Selected cases of injury of the eyes / Henry Power.

SELECTED CASES

OF

INJURY OF THE EYES.

BY

HENRY POWER.

THE following cases of accident that have occurred, during the last year, in the practice of the Hospital (some under the care of Mr Vernon, and some under my own), as well as some that have come under my care at St Bartholomew's Hospital, Chatham, have, for the most part, been selected with a view of illustrating the remarks made in my paper in the Reports for 1874, to the effect that in all cases where there are good grounds for believing that a foreign body has entered and lodged in the vitreous, the proper treatment—in the working classes, at least, who cannot afford to remain idle—consists in the immediate or speedy removal of the globe. In such cases the vision of the injured eye is practically lost, and its enucleation spares the patient much suffering from the swelling of the lens and inflammatory tension of the globe, and much loss of time during the period of recovery, if it should, as in rare cases it does happen, that the foreign body becomes encysted; and lastly, all risk of sympathetic ophthalmia.* I am indebted to the Ophthalmic House-Surgeon, Mr Reid, jun., of Canterbury, for the abstracts of the cases from the notebooks of the Hospital, and to Mr R. Cobb of St Bartholomew's Hospital, Chatham, for those from Chatham.

* Other cases, on the other hand, show that recovery may take place from very severe injuries, if the patient be submitted to appropriate treatment immediately after the accident, providing no foreign body has lodged in the interior of the eye. The presence of a foreign body in the eye may in general be determined by consideration of the circumstances of the accident—such, for instance, as the nature of the work on which the patient is engaged; distance from a gun; the existence of a wound traversing the cornea or sclerotic; wounded or prolapsed iris, with indications of inflammation, after a few days traumatic cataract; and generally more or less pain in the injured eye.

CASE I.—*Wound of Eye with Fragment of Steel—Iritis, limited Hyalitis—Seven weeks after, Sympathetic Ophthalmia—Enucleation of injured Eye—Immediate subsidence of Sympathetic Ophthalmia.*

Frederic Myles, 31, an engraver (die-sinker). Sept. 5th, 1874. —Whilst at work a piece of steel struck inner side of left cornea, producing a large irregular abrasion; it was supposed not to be within the globe. He was treated with a poultice previously to appearing at the Hospital.

On admission, in addition to the superficial nebula, over the inner portion of the cornea, iritis and signs of deep-seated inflammation of the globe were present. There was a small tag of adhesion between the iris and lens at its lower and inner part. On the posterior surface of lens there seemed to be a small deposit of lymph; a well-marked and peculiar greenish-yellow reflex was also observed from fundus. The vision was so far reduced that he could only distinguish light, T.n., though he complained of a sensation of his eye being very full. RE.v=$\frac{20}{20}$. Six leeches were at once applied, and solution of atropine (gr. iv. ad ℥j.) dropped in three times a day, from which he experienced great relief.

On 17th the effusion of lymph behind lens had increased, and the vision became more impaired with T–1.

On 29th, sleep disturbed from pain (pricking) and lachrymation—can just perceive light T–1½. Right eye lachrymates.

Oct. 6.—Left eye very vascular, circum-corneal zone. Iris very irregular, and does not act to light. No anterior chamber, lens and iris pressed forward, T–2, much lachrymation. A circular patch of lymph visible at back of lens, periphery transparent. Right eye looks irritable, and lachrymates, but gives no pain. Sympathetic irritation being clearly established, Mr Power removed left globe under chloroform. On examining this globe, the wound in the cornea could only be recognised as a small abrasion on close inspection with a lens; no anterior chamber; iris rotten, infiltrated with lymph; lens quite transparent but soft; vitreous fluid diminished in quantity; a round patch of lymph at centre of hyaloid membrane and adhering to posterior part of lens, in which a small chip of steel was found about the size of a large pin's head; retina rather thickened and whitish, easily separable from choroid, which latter was healthy, and neither too strongly nor too feebly adherent to sclerotic. This man expressed the relief he felt in his right eye on the next day. On 9th, R.V=$\frac{20}{20}$ T.n., some slight lachrymation and pain still. 13th—got up, right eye quiet. 14th—wore a shell; and on 31st was discharged with a glass eye, having perfect movement in the stump. This case shows several points very

clearly: First, that severe inflammation, involving all the tissues of the eye, may be established by the entrance of a foreign body into the vitreous, the lens remaining transparent. Secondly, it would seem that the opacity noticed behind the lens, and which was seated in the vitreous, was due to the multiplication of the connective tissue corpuscles, or nuclei, forming part of the vitreous itself, and was not the result of the migration along the track of the wound of the white corpuscles of the blood, since in that case a streak would have been visible, extending from the periphery to the centre; whereas the central white patch was quite sharply defined. Thirdly,it shows well the ordinary period (six to eight weeks) at which the first symptoms of sympathetic ophthalmia commonly make their appearance. The very slight perception of light that commonly exists in cases similar to the foregoing, and the pain and irritation that are felt on the opposite side on contraction of the pupil of the injured side, are circumstances that strongly support the view that the reflex irritation is conducted through the ciliary fibres of the fifth, supplying the iris and choroid, and connected with the ciliary ganglion. The complete relief afforded by the operation, and the permanent recovery afterwards, are satisfactory evidence, if evidence were required, that it is not too late to resort to enucleation even when the symptoms of irritation have become fairly established in the uninjured eye.

CASE II.—*Gunshot Wound in Left Eye—Traumatic Cataract.* (*Only one No.* 6 *shot entered.*)

Walter Sayers, 30 years, labourer, from Horsham, injured December 1st. *December 8th.—Iridectomy. December 15th.—Lens extracted. January 5th.—Sympathetic Irritation. January 7th.—Excision of Eyeball—Recovery of sympathetically-affected eye.*

One week before admission was shot in left eye with No. 6 shot; then suffered much pain for twenty-four hours, which has recurred at intervals since, though not in a severe form.

On admission, December 7th.—Shot had evidently entered cornea at upper part, midway between pupil and corneo-sclerotic margin, in the vertical line a little outside it; in front of iris, near pupillary margin, below centre of pupil, is an irregularly shaped body of a dark colour, with small patches of lymph on it; above situation of this, on cornea, is a white, roughened patch, extending into conjunctiva, of effused lymph. Cornea is clear in other parts. Lens opaque. Pupil is irregular and drawn to outer side. Fundus cannot be lighted up. Iris muddy and immovable. Ciliary congestion. T + 1. L.V. = "Perception of hand waved before eye." Leeches to left temple.

December 8.—Mr Vernon performed an iridectomy over iris wounded by shot; and with a scoop removed a shot and a small portion of lens matter.

December 10.—Wound nearly healed. Swollen lens bulging against cornea, T + 1. No pain.

December 15.—No pain. Mr Vernon performed a linear extraction, and removed lens matter with curette and spoon.

December 22.—Up last two days. No pain. Cornea clearing. Perception of light. Counter-irritation by Folia sinapis.

December 31.—Eye less vascular. Cornea with its inner two-thirds clear; outer one-third opaque. Pupil blocked up by lymph. Fundus cannot be lighted up. L.V. = "Perception of light."

January 5.—Slight pain; lachrymation, photophobia and dimness of vision in right eye, symptoms that were regarded as indicating the commencement of sympathetic irritation.

January 7.—Sclerotic of right eye full of pink vessels, and as the other symptoms were steadily increasing, the left eye was removed.

January 13.—Right eye still suffers from flashes after exposure to light. Sclerotic injection less. Pupil widely dilated by atropine. No pain.

January 23.—Right eye quiet; some mistiness experienced on looking at an object for some minutes. R.V. = $\frac{20}{30}$. Left socket healed and healthy. Discharged.

In six months he wore a glass eye, and did well; seeing perfectly with his right eye.

