haemorrhages.

In old standing cases in which the media are still clear the detachment can be seen as a grey or greenish, or blueish membrane showing folds. In these cases the blood vessels are generally obliterated and often haemorrhages are to be seen.

The detachment is often found to be complete from the optic disc to the anterior limit of the ophthalmoscopic field and can be seen with a high plus lens as a funnel-shaped tube with ridges and depressions.

The retina has been seen detached all round the macula which appears as a cherry red spot in the greyish white detachment.

As a rule the tension of the eye is lowered: but may be normal. It is frequently, but by no means always, increased in those cases in which detachment is caused by intra-ocular growths.

The pupil is dilated and sluggish, owing to the impaired sensitiveness of the retina to light.

There are often posterior synechiae.

Floating opacities are frequently seen in the vitreous.

The amount of function retained by the detached retina varies very greatly in different cases.

Sometimes the retinal perceptiveness in the part detached would seem to be lost almost from the first, and it has often been found that in cases in which the retina becomes re-applied little or no improvement in vision occurs. In other cases the detached retina would appear to retain its function to a certain extent for a long time.

A case which I saw at Moorfields last year illustrates this very well.

The patient, a man aged 57 was admitted on the 27/4/98, suffering from a large opaque detachment of the upper and outer part of the left eye
 L.V. = $\frac{6}{60}$

He was ordered rest in bed on his back.

On 29th. May 1898 there was still extensive detachment but L.V. had improved to $\frac{6}{18}$ partly.

On the 25th. June 1898, after two more weeks in bed, there was still extensive detachment and

The patient at the time of examination could not count fingers. He said that he could see well when he got up but that after taking a bath the left eye had gradually failed again.

30th. July 1898. The ophthalmoscope showed detachments in all parts of the periphery coming nearest to the optic disc at the inner and lower part.

L.V. $c + 3D = \frac{6}{60}$ - unaided he could count fingers at 4 feet, and indistinctly see people in the room.

On 26th. May 1900 he came again to Moorfields saying that the sight of his right eye had suddenly failed the morning before.

On examination a large opaque detachment of the upper part of the retina was found hanging forward like the inside of a tent roof.

R.V. = finger counting a 2 feet. He was ordered rest in bed and scleral puncture was performed.

On 15th. June 1900 R.V. = $\frac{6}{12}$ fully.

On 17th. October 1900 R.V. was again finger counting at 2 feet. He said then that he could see fairly well in the morning but that the sight failed after two or three hours.

"He could see to eat his breakfast but not his dinner." This would appear to show that there was some function in the detached retina, for after his night's rest when the detached retina had probably sunk nearer to the fundus and so was more in focus, it had distinct increase in perceptiveness.

DIAGNOSIS.

In ordinary cases when the eye is examined with the ophthalmoscope mirror at a distance of about two feet the greyish reflex of the detachment will be seen. On approaching the mirror the difference in the refraction will show that part of the retina is in front of the focus of the eye.

Where a large part of the retina is only very slightly separated from the choroid especially if it be still transparent the diagnosis is very difficult. Some slight puckerings of the membrane running equatorially may sometimes be seen, and a difference in the refraction of the retinal vessels at different parts of the fundus can be made out, or between retinal vessels and the optic disc; and when the choroid^{al} vessels are to be seen one can sometimes make out a parallax between them and the retinal vessels.

Oedematous conditions of the retina sometimes simulate detachment and cases of this kind have arisen in which competent ophthalmologists have differed as to whether the retina was detached or not.

Rarely a condition somewhat resembling embolism of the central artery is seen. It is a shallow detachment round the macula and gives the

latter the appearance of the cherry red spot seen in embolism: the refraction and the difference in the blood vessels which are interrupted but are filled with blood, will distinguish the detachment.

It is exceedingly important from the point of view of treatment to decide as early as possible whether a case is one of simple detachment or of detachment caused by a tumour. A simple detachment has a smooth bluish-grey appearance; the vessels in it are the more or less altered retinal vessels, and if the detachment is at all deep, the detached retina may be seen to wave about when the eye moves suddenly.

A subretinal tumour, on the other hand, often has an irregular modular surface; vessels may often be seen in it which from their character and direction could not be retinal vessels; they are the vessels of the tumour showing through the retina.

If the patient is told to move the eye rapidly from side to side during the ophthalmoscopic examination, the retina is seen to move steadily with the eye, and not to wave about with the curtain like appearance usually seen with a deep simple detachment.

