his coming to London—the excellent and good Dr. Lawrence—although the accomplished scholar and delightful companion, was not the practical physician, and had not much control over his rather unruly patient. We all recollect the "amusing scene", as Mrs. Thrale terms it. The patient belaboured the physician: and Johnson promises, in the letter already quoted, to abide by Lawrence's directions, and not read the prescriptions. Lawrence bled him, I cannot but think, too freely, and this increased the very malady which he was most desirous to cure. Fortunately, Johnson afterwards became acquainted with and took advantage of the kindness and decision of Brocklesby, the practical knowledge of Jebb, and the judicious treatment of Heberden, of all of whom, upon every occasion, their illustrious patient spoke in terms of high regard: and who had the happiness and satisfaction of assuaging the sufferings, and prolonging the life, of Samuel Johnson.

6, Orchard-street, June 1849.

ON THE REMOVAL OF OSSEOUS CATARACTS.

By W. WHITE COOPER, Esq., F.R.C.S. Eng., Senior Surgeon to the North London Infirmary for Diseases of the Eye.

THERE is a morbid change of the crystalline lens and its capsule, not very uncommon in persons of gouty and rheumatic constitutions, and which is also occasionally, though rarely, the result of injury. It is remarkable for the great suffering it causes, which can only be alleviated by the removal of the irritating body. The operation, however, is attended with more difficulty than might be expected from the notices in most ophthalmic works; as will be seen by the following cases.

CASE I. Mrs. Peters, aged 60, placed herself under my care on the 9th September, 1846. She stated, that two years previously, whilst attended by a physician for derangement of the general health, she was attacked with spectra, resembling black feathers waving before her left eye. This gradually increased; and at the expiration of six weeks she was seized with violent pain in the right eye, and almost immediate extinction of sight. She placed herself under the care of an eminent oculist, who depleted her largely and administered mercury freely, but without affording the least relief. She was then for some time under the care of Dr. Turnbull, without benefit. On examining the right eye, a yellow, apparently Osseous Cataract was visible, pushing forward the iris, and almost obliterating the anterior chamber. It was adherent to the margin of the pupil, though to what extent could not be ascertained, as atropine failed to produce the slightest dilatation. The iris had lost its brilliancy, and was of a dull olive-green colour; the globe was diminished in size, felt soft and boggy, and dark tortuous vessels were visible on the surface. There was not the slightest perception of light. The patient complained of agonizing pain in the eye, and a sensation as if something moved in it. At times, the suffering was so severe as to be scarcely bearable. The left eye presented appearances indicative of general chronic inflammation. The iris dull and discoloured; the pupil motionless; lens muddy and

of a greenish yellow; sclerotic slate-coloured, and marked with many tortuous purple vessels. There was pain in this eye, frequently severe, and on both sides over the brows, and down the sides of the nose. Although generally totally blind, she fancied that at times she had some vision with the left eye. There was great general debility, for which gentian and ammonia, followed by bark and soda, were prescribed with considerable advantage; and on the 12th November she was in a condition to bear the operation of removal of the lens, which was clearly the main cause of her suffering from the right eye. I succeeded in passing my knife across the cornea, but, in completing the section, found it unusually tough; on applying the sharp curette, no impression could be made on the lens, which was like a piece of stone. The adhesions were then freely divided, and another effort made to press out the lens, but without avail, for the iris was absolutely rigid, and did not yield in the slightest degree. An incision was therefore made in the margin of the pupil and the Cataract attempted to be seized with a hook, but without success. At length, by means of a pair of fine forceps, a portion was broken off, and I succeeded in removing the whole without any escape of vitreous humour. The Cataract consisted of a firm shell of bone, containing soft glutinous matter, like a mixture of gum and chalk. The flap having been replaced, cold wet rags were applied, the patient put to bed, and a full opiate administered.

I was agreeably surprised at finding that not the slightest unpleasant symptom followed this severe operation; the wound healed with rapidity, and at no time was there more inflammation than was necessary for the perfection of the union of the divided parts.

Case II. John Richardson, aged 64, had been subject to deep-seated pain in the right eye, muscæ, scintillations, and supra-orbital pain, for fourteen years: he was of a family in which gout was hereditary, and had suffered from it himself for many years. He had been leeched and blistered for the eye; but residing in rather a remote spot in the Fens of Lincolnshire, it would seem that his case had not received the attention its serious nature required. In about twelve months from the first attack, he became perfectly blind of that eye, and had since suffered almost constant pain, so excruciating at times as to be scarcely bearable. His health had become greatly impaired, and the sight of the left eye was failing.

I saw him first in April 1845. He was pale, haggard, and emaciated. The right eye was somewhat atrophied; the sclerotic, of a dark grey colour, was traversed by numerous tortuous violet-coloured vessels; a dusky red zone surrounded the iris, which was of a dull, greenish hue, and convex in form, obliterating the anterior chamber. The pupil was elliptical from above downwards, apparently dragged into that form by the weight of a Cataract, which was obviously pressing against it. This was partially separated from its attachments, so that it had sunk down, leaving a clear space in the upper fourth of the pupil. The Cataract presented the characteristics of an osseous change. The left eye was somewhat congested, and bore evidence of long-continued sympathetic irritation.

After having tried palliative treatment for a month, without benefit, I proceeded to remove the right lens on the 12th of June. The obliteration of the anterior chamber rendered it impossible to pass the knife

across it; I therefore made an oblique incision, from above downwards, in