Examination of extirpated Globe.—Walter Sayers' left eye removed January 7th, and kept in spirit till 12th. Corneal wound healed; situation marked by an opacity the size of a split-pea. Eyeball firm, no evidence of wound elsewhere. Eye divided transversely through equator. Three-fourths of entire globe, especially on lower and inner aspects filled with a well-defined blood-clot, the upper half of which is quite unaltered, its lower half being converted into a gelatinous grumous mass. Neither retina nor choroid detached anywhere. Clot seems to have been confined solely to vitreous humour. On anterior half of eyeball being divided vertically, it was seen that a clot originated from ciliary processes, and had bulged backwards to posterior pole of eye. No other shot found.

CASE III.—*Gunshot Wound of Left Eye on December 22—Traumatic Cataract—Incipient Symptoms of Sympathetic Inflammation—Enucleation—Recovery.*

January 9.—Sympathetic irritation in right eye.

January 19.—*Excision of left eyeball.*

Henry Porter, 42, labourer, from Essex, on December 22 out partridge shooting ; a shot entered his left eye from a person who was on the other side of hedge on lower ground, and at least 100 yards off him ; he was in the act of turning to the left, the shot coming from the right.

His eye was in great pain at the time, ran with fluid which, from his own description, appears to have been vitreous ; has been unable to see since. For last week has had pain, lachrymation, and photophobia in right eye.

January 16.—Left eye. *Conjunctiva* congested. There is on sclerotic a deep furrowed *cicatrix* running from cornea to inner canthus, on a level with lower margin of pupil. *Sclerotic* is slightly injected. *Iris* muddy, striæ indistinct, bulging very much forward, and in contact with cornea but not adherent. *Cornea* clear. *Pupil* immovable, irregularly tied to lens by numerous adhesions. Lying behind lower margin of pupil there seems to be a small round opaque body. *Lens* margins opaque, centre much clearer. Fundus can be illuminated, on inner side is a yellowish opaque substance with retinal vessels running over it. L.v. = "perception of light." T–2. Eyeball diminished in size, square and pointed. *Right eye* slight injection of vessels. Pupil clear ; acts well ; no pain. R.v. = (Can tell time by watch at 12 inches) $\frac{20}{200}$.—12 gives $\frac{20}{70}$. Media clear. A large myopic crescent around R. disc, most marked at upper and outer border. Though the symptoms of sympathetic irritation were here very slight, it was considered expedient to remove the injured eye, which was accordingly excised on January 19.

January 21.—Circum-corneal zone still present in right eye.

January 24–30.—Attack of cynanche tonsillaris.

February 1.—Went out. Right eye safe. Left eye wound healed. Description of left globe removed, January 19, "Eyeball soft, misshapen. Distinct equatorial bulging at lower part. On section, retina detached completely; space between it and choroid full of greenish yellow fluid. Lens clear, adherent to iris. Behind and below lens was a mass of opaque lymph, in centre of which was a No. 6 shot.

Case IV.—*Incision in Cornea—Traumatic Cataract—Foreign body in Lens—Removal of Lens—Recovery.*

James Perry, aged 46, engineer.

November 21, 1873.—The patient was admitted about 7 P.M. with an injury to the right eye from a piece of iron.

An hour previously he was working at the anvil, when a small

chip of steel from the end of his chisel struck the right eye, followed by a rush of fluid.

There was an incised wound of the cornea, extending from its outer margin across the middle to the inner side of the pupil; no anterior chamber; iris bulged forwards by pressure of the lens, which was swelling and becoming opaque; a small piece of steel was removed from the conjunctiva, on the outer side of cornea. No foreign body to be seen in the eye.

Always been a healthy man; drinks a good deal of beer. Ordered—D.C. porter, ℥vj.; pil. cal. c. jal., gr. x. statim; atropine, gr. ij. ad. ℥j., 4th horis app.; hydrat chloral, gr. xx., h.s.s.

November 22.—Slept well. Lens swelling, and becoming more opaque; iris will not dilate with atropine; slight œdema of lids. Ordered—Fotus belladonnæ.

November 23.—Œdema of upper lid much increased. Extensive chemosis of conjunctiva, which protrudes through lids. Pupil inactive; some pain in eye, and around the brow.

November 24.—More congestion of conjunctival vessels. Lens almost entirely opaque; pressing the iris still further forwards. More pain in and around eye. Artificial leech applied (℥j.) Bowels not open since 22d. Tongue pale, flabby, furred. Ordered—D.L. Hst. senna, co., ℥j. statim; beef-tea, ℥vj.; two eggs; milk, ℥vj.; arrowroot.

November 25.—Mr Power was sent for yesterday afternoon, as the man was in much pain. When seen, chloroform was ordered, and an iridectomy performed upwards.

On careful examination by oblique light, and on ophthalmoscopic examination, a small black speck was observed on the lens, which was supposed to be a foreign body. On attempting to extract the lens, the spoon grated against the foreign body, and it was extracted with forceps afterwards.

It proved to be a piece of steel, which had penetrated the eye to a considerable depth. Cold compress ordered, and morphia gr. $\frac{1}{6}$; injected subcutaneously. Pulse 80; temp. 100·2.

November 26.—This morning the lids are more œdematous; still great chemosis; the pupil blocked up by a yellowish-white mass; some blood in anterior chamber; aqueous fluid exudes from wound. General condition good. Ordered—Rum, ℥ij.; Quinæ, gr. x. statim; H. Quinæ, gr. v., t.d.s.

November 27.—Since operation has had much less pain in eye. Lately there has been some feeling of tension; and this afternoon a Taylor's knife was passed through original wound, and a fair quantity of aqueous let out. Much relieved.

November 28.—Taylor's knife again used, being passed well

back into vitreous. Ordered—H.M.S. c. M.S. Hirudines, ij.; temp. dext.; quinæ sulph., gr. iij. ter.

November 29.—Has complained of more pain in the eye. Tongue furred, and breath foul. Eye again tapped. Ordered—Hirudines, ij.; glycerine and belladonna to brow; morphia, gr. $\frac{1}{6}$.

December 2.—Original wound entirely healed. Lymph and pus blocking up both old and artificial pupils. Less pain and chemosis.

December 9.—Condition of eye gradually improving, the mass of lymph and pus being absorbed. No pain in eye. Chemosis almost absent.

December 16.—L.v. = $\frac{20}{40}$. Can distinguish a bright light with the right eye. Right eye — mass of lymph much less; chemosis somewhat increased; no pain; eye very tender.

December 18.—Right eye still very irritable. Both wounds (the one across the cornea, and the iridectomy incision) healed, but puckered in; the tension of the eye minus 1. Mass of lymph much less; some redness of conjunctiva and sclerotic, especially that part covered by centre of upper lid; colour of iris altered, especially on the inner side, where it is bulged forwards.

December 23.—Eye gradually but slowly improving.

December 31.—Still some congestion of ciliary region. Eye much smaller and shrunken. No pain.

January 6.—Eye free from pain but tender. Some slight congestion, but altogether quieting down again. Lachrymation continues. No sympathetic ophthalmia.*

Case V.—*Blow on Eye with Stick—Sympathetic Ophthalmia of opposite Eye—Vision of both Eyes lost.*

Owen Jones, aged 10, was sent up from Wales (Dolgelly), with post. synechia and sequelæ of sympathetic ophthalmia in his left eye. His history was, that on January 1st, 1873, a boy struck his right eye with a stick; some time after, his left eye became affected, and in consequence his right globe was extirpated; his left eye was for the time a little better; however, it soon again began to fail, and he has since been liable to recurrent attacks of inflammation and lachrymation, accompanied with flashes of light.