Another point in the diagnosis between sub-retinal tumour and simple detachment, and on which much stress is laid in the text books, is the tension of the eye. It is said to be usually low in simple detachment but raised in cases of intra-ocular tumour. This sign is often misleading. It is no doubt the rule but in many cases the tension is normal, so that although the tension of the eye gives some help it is by no means an infallible guide.

In the case of intelligent patients the history may give some help in the diagnosis. A detachment frequently comes on quite suddenly in the

course of a few hours. A tumour on the other hand begins insidiously and the loss of vision is slow and progressive. During the earlier stages of intra-ocular tumours an increase of tension usually occurs. The circumcorneal zone and scleral vessels are most commonly injected and the patient often complains of a dull aching pain in the eye. In fact it is frequently the redness of the eye and the aching which first bring him to the surgeon.

A careful consideration of all ^{these} points will usually enable a diagnosis to be made. When however any doubt remains, in view of the importance to the patient of an early diagnosis, one should not, as is sometimes done, trust to time to decide the matter. Puncture of the swelling through the sclerotic, if carefully performed with all anti-septic precautions, can do very little harm and usually will give the required information. Sometimes by rotating the eyeball the needle may be

thrust through the sclerotic behind the swelling without piercing the retina at all, but in other cases in which the swelling is small and situated towards the posterior pole of the eye this will not be possible. The needle must then be passed through the sclerotic anteriorly to the swelling and the retina pierced.

In his clinic at Moorfields Mr. Silcock applied this method to a case in which there was a small swelling towards the posterior pole of the eye. *the pupil was dilated and cocaineised.* Mr. Silcock then thrust a needle through the sclerotic on the temporal side and a little in front of the equator of the eye. Watching the point with the ophthalmoscope, he passed it into the anterior surface of the swelling. In this case the swelling proved to be a solid growth.

COMPLICATIONS.

In cases of primary retinal detachment the

most common complications are opacities in the vitreous, Lental opacities sometimes progressing to complete cataract, and chronic iritis with adhesions.

PROGNOSIS.

The prognosis is always very grave, but one cannot at all foretell to what extent the function of the retina will be affected. In the great majority of cases the field of vision corresponding to the detached portion is completely lost after a few days, whilst the visual acuity even over the attached part is usually much diminished.

It is not very uncommon, however, to find that the retina has retained a certain amount of perceptiveness even after it has been detached for some time. The case already quoted (page 26) is an instance in point. Many months after the onset of detachment this patient could see fairly well for

an hour or two after rising in the morning, the recumbent position during the night having probably allowed the retina to sink nearer to the focus of the lens system. In some instances the retina has become reattached either spontaneously or as the result of treatment; but even if the detachment should not recur, which it very often does, we find in very many cases that there is no great improvement in the sight.

The Detachment may not increase or it may go on extending till the retina is entirely separated. Extension of the detachment is very liable to occur where the displacement has originated at the upper part of the fundus. The subretinal fluid then tends to sink and so to separate the lower part of the membrane, the upper part either re-applying or remaining detached.

In ordinary cases of primary detachment often very little alteration is to be found in the eye

even years after the displacement; but sometimes cataract forms and sometimes secondary inflammatory changes are found.

Detachment is more common in men than in women. It most commonly occurs after the age of 45, but is not rare in young people. It is found with all states of refraction, but most often in myopia, in which according to German statistics 3 out of every 5 cases occur. In view, however, of the much greater frequency of myopia in Germany than in England the proportion here would probably not be so great.

TREATMENT.

If treatment can be undertaken very soon after the occurrence of detachment reapplication of the retina may sometimes be obtained with now and again practical restoration of the visual field corresponding to the detachment, and great improvement in the visual acuity of the eye. More often however,

the perceptiveness of the part which has been detached is not regained and the visual acuity of the eye remains impaired. In only very rare cases, too, does the retina remain reattached, the detachment tending to recur soon after the patient resumes his ordinary mode of life.

If the detachment be not recent it is ~~technically~~ ^{practically} useless to attempt to effect replacement by any form of treatment, for the folds into which the retina is thrown get so firm and rigid that even if the vitreous bands be cut and the subretinal fluid be evacuated, as is done in Deutschmann's operation, perfect reapplication over the choroid does not take place.

Many different methods have been advocated for effecting replacement of the detached retina.

1st. Rest in bed on the back for three or four weeks and with both eyes bandaged has sometimes proved successful.

In the following case of Mr. Silcock's (Trans. Ophthal. Society Vol. XIX p. 96) this treatment was successful.