On admission, September 10, 1874, he had scarcely any perception of light. The left eye appeared somewhat large and pro-

* Here the early removal of the foreign body converted a complicated into a comparatively simple case of traumatic cataract. The patient escaped sympathetic ophthalmia, but the eye was lost, and recovery much more protracted than it would have been if enucleation had been practised in the first instance, and the patient still not perfectly free from risk.

minent, T + 3 ; a few large blood-vessels passed across sclerotic, and disappeared in ciliary region ; cornea was clear ; anterior chamber irregular in depth, and shallow ; striæ of iris visible ; pupil small, irregular, bound down by numerous adhesions to capsule of lens, did not act to light ; lens apparently opaque ; no pain.

September 15.—Under chloroform, iridectomy performed downwards. Iris rotten, and adherent to capsule ; parts of it excised.

September 28.—Darting pain at times in eye ; sees flashes of light. Artificial pupil is entirely occluded by lymph. T—2.

September 29.—A large iridectomy upwards.

October 13.—Good perception of light, but cannot distinguish objects. Has had strychnia $\frac{1}{25}$ gr. injected daily subcutaneously since the 8th ; this was then increased to $\frac{1}{15}$; on 28th he suffered giddiness and headache.

October 30.—Discharged. The upper artificial pupil is slightly blocked at the top by lymph ; the lower pupil is entirely occluded. There is practically no anterior chamber ; and a large opaque patch of lymph on centre of lens. His vision is merely perception of light, though more acute than on admission.

The four following cases, illustrating the same points, have fallen under my care at St Bartholomew's Hospital, Chatham. The brief extracts from the notes have been kindly made for me by the Assistant House-Surgeon, Mr Robert Cobb.

CASE VI.—*Wound of Eye with Fragment of Steel, September 3—Protrusion of Iris—Traumatic Cataract—Sympathetic Inflammation of opposite Eye Nine Months after Accident—Enucleation of wounded Eye—Recovery of sympathetically-irritated Eye.*

John Martin, aged 35.—Whilst the patient was at work cutting a steel rail on September 3, 1873, a piece flew off and struck him in the right eye. There was a wound extending from about the centre of the cornea directly downwards to about a line and a half into the sclerotic; the vitreous was penetrated, and a large portion of the iris protruded ; this was snipped off. The lens was wounded and partially dislocated, and some vitreous escaped. The eye then quieted down, but vision in it was entirely lost. On June 1st, 1875, sympathetic irritation began in the left eye, the sight becoming rapidly impaired. The right globe was removed on June 4th, and a piece of iron about half the size of the finger-nail was found embedded in the posterior and upper part of the globe on the outer side. After the operation, the sight of the left eye became perfectly normal.

CASE VII.—*Wound of Eye with Chip of Metal in* 1863—*Sympathetic Irritation Nine Years afterwards—Enucleation —Recovery of Eye sympathetically irritated.*

Frederick Gibson, aged 27.—In 1863 the patient was cutting an iron plate in the dockyard, when a small piece flew off and penetrated the inner side of the right eye. The eye quieted down after a time, and became squared and atrophied, but vision was totally lost. He was admitted into the Hospital on September 3, 1872, with sympathetic irritation of the left eye. The injured eye was removed with some difficulty, owing to its being atrophied. On examination of the eye, a piece of iron about the size of a pea was found embedded in pigmentary substance resembling the choroid. It was lying over the position of the optic disc, the outline of which was totally lost from effusion of lymph. The sympathetically-irritated eye was materially relieved by the operation, vision being almost normal.

CASE VIII.—*Wound of Eye with Chip of Metal, March* 1874 *—Protrusion of Iris—Traumatic Cataract—After Ten Weeks, sympathetic Irritation of opposite Eye—Enucleation —Serious Impairment of sympathetically-inflamed Eye.*

Edward Willey, aged 24.—On the 20th March 1874 the patient was struck by a piece of iron from a rivet in the left eye, causing a clean and straight wound of the upper part of the cornea, cutting off a portion of the iris, and forming an accidental iridectomy. The eye became hard, painful, with a generally dull and congested aspect—in fact, glaucomatous—and an iridectomy was performed on March 23. The lens was also removed, and found to be softer, and pus welled up from behind the iris, some parts of which were adherent to the cornea. After this the eye gradually quieted down, and he could see the hand before the eye at ten inches. He was discharged from the Hospital on May 2d, but was readmitted on June 3d with sympathetic ophthalmia of the right eye. The left eyeball was immediately excised, the eye was examined, and lying on the fundus was found a piece of steel about five-eighths of an inch long and one line in thickness. The eye gradually became quiet, and he was discharged from the Hospital on August 12th, vision being $\frac{6}{100}$.

CASE IX.—*Wound of Eye with Chip of Metal—Traumatic Cataract—After Four Weeks, sympathetic Irritation of opposite Eye—Enucleation—Partial Recovery of sympathetically-irritated Eye.*

William Ansell, aged 40.—When at work in the dockyard on September 7th, 1875, the patient was struck in the left eye by a piece of iron. He came to the Hospital about three hours after the accident, when it was found that he had a wound about three lines in length in the centre of the cornea, and there was also a traumatic cataract. Acute inflammation of the eye followed.

September 12.—The pain being severe, leeches to temple were ordered, which relieved him, but there was considerable chemosis of the conjunctiva, and the iris was of a dirty green colour.

October 16.—Sympathetic irritation of the right eye became distinctly marked. V. $=\frac{12}{100}$. The injured one was consequently removed; the conjunctiva was everywhere thickened, tough, and firmly adherent to the globe. The eye was opened, and was found to be filled with pus, and a piece of iron about the size of a pea was found in the back of the globe.

Vision now, November 6, rapidly improving ($=\frac{20}{40}$) in the sympathetically-irritated eye.

CASE X.—*Lacerated Wound of Left Eye with piece of China in June—Sympathetic Ophthalmia in November—Both Eyes lost.*

William Haine, age $6\frac{1}{2}$, was sent up from Hertfordshire on January 19, 1875, with iridochoroiditis of his left eye, the result of sympathetic ophthalmia. He gave the following history:—'In the middle of last summer, while hammering a piece of china, a chip struck him in his right eye, whether it remained within the globe or not he knew not. He lost most of his vision immediately the eye became inflamed, and he gradually became totally blind in it. About two months ago his left eye became painful, lachrymated, and finally inflamed.'

On admission, right eye, cornea clear; pupil contracted; post-synechia; iris infiltrated with lymph; scarcely any anterior chamber; anterior capsule of lens covered with lymph; conjunctiva injected; circum-corneal zone. T.—2.

January 19.—The right eye extirpated.

Examined—Posterior half of globe healthy; anterior and posterior layers of capsule united together; thickened and enclosing remains of lens converted into a kind of fibrous tissue; iris rotten, infiltrated with lymph, firmly adherent to anterior capsule of

lens, which is covered with lymph; ciliary processes covered with lymph.

January 22.—Photophobia; circum-corneal zone much less; no pain. L.V.$=\frac{3}{40}$.

February 5.—Vascularity of sclerotic much diminished; circum-corneal zone nearly gone; pupil not dilated; eye flashes up on least exposure to light. L.V. is now $\frac{3}{20}$ (on admission, merely perception of light).

CASE XI.—*Injury with Fragment of Steel to Right Iris and Lens—Cataract—Removal of Lens Substance—Partial Recovery—Opaque Capsule being left.*

George Pullen, 32.—One month previous to admission a small piece flew off a steel chisel he was using, and wounded his right cornea, iris, and lens; the eye had been inflamed and painful for a fortnight, he had no vision with it.

When he came in there was a fine semi-opaque cicatrix running across centre of cornea downwards and inwards for about one line in extent. The pupil was elongated from above downwards and inwards, was irregular and immovable, and was blocked up by opaque lens and lacerated capsule. The iris was muddy, appearing to have been cut at its lower and inner part. Leeches and atropine ordered.

On 19th.—Mr Power introduced a broad needle, and divided the thickened and opaque capsule, allowing the aqueous to permeate lens matter thoroughly (both of which escaped freely).

21.—Ordered calomel, opium, and quinine. Severe Iritis followed. R.V. = Shadow of finger near eye.

28.—Can just distinguish light. Two leeches. Iris rather pushed forwards.

February 1.—Lens matter steadily undergoing absorption. No pain. Circum-corneal zone strongly defined.

3.—Discharged. Good perception of light. Eye quiet.

June 29.—Reappeared. R.V. = Counts fingers at 2 feet. L.V. = $\frac{20}{20}$. A small strip of dense white capsule stretches across pupil from lower and inner to upper and outer part, in which latter situation it is broadest; iris is adherent to it. All lens matter absorbed. Wound of iris at lower part still apparent, and the central linear cicatrix on cornea is just perceptible.

Refuses to have his eye touched; so returns to farm work. In this instance, whilst there was good reason for believing that the chip had entered the eye and was lodged in it, there was so little irritation that it was not thought justifiable to recommend enucleation. If present, the particle may have lodged in the

lens, and escaped with the lens substance during the operation on the 19th. It is to be noticed that the eye remained a useless one.

If the patient had been willing to give his consent, it is probable that laceration of the capsule with two needles, and the subsequent use of an appropriate glass, would, in this case, have given fair vision. This proceeding, however, though its results are sufficiently favourable in patients who have secondary capsular cataracts after extraction or discission of lens, is by no means unattended with danger when the cataract is the result of an accident. Violent inflammation often supervenes, even when very little apparent injury is inflicted by the needles. The difference is perhaps due to the much more general and severe inflammatory mischief that is occasioned by an accident, as compared with the clean incisions of surgical instruments, and the consequent firmer union between the capsule and adjoining tissues, so that any traction that is exerted upon the opaque capsule is more likely to separate the retina from the choroid, or the choroid from the sclerotic. Perhaps a better mode of treating such opaque capsules consists in performing an iridectomy, and then simply dividing the capsule with a pair of scissors; or the division may sometimes be effected without the iridectomy, by means of a bent narrow knife (Taylor's knife) and a pair of Wecker's iridectomy or cannula scissors.

Case XII.—*Wound of Eye from a piece of Iron—Traumatic Cataract.*

James Turner, 23 years, an iron moulder.

On April 19, while at work, a piece of iron, 1½ inches long, flew up and struck him in left eye; there was much pain afterwards, which was quieted by belladonna lotion.

On admission, April 22.—There is an incised wound in left cornea about ¼ inch long, extending from about centre downwards and inwards in a curved direction (with the convexity upwards); the edges of the wound are opaque and bulging. Whole sclerotic pink. Iris of a greenish colour, its striæ distinct; it is pushed forward against cornea by opaque milky swollen lens behind; is adherent to wound. L.V.=perception of light. R.V.=$\frac{20}{20}$. Complains of much pain. L.E. a little soft.

April 25.—L.T.–1. Pain severe. Under chloroform, Mr Vernon removed much of the softened lens matter with a curette, at the same time setting the iris free from its connections with cornea by means of a sharp broad needle.

April 26.—Pupil well dilated by atropine and regular.

April 28.—Some anterior synechia again at outer part of

wound. Lens matter still occludes most of pupil, especially upper part. T. a little increased. V.=can see his hand at 1 ft.

April 30.—Cornea bulges at site of wound, to the outer part of which a small strip of capsule is attached, being adherent to the iris by its other end, thus the irregularity of the pupil is increased.

May 3.—Pupil was well dilated again.

May 5.—Atropine was stopped.

Eye kept very irritable and painful, requiring constant leeching and absolute rest in bed, with protection from light up to May 17, when he was allowed to get up and use his right eye. The pupil contracted somewhat, and iris formed some fresh adhesions to remains of capsule.

May 19.—Fresh pain returned, and he had to keep in bed.

May 25.—A blister was applied on 22d, and kept open, which lessened his pain and quieted the eye.

May 31.—Blister was healed.

June 7.—Discharged.

Eye quiet; pupil irregular, and occluded in parts by remains of capsule. Iris is not adherent to wound. Good anterior chamber. Position of wound on cornea very prominent. Good perception of light; can discern objects at a foot or so passing in front of his eye. T.n.

To return in a few months' time and have remains of capsule removed from centre of pupil, when there is every prospect of his having good sight with a glass.

Case XIII.—*Injury to Eye with Iron Wire—Traumatic Cataract—Sympathetic Irritation One Month after Accident.*

William Atherton, age 57.

July 13.—Ran a piece of clean bird-cage wire into upper part of right cornea; he pulled the wire out himself; the eye bled much; he suffered great pain.

July 15.—Anterior chamber one-third full of pus.

July 16.—On admission, right eyelids swollen. Hypopyon has cleared up. *Conjunctiva* intensely chemosed and congested. There is a punctiform wound in upper part of *cornea;* the tissue here is raised at the edges of the depression so as to give 'a rough feeling to the upper lid;' and from this an opacity extends to centre of cornea. *Iris* is adherent to wound; pupil thus irregular. *Lens* opaque, T+1. V.=perception of light. Complains of severe right hemicrania. *Left eye* lachrymates slightly; more vessels on sclerotic than natural. Diarrhœa since accident. Flashes of light constant in right eye.

July 23.—Wound filling up. Lens swelling and projecting into anterior chamber.

July 26.—Hemicrania still intense; flashes of light less frequent; no pain in globe itself; left eye much quieter.

July 28.—Anterior chamber shallower; iris pushed forward by lens swelling; T+1; hemicrania intense; whole globe inflamed. Left eye; pink vessels on sclerotic do not disappear; eye lachrymates on exposure to light; V. is perfect; will not take chloroform or ether, and will not consent to any operation; an iridectomy was to have been done.

This man always complains of pain in his head and not in his eye, and always on same side as the injured eye. This patient was discharged, at his own request, in a decidedly dangerous state.

CASE XIV.—*Wound of Eye from a Fork—Traumatic Cataract—Protrusion of Iris—Iridectomy—Removal of Lens—Loss of Vision.*

William Backman, 12 years.

February 24.—While boring a hole in his gaiters with a fork, his hand slipped and he wounded his left eye. Admitted with a punctured wound about one line in length at inner margin of left cornea, prolapse of iris, and wounded lens.

House-surgeon suipped off prolapsed iris. Atropine, leeches, pad, and bandage.

February 27.—Still some iris in contact with wound; pupil dilated; lens swollen, pushing iris forward.

March 1.—Lying in anterior chamber with its longest diameter downwards and inwards appears to be the capsule of the lens; at inner and lower part is a tear in the capsule, apparently from the prick of the fork. Pupil well dilated; lens opaque; no pain.

March 2.—Mr Vernon introduced a keratome through wound, and removed much lens matter with suction syringe.

March 18.—Iris drawn from outer side to centre of pupil and from adhesion it has formed with capsule. L.V.=perception of light.

March 22.—Mr Vernon divided adhesions of iris by a broad bent needle, and removed capsule with canula forceps.

March 31.—Pain. T.—1. V.=$\frac{6}{20}$.

April 8.—Pupil contracted and drawn towards wound; iris atrophied, showing uvea; is against cornea.

April 17.—Pupil entirely obliterated; in inner third of cornea, lymph hides iris; outer two-thirds black atrophied iris; iridectomy from above and outwards; iris divided right across from above downwards, with iridectomy scissors.

April 22.—L.V.=can see window at 20 ft.

April 27.—Perception of light.
April 29.—Globe square, and soft.
May 4.—Discharged. No vision in left eye.

CASE XV.—*Wound of Right Eye—Traumatic Cataract.*

John Cope, 57, labourer.