Harry M. Aet 21. Attended Moorfields in May 1895 for Myopia. Vision in each eye C - 5D. sph = $\frac{6}{6}$

On October 14th. 1896 he came saying that everything had appeared blurred before before his left eye for a week.

Right vision still C-5D = $\frac{6}{6}$ Left vision = $\frac{1}{80}$ not improved. The whole of the nasal side of the visual field was lost: Ophthalmoscopic examination showed a shallow recent detachment in the macular region. The detached part extended out and down towards the periphery and was thrown into folds.

The patient was kept in bed on his back for five weeks with his eyes lightly bandaged. He was then discharged. There was no detachment and the visual field was full.

On July 11th. 1899. Left vision C - 6.5D.

sph. = $\frac{6}{6}$ partly. Vision was full and there was no detachment.

This eye therefore has remained well for nearly three years, the only alteration being an increase of 1.5D. in the myopia.

2. The plan first advocated by Sichel in 1859, consists in tapping the subretinal fluid by a scleral puncture combined with rest in bed and a bandage over the eyes. Sometimes sudorifics or purgatives or local depletion are added.

In the transactions of the Ophthalmological Society Mr. Bralley has reported three cases treated in this way. In the first vision was improved from blindness to $\frac{6}{24}$. In the other two the retina re-applied but there was little improvement either in the visual acuity of the eye or in the field of vision. In Mr. Spicer's case which I have already mentioned (Page 26) this treatment was followed in the right eye by improvement of vision from finger counting close to the face to $\frac{6}{12}$ fully. The ~~improve-~~

improvement however, was not maintained for very long, vision in two or three months time being reduced again to finger counting, except after his night's rest.

3. ELECTROLYSIS. Gillet de Grandmont cured a case of detachment by this means in 1894.

Mr. Simeon Snell reports the results of three cases of detachment treated by electrolysis.

In the first the detachment was rather lessened but there was no improvement in vision.

In the second there was little or no benefit at first but it was afterwards noticed that the detachment had much lessened and though there was no improvement in the field, the visual acuity had improved to $\frac{6}{24}$

In the third case considerable improvement resulted which was maintained for some months, after which the detachment partially reappeared. Still the vision remained better than before the operation.

CONTINUOUS DRAINAGE OF THE SUBRETINAL FLUID.

In 1877 de Wecker tried continuous drainage by means of a gold wire, but the result was not good and the risk of septic infection was great. Mr Eve has used a bundle of horse hair for a drain and reports a case in which improvement lasted for some months.

DISCISSION OF THE RETINA, was employed first by von Graefe, and has often been tried by others. Temporary improvements have sometimes resulted.

SUTURE OF RETINA TO CHOROID, was tried by Galezowski in 1896 but was unsuccessful.

Bowman's operation of Dislaceration of the Retina by two needles was also unsuccessful.

INJECTIONS OF IODINE or other fluid into the subretinal space has been tried, one or two successful cases have been reported but the results have generally been bad and death from meningitis following the use of such injections has occurred.

IRIDECTOMY has been tried but unsuccessfully.

TAPPING, the subretinal fluid and at the same time cutting the vitreous bands has been practised by Deutschmann.

In some of the cases treated by this method the retina has been readapted and sometimes improvement has been lasting.

A study of the results of these different forms of treatment will show that the more complicated methods do not compare favorably with the simpler.

It would seem that the best course to pursue in the treatment of a recent detachment is to keep the patient in bed lying on his back with the eyes lightly bandaged. If at the end of a few days it is found that the retina is not readapted to the choroid, then the subretinal fluid should be let out through a scleral puncture and rest and bandaging kept up for three or four weeks ~~or~~ longer. If at the end of that time there be no improvement, the

eye may practically be considered incurable.

PROPHYLAXIS. As it is well known that detachment of the retina is very liable to occur in progressive myopia a good deal can be done in such cases by careful management to prevent the catastrophe. The patient should not be allowed to do any fine work or to read in a bad light. Unless the myopia be low and he has worn glasses since youth the refractive error should not be fully corrected even for distance, and for near work he should have weaker glasses still, so as to avoid any accommodative effort. If, besides, the eyes are found to be generally unsound, he should be advised to give them all the rest he can, at any rate to give up reading or any kind of close work.

It is to be remembered that in idiopathic cases, as well as where myopia is the cause, detachment has very often been found to occur in both eyes. The onset in one eye however, being generally separated

from that in the other by a long interval of time. The patient should therefore be warned of the possibility of detachment taking place in the sound eye, and if he be suffering from any constitutional dyscrasia, such as gout or syphilis, it should be carefully treated, in view of the possibility of their being factors in the production of detachment.