Three weeks ago hit his right eye with a "pick," which caused much pain and photophobia, but no great inconvenience at that time. Afterwards he imagined he 'caught a cold' in it, so kept it covered for four or five days, at end of which time it became very hot and painful, he could not bear the least light. He attended an hospital, then became too ill to go, and was sent here by his parish doctor. Vision has been absent for last week.

December 29.—On admission, lens appeared to be bulging into anterior chamber and in contact with cornea; pupil blocked up by lens and lymph; upper part of cornea necrosed and filled with lymph and vitreous, lower part dark and hazy; lids swollen, slightly; conjunctiva chemosed and conjested.

January 7.—Much discharge from eye. Central portion of cornea sloughed, membrane of Decemet being pushed forward by mass of lymph and opaque lens; rest of cornea hazy. Iris muddy, fixed; no anterior chamber. V.=perception of light. Left eye normal. No operation advised to be performed on right eye except removal, which was not consented to.

January 14.—Ulcer healing; two small secondary ulcers, upper plugged with lymph, lower transparent.

January 24.—Ulcers healed. V.=$\frac{2}{3\,0}$, can distinguish faces.

CASE XVI.—*Wound of Right Cornea and Sclerotic—Recovery.*

Charles Moore, 38 years, labourer.

February 12.—Struck in right eye this morning with a glass tumbler. A clean cut wound at lower and inner portion of corneo-sclerotic margin, through which protruded a portion of iris which was cut off by house-surgeon, an iridectomy thus being performed downwards and inwards. Lens not injured. No glass to be seen in eye. Left eye uninjured.

February 18.—Discharged. Eye quiet. R.V.=$\frac{2\,0}{7\,0}$; L.V.=$\frac{2\,0}{2\,0}$.

CASE XVII.—*Wound of Eye with Fragment of China—Escape of Lens—Persistent Irritability of injured Eye—Enucleation.*

Jane Barton, 18 months. On the evening of June 22d was playing with a toy 'china dog,' when she fell on the floor, break-

ing the china dog into a few large pieces with her head; one of these wounded her right globe, which bled freely.

On admission the globe (under chloroform) was found collapsed, a deep irregular wound extending across upper part of right cornea into ciliary region, iris, lens matter, and vitreous, with blood-clot protruding between its edges; no fragment was seen. The wound was cleared of its contents, and then firm pressure applied with a pad (wet) and bandage. The whole healed well, the child was cheerful, and did not complain of pain; but the globe, though it filled out somewhat in size, remained always a little pink. After a few days in Hospital, she attended as an outpatient. The eye continued so long irritable, however, the child rubbing it, &c., that it was resolved to remove it. It was not, however, till July 27th that the parents could be persuaded to consent. Mr Vernon then did an enucleation, from which the child quickly made a good recovery. No foreign body was found in the globe.

Description of Jane Barton's Eye.—July 27.—The *iris* was found to be very disorganised, and adherent throughout greater part of its extent to the adjacent structures. The *lens*, as also the parts generally comprising the anterior portion of the globe, were found to have undergone extensive changes, and a considerable quantity of altered vitreous humour escaped, together with blood and serum. No fragment of china found.

On examining the front of the eye which was removed, the cornea was seen to be *semi-transparent*, showing disorganised iris at its lower two-thirds; the upper one-third was opaque and contracted, the wounded sclerotic here being all puckered up, and entangling the ciliary processes and upper part of lens capsule, the lens matter having mostly escaped. No anterior chamber.

Case XVIII.

James Godfrey, 39 years, a turner.

March 13.—At work this morning with a circular saw, when a splinter of wood hit his right eye.

Right eye.—There is a clean cut wound at inner side of cornea, of some size; several abrasions of conjunctiva, with slight ecchymosis. (Leeches and atropine.) Anterior chamber full of blood, obstructing view of deeper parts. No pain. V. = perception of light.

March 15.—Edges of wound quite united. Anterior chamber much deepened. Most of the blood has disappeared. Pupil dilated. R.V. = can count fingers at a few inches.

March 17.—On getting up, some of the blood reappeared in

anterior chamber. Lens (by direct O.E.) tolerably clear; some opaque striæ radiating from inner margin towards centre.

March 19. — All blood absorbed; eye quiet; no pain. R.V. = $\frac{20}{100}$. L.V. = $\frac{20}{20}$.

March 20.—Discharged. Was cautioned to reappear if any return of pain occurred.

Case XIX.—*Injury to Eye from Brad-awl—Traumatic Cataract —Extraction of Lens—Recovery.*

William Sapsed, age eleven, shoemaker's apprentice, Wilton, Herefordshire.

March 13.—Whilst playing with a finely-pointed shoemaker's awl three days ago, he thrust the point of it into his right eye. The point pierced the upper and outer part of the cornea, and lacerated the capsule of the lens at the upper and inner part.

Present Condition.—Conjunctiva slightly congested, circum-corneal zone well marked, cornea clear except at upper part where wound was, and at that situation there is slight synechia; anterior chamber shallow, the iris being bulged forwards by opaque and swollen lens, slight pain. R.v.=perception of light, L.=$\frac{20}{40}$.

Ordered—D.L., milk ℥vj., hirudines, ij. temp. dext.; pulv. jalapæ, co., gr. iv.; hyd., subchlor, gr. ij., statim; guttæ atropiæ, gr. iv.; ad ℥j. aq.

March 18.—The pupil dilated freely except at point of synechia, and he remained for a time free from pain, but on the eye becoming irritated, Mr Power passed a bent needle through synechia, lacerated the capsule, and extracted the soft lens, with a grooved curette. This has been partially successful, but there is still some lens matter remaining; no pain; chamber restored; still slight synechia.

March 28.—To-day he is perfectly free from pain, and can see better, but there is still some opaque capsule and lens substance blocking up the pupil. Pupil well dilated, slight synechia continues.

April 2d.—No pain. Eye quiet, sees and distinguishes objects within a few feet. Left eye, uncovered on 3d.

April 7.—V.R $\frac{9}{200}$. V.L. $\frac{20}{40}$. R.T.n.

Case XX.—*Contused Wound of Right Eye in Corneo-Sclerotic Junction—Loss of Lens and Vitreous.*

John Collins, age 25, Lyden Villa, Stoke-Newington.

November 28.—This afternoon, 3.30, as the patient was raising

up a piece of work, weighing about 40 lbs, with a burnisher, an instrument like a steel, the weight slipped off the burnisher, and the instrument starting up, struck him in the eye. Immediately he felt some water run from his eye, and the foreman noticed that the fluid was sticky.

He was immediately brought to the hospital and admitted. Mr Vernon was sent for in the evening, the man being in great pain. The instrument had torn the cornea on the inner side, opaque lens to be seen, very little prolapse of iris, no anterior chamber, eye very soft. Can distinguish light. The anterior chamber was thoroughly explored with a scoop, a small portion only of the lens could be discovered; it was removed. The edges of the wound were cleansed of some vitreous and pigment, and a firm compress applied. D.C., milk vj., wine ℥ij., t.d. W. H. gr. x., statim.

November 29.—No œdema of lids; ecchymosis of conjunctiva; edges of wound nebulous; iris hardly to be seen, looks as if a portion had been torn away at the time of the accident. Slept pretty well.

December 1.—Wound apparently healed; a little blood in anterior chamber; some conjunctivitis.

December 4.—Still a great deal of pain and conjunctivitis; two leeches were ordered to right temple; slight protrusion of vitreous from lower part of wound.

December 8.—Patient in much the same condition; pain rather greater, and somewhat more inflammation; blood still in anterior chamber.

December 10.—Yesterday there was some œdema of the lids, the pain had increased, and vitreous was more protruded; anterior chamber was tapped with a broad needle, and three leeches applied to the temple. H.M.S., c. M.S. Quinæ sulph., gr. j., t.d.s.

December 11.—Pain much relieved by the operation; still a great deal of lachrymation; lids more œdematous; some chemosis and congestion of conjunctival vessels; some fresh protrusion of vitreous (a small portion was snipped off yesterday); pain continues; T. = +2; anterior chamber tapped again at night-time, and wet compress applied.

December 12.—Œdema of lids rather less; no fresh protrusion of vitreous; conjunctival inflammation diminished; no pain.

December 17.—Eye gradually improving; much less œdema of lids; chemosis of conjunctiva less marked; still some lachrymation; no irritation of left eye.

December 23.—V. L. = $\frac{20}{50}$. V.R. = perception of light. Eye much quieter, though conjunctival vessels are still congested, the protrusion of vitreous has sloughed off and no more has appeared;

an opaque body (lymph, blood, and capsule), is to be seen deep in anterior chamber; no pain in eye, but much lachrymation.

December 31.—Eye much quieter; does not wear a pad and bandage now; much less lachrymation. This patient was discharged on January 6.

Case XXI.—*Rupture of Globe—Protrusion of Iris—Union of Edges of Wound—Partial Recovery.*

William Syme, 40 years, porter at a large warehouse.

At 1.40 P.M., May 16, while leaving the doorway, he came into contact with a heavy wooden box, which was being thrown from one man to another. At 2.15 was admitted. His right is a full and very prominent eye. *Left eye has collapsed.* There is a wound running almost completely round the inner half of the corneal circumference; at the upper part it is wholly in the sclerotic, but lower down implicates the corneo-sclerotic margin, extending through the ciliary region; the wound gapes; there is much hæmorrhage; vitreous is escaping in some quantity; the lens has apparently gone; and the iris is completely torn from its attachment along the inner half of its circumference, and is hanging out of lower portion of wound.

3 P.M.—Under chloroform, Mr Reid cut away all the iris, and some protruding choroid, cleared away all blood-clot and protruding vitreous, instilled atropine, and applied firm pressure with pad and bandage.

N.B.—In the wound was found, loose, a small piece of sclerotic, with ciliary processes attached entire. This had evidently been chipped completely out from the violence of the injury.

The patient was faint and giddy after the accident, and had diarrhœa immediately after it happened, which lasted for about ten days, and was difficult to arrest. (There was no other cause whatever for the diarrhœa.) He suffered scarcely any pain after the operation, complaining only of some slight dull aching that night.

May 17.—Lower and outer one-third of cornea is hazy; there is some blood-clot at bottom of anterior chamber and about wound; edges apparently united.

May 24.—His right eye was uncovered.

May 25.—T. – 3 of left eye.

May 29.—Left eye uncovered, and the patient allowed to go into square.

The wound has healed up without pain or any bad symptom.

June 11.—Discharged to Convalescent Home at Highgate.

Present Condition.—Right eye—perfect sight. Left eye—

remains of small wound in centre of upper lid. The corneo-sclerotic wound has contracted much in healing, so that cornea is rather flattened and misshapened; it is clear, showing good anterior chamber, healthy iris, and large artificial pupil inwards, and downwards, which is occluded by yellowish lymph and organised blood-clot. T.—3. V. = *nil* (not even perception of light). He can open his eye well; a strong light or exposure makes it lachrymate freely. A thin vertical linear leucoma is to be seen running across cornea, and dividing it nearly into two halves, the inner of which is the larger. On touching inner half of cornea with a probe it indents readily, and patient does not feel it at all; outer half is sensitive. Conjunctiva and sclerotic about wound are insensible, while same structures at outer part of globe are sensitive. The whole globe is much flatter than its fellow.

July 12.—Reappeared at Hospital, after twenty-six days of (in his own words) 'supreme happiness' at Highgate. Left eye—The cornea is perfectly clear, and has regained its natural curve, but its inner half has still its sensation very greatly impaired, and near wound is absolutely insensible. Conjunctiva and sclerotic about wound have regained much of their lost sensitiveness. Palpebral conjunctiva perfect.

The cornea is a little misshapen at wound. Anterior chamber is very deep. The organised blood-clot at its lower part seems to have acquired adhesions with the iris, and then to have contracted, thus diminishing the size of the formerly large artificial pupil; the pupil is now more nearly round, and displaced inwards and downwards, but slightly. The clot appears as a small yellowish mass to inner part of anterior chamber.

The eye is quite quiet, merely one large vessel running from inner canthus to supply cicatrix of wound the linear leucoma over centre of cornea is still apparent; T.—3, V. = *nil;* but globe has a very presentable appearance, being almost as prominent as its fellow, and having perfect movements. Can read well with his right eye, and stand the sunlight (this eye has never troubled him throughout).

This patient is extremely grateful for treatment, and expresses the advantage of a presentable though blind eye over an empty socket or artificial shell.

Case XXII.—*Abrasion of Cornea—Recovery.*

Henry Crockford, 48 years, an ostler.

On February 26, was hit in right eye with a whip; this was followed by violent pain and inflammation; vision scarcely more than perception of light.

March 1.—Admitted. Globe injected. A superficial ulcer of cornea reaching from pupil to inner margin of cornea; there is slight haziness about this, and dotted opacities throughout the cornea. Complains of severe pain. Fotus belladonnæ, leeches. He suffers from a bad cough. Is a great gin-drinker.

March 4.—Pil. saponis Co. gr. 2½ night and morning.

March 11.—Posterior synechia at lower border of iris just noticed.

March 18.—Was discharged with R.V.=$\frac{20}{30}$ (L.V. being $\frac{20}{30}$); the corneal opacities having cleared up.

Case XXIII.—*Lacerated Wound of Cornea extending into Ciliary Region.*

Albert Cambrasi, age 6½, 3 Landon Place, London Fields, Hackney.

January 9.—Whilst playing with his sister last Saturday, 3d, he ran against a cane she was holding, the point entering his eye. There is now slight ecchymosis of lid, slight lachrymation, no photophobia or pain, conjunctiva congested. A laceration extends from upper and outer margin of cornea for one line into sclerotic upwards, and across cornea downwards to its inner margin.

A friend of patient states there was an escape of clear viscid fluid after accident, and a great deal of blood. The anterior chamber is filled with blood, and at upper part of wound there is a protrusion of lens substance. Apparent laceration of iris at upper part. V.R. *nil.* T.—2. No pain in left eye. Ordered—D.D. milk, pad to be applied, guttæ atropiæ.

January 12.—All inflammation subsiding, and the other eye remaining quiet, he was discharged; but symptoms of irritation showing themselves, he was readmitted on

January 22.—Abscission was done; the needles, with both ends protruding, one above, the other below the margins of the cornea were left till the anterior part of the globe was removed, and then drawn through; three sutures being used of fine black silk. Pad of lint applied. D.D. milk, vj.

January 30.—The day after the operation he had slight pain. On the sixth day one of the sutures ulcerated through, and the following day the other two were removed. The wound is now healed, and the eye speedily quieted down after separation of the sutures.

Case XXIV.—*Injury to Globe from Blow—Iritis—Recovery.*

Joseph Hepburn, age 45, a compositor for *Bradshaw's Guide.* Three months ago was struck in the left eye by a wooden letter

type covered with ink; eye was inflamed for a short time, but recovered soon. Three weeks afterwards, however, after working all night, was suddenly attacked with iritis and swelling of lids; he attended then as out-patient here, but not improving, was admitted, October 2, 1874, with much congestion of left globe and swelling of lids, a large superficial ulcer on centre and inner portion of cornea, iritis, and considerable hypopyon, L.V. = fingers at 2 feet, T. +1. Kept in bed, fed well, and ordered atropine, blister, and quinine. He rapidly improved; by 20th, after calomel and opium had been administered, the hypopyon was gone.

October 27.—Discharged; being again made out-patient; a patch of lymph on centre of capsule remains; L.V. = $\frac{12}{70}$; striæ of iris recognisable again; no adhesion; ulcer nearly healed; cornea only opaque, slightly about ulcer.

Case XXV.—*Rupture of the Globe—Violent Inflammation—Enucleation.*

John Johnson, age 63.

On May 31st, at 10 A.M., while feeding a threshing-machine, a stone flew out from the drum with considerable force, knocking him over, and wounding his left globe, which bled freely. He walked home five miles, kept in bed for three days, during which time he suffered acute pain, and applied a cold water bandage constantly.

Was admitted June 5 in following condition:—Whole left *globe* intensely injected. *Cornea* semi-opaque; a vertical incision extending right through its substance to ciliary region, above and below. *Iris* inflamed and prolapsed into wound. Centre of pupil occupied by apparently softened lens matter. Vitreous protruding between edges of wound, and some purulent matter smeared over globe and beneath lids. Suffers great pain. Eye lachrymates much.

Protruding iris was cut away by house-surgeon, and all vitreous and capsule of lens between edges of wound removed. Pad, bandage, and leeches applied.

June 7 and 11.—More iris and vitreous had to be removed from wound, which would not unite, but constantly allowed aqueous to dribble from it. The pain was greatly relieved by treatment, but the bowels continued obstinately confined while pain lasted.

June 17.—The wound appeared to have united, there being some anterior chamber.

June 18.—Sympathetic irritation commenced in right eye with the usual symptoms of lachrymation; general congestion of the eye, subacute iritis, and impaired vision.

June 19.—Four P.M., left globe removed.

No foreign body was found in globe, but a large blood-clot amid suppurating vitreous. The retina and choroid appeared healthy.

July 2.—Discharged. R.V.=normal. Left orbit nicely healed.

Case XXVI.—*Superficial Burn of Cornea—Recovery.*

William Gray, age 17.

Last night, walking across a room, came into contact with the hot swing gas-pipe.

January 1.—Conjunctiva, seared and cornea burnt at lower and inner part; sclerotic greatly injected; iris natural; lids swollen; much purulent discharge.

The patient was kept in bed, with cold poultices applied to the lids, and atropinised oil instilled into the eye. No irritation followed, and on January 4th he was discharged.

This was merely a superficial injury.

Case XXVII.—*Burn with Gunpowder—Persistent Inflammation—Recovery.*

Joseph Webb, aged 32. A 'Roman candle' discharged its contents into his face on evening of November 5. Right upper lid much burnt. Conjunctiva burnt off down to sclerotic, at upper part of globe, and upper half of cornea abraded and burnt. Numerous grains of gunpowder adhering to conjunctiva; surface of lids removed.

Bed, Ol. Ricini, wet pad, and bandage, followed by leeches, atropine, carbonate of ammonia, and cinchona internally, was the chief treatment. This patient suffered intense pain; his lids became red and œdematous; there was much photophobia and lachrymation. Though all visible gunpowder was carefully removed at the time, on the 7th some grains appeared in the opaque, and superficially sloughing upper half of cornea.

November 10.—Last remaining grains sloughed off cornea.

November 19.—R.V.=fingers at 6 feet. Pain has at last left him.

November 30.—The destroyed conjunctiva nearly repaired; cornea healed, though still hazy at its upper part; decided internal squint.

December 1.—Discharged, and made out-patient.

The long duration of severe pain, the pertinacity with which the grains adhered, and amount of damage produced by an injury that did not at first seem more than superficial, were remarkable.

The following case shows the terribly destructive action of lime, or carbonate of lime, in the form of mortar, on the eye ; and teaches the great caution that should be exercised in giving a prognosis even when the patient is seen very shortly after the accident, and when the injury inflicted seems to be comparatively slight.

Case XXVIII.—*Burn with Lime—Gradually increasing Opacity, ending in Sloughing of Cornea—Loss of Eye.*

Robert Chinery, age 39, labourer.

On May 17 came to hospital three-quarters of an hour after accident. Some 'freshly made mortar' fell from top of a scaffold into his right eye. Under chloroform, house-surgeon removed all the lime that was visible, from his eye ; (it adhered very firmly to the conjunctiva) afterwards syringing it out with weak acetic acid (1 in 8). Castor oil was dropped in and patient sent up to ward to bed.

Conjunctiva severely burnt ; lower half of cornea deprived of its epithelium, but transparent. D.C., milk, beef-tea, arrowroot. In much pain, leeches applied to right temple. Lower half of cornea became hazy, and a superficial ulcer formed ; mucopurulent discharge from eye ; pain much relieved by leech.

April 1.—Right eye ; upper lid red, margin thickened ; under surface granular, but no extravasation now ; lower lid, inner surface, villous and red ; ocular conjunctiva fleshy and chemosed ; lower part dark purple, and slightly overlapping cornea ; lower half of cornea ulcerated, margin being sharply defined, shreds of the membrane adhering ; pus in anterior chamber 2 m.m. in height. Spt. quiniæ, t.d.s. ; cat. lini oculo dextro ; hirudines ij., temp. dext. ; to keep his bed. Bowels obstinate, H.M.S. c. M.S.+quinine ; panophthalmitis supervening. Much pain in back of head. Opii gr. j., 6th horis.

April 5.—Pain severe ; is restless and 'jerky' in his movements ; at midday, hypopyon discharged itself spontaneously. (The eye had been supported by pad and bandage all along.) Pain relieved.

April 6.—Nearly whole cornea opaque, except upper fourth, which is buried in fleshy chemotic conjunctiva ; lower part of cornea has given way during last twenty-four hours, and is sloughy and prominent ; lids not much swollen ; iris discoloured ; great pain in back of head, and along right side of head, in course of auriculo-temporal branch of 5th nerve. 6 P.M.—Sudden pain in right eye, made him struggle ; lens shot out upon his cheek, and some vitreous escaped ; lens found to be perfectly transparent ; stop opium pill. Morphia, gr. $\frac{1}{3}$, to be subcutaneously injected bis die.

April 7.—Corneal wound healed; anterior chamber half full of pus; much purulent discharge from eye; pain in eye again; that at back of head severe, and only removed by morphia injections.

April 8.—Morphia and chloral both required to subdue pain; cornea very prominent; lids more swollen; tension of eye increased greatly; pain has become more severe, cornea more bulging; discharge more profuse and purulent; so on

April 10.—Globe was laid open anteriorly by a horizontal incision with a scalpel; a stream of yellowish, thin matter shot into air to some height, from relieved tension. Poultice applied. Pain relieved. Wine ℥vj.

April 12.—Pain only relieved by chloral hydrate gr. xx. More œdema of lids; more pain; more discharge. Ocular conjunctiva intensely injected and chemosed, protruding between lids. Remains of corneal tissue ragged and covered with pus, very prominent. Feels ill in himself. Globe tense again. Wound healed. Bowels obstinately confined. Quiniæ gr. ij. t.d.s. Has had four leeches to right temple.

April 13.—Globe reopened by Gräfe's knife. 11 P.M.—Lids less swollen; free discharge from globe.

April 17.—No pain. Requires no sedative at night. Bowels became regular again as soon as pain left him.

April 19.—Up. Globe now suppurated freely, and by 24th was considerably diminished in size.

April 29.—Allowed to walk in the square.

May 1.—Poultice stopped.

May 3.—Upper (R.) lid red, and still a little swollen. Conjunctiva chemosed and red. Granulations sprouting from site of cornea, showing on outer side of central opening some of the choroidal pigment. Still some purulent discharge. Globe is shrinking yet, presents appearance of being filled with granulations within. Left eye healthy. V. = $\frac{20}{20}$. Discharged.

Case XXIX.—*Cut across Cornea with Glass—Protruding Iris removed—Vision Lost.*

W. G., aged 41, a shoemaker, received a cut across the left cornea two months previously to his admission, July 7th. The iris was prolapsed at the upper and inner part of the cornea, through the wound, which involved the whole breadth of the cornea. He stated that the medical man who attended him at first removed the lens, and there is every probability that this was the case. On admission, the whole eye was considerably inflamed, and it was thought that an extirpation was inevitable; but the eye quieted

down so much with the simple application of lin. glycerini c. belladonna, that it was agreed to keep him in the Hospital a short time and watch the result. Tension, + 2. Two days after admission, the prolapse of the iris still considerable. V.=quantitative perception of light. At the end of a month the cornea had cleared considerably, the protrusion was vascular, and covered with a coating of lymph. All irritation had subsided, but the tension remained increased. He was advised to let it remain as it was for the present, but if at any time the opposite eye should become dim, to have the left extirpated without delay. On August 5th he was discharged.

Case XXX.—*Abrasion of Cornea—Recovery.*

J. West, aged 59, male. Admitted November 30, 1869. Four days before admission, was struck on left eye by flint whilst at work. Suffered great pain. On admission, an opaque white spot was found at centre of left cornea, nearer lower than upper margin; general inflammation of eye and hypopyon. Ordered calomel and opium pills, belladon. lot., with pad and bandage. Two leeches to temple.

December 1.—Inflammatory action lessened. Hypopyon greater. Pills of quinine, iron, and mercury substituted for cal. c. opio.

December 8.—Hypopyon cured. Omit pills.

December 18.—Eye quiet. Cicatrix of cornea shows a depression, but is not opaque.

December 30.—Discharged, cured. Right eye not affected at any time.

Case XXXI.

J. Harvey, aged 7, male. Admitted December 2, 1869. About a week before admission patient was hit and kicked in left eye. Was seen four days before admission, and found suffering from erysipelas and œdema of left lids. On admission, there was exophthalmia and great pain in eye, with tension of orbit and globe. To poultice, and take pulv. ipecac. co., gr. 4; hyde. cretæ, gr. 3, h. n.

December 3.—Exophthalmia greater. Vision impaired.

December 4.—Hypopyon. Conjunctiva bulged, sanious discharge from outer side. Lids scarified. Mr Power then saw the patient, and passed a narrow knife between globe and inner wall, and slit up the conjunctiva, discharging a quantity of pus. Poultices.

December 5.—Exophthalmia less. Keratitis considerable. Health good.

December 6.—Free discharge. Tension less.

December 8.—Eye restored to position. Vision improving.

December 15.—No discharge. Keratitis of lower part of cornea. Omit poultices. Use lot. alum.

December 22.—Pupil irregular. To use L. atropiæ sulph.

December 28.—Pupil dilated and globe normal, except as to an opacity of cornea.

January 6.—Discharged cured. Right eye not affected.

Case XXXII.

E. Kennard, aged 7, female. Admitted January 26, 1870. Nineteen days before admission hit her eye against corner of table. Has been under a surgeon. There is now photophobia. On opening lids there is found a wound of upper and outer part of left cornea, extending in an oblique direction for ¼ inch across cornea. Iris prolapsed, pupil small and oval, cornea inflamed. No pain when eye is closed. Pad and bandage and atropine to eye.

January 28.—Pupil slightly dilated, but very irregular. Less photophobia.

February 3.—Pupil more regular.

5th.—White mass at lower part of wound. Anterior chamber very flat. Vascularity of upper part of wound.

20th.—Pupil dilated, but very irregular.

23d.—Pupil elongated transversely, half only being visible, remainder obscured by corneal wound.

March 25.—Reads L. of Snellen's types at 5 feet.

Case XXXIII.

J. Tassell, aged 64, male. Admitted January 31, 1870. Four days ago was struck on right eye by piece of fagot. Cornea divided horizontally from one side to other; upper margin of pupil visible. Cornea opaque. Considerable chemosis. To use L. alum and take M. ferri aper.

February 2.—Protruding iris touched with argenti nit., and ol. olivæ applied. Poultices.

9th.—Slight pseudo-membranous discharge. Prolapse of iris less. L. atropiæ sulph.

12th.—No discharge; omit poultices. Belladon. lotion, and pad and bandage; also Liq. hyd. bichlor. ℥i., and Mist. pot. iod. ter die.

18th.—More discharge; omit hyd. bichlor.

March 9.—No discharge.

25th.—Wound of cornea healed; lower half of cornea quite opaque.

30th.—No vision of right eye. Left eye not affected.

Case XXXIV.

J. Smith, aged 11, male. Admitted March 12, 1870. Just before admission was cutting a piece of rope yarn, knife slipped and struck him on left eye. A wound extends perpendicularly from the middle of cornea to its lower edge and on to the sclerotic. Vitreous escapes; tension of globe slight. Iris prolapsed, and pupil vertically oval.

March 12.—Mr Power excised the globe.

April 2.—Cured. Right eye healthy.

Case XXXV.

A. Fordham, aged 20, male. Admitted June 8, 1870. Ten days before admission was hit by a piece of a cap from a rifle he was firing. No treatment. On admission, right eye, great congestion of lids, eversion of lower lid, chemosis, cornea sloughing at outer part. Anterior chamber filled up with blood and pus. Pupil invisible. The left lids were œdematous and granular, come on since accident. Mr Power made a free horizontal incision into globe. Pus evacuated. Ammon. carb. and bark t. d. s. Poultices.

June 16.—Has progressed favourably; no discharge; omit poultices. Apply cupri. sulph. to the granular lids.

July 20.—Discharged. Globe atrophied. Left globe now healthy.

Case XXXVI.

J. Rogers, aged 16, male. Admitted January 9, 1871. Twenty-four hours before admission was firing a gun, which kicked and hit him on the eye and cheekbone. Left eye, ecchymosed, chemosis, wound of cornea, radiating from lower edge of cornea down and slightly outwards, and continuous with a wound of cornea, vertical, and almost reaching opposite edge. Blood in anterior chamber, iris apparently uninjured. Two leeches applied and poultices.

January 14.—Intra-ocular suppuration having occurred, Mr Power made a free incision horizontally across globe.

16th.—Poultices. Copious purulent discharge. No pain.

Fracture of zygoma discovered, which caused abscess discharging by orbit.

February 22.—Globe is collapsed. Discharged. Right eye healthy.

Case XXXVII.

H. Freeman, aged 5, male. Admitted May 10, 1871. Four days ago, patient poked a pair of small scissors into left eye. Wound of cornea was transverse, and crossed pupillary aperture. Iris healthy, lens opaque at centre of wound. Slight sclerotitis, no other inflammatory action. Pad and bandage, and L. atropiæ sulph.

June 4.—Opacity of lens extended. Cornea healed. Eye quiet.

To return in a few months for cataract operation.

Caes XXXVIII.

W. A. Fooks, aged 9, male. Admitted July 12, 1871. Twenty-four hours ago patient was hit on left eye by a piece of iron wire, about one foot long, rebounding from a wall which it had hit. The wound of cornea separated its lower half from the sclerotic, as in lower section for cataract. Iris discoloured. Pain excessive. Mr Power removed the globe, which showed a torn state of iris, absence of lens and vitreous, and the interior of globe lined with clotted blood $\frac{1}{4}$ inch thick. Pain was gone half hour after operation.

July 20.—Discharged. Right eye not affected.

Case XXXIX.

E. Pankhurst, aged 9, female. Admitted June 10, 1871. Five days before admission, patient was peeping round a corner, and was struck on right eye by a small cube of wood. Medical attendant ordered rest and darkness for seven days. There was a wound of outer edge of right cornea, the wound was small, but penetrated the iris, and touched the lens, which was partially dislocated. Mr Power removed the lens by a scoop under chloroform, and applied a pad and bandage. To use bellad. and take cal. c. opio.

July 3.—Omit pills and lot. Eye quiet.

16th.—The eye is quiet. There is a dense leucoma at seat of wound, and pupil is drawn towards it and contracted to the size of a pin-head. There is no vision, but appreciates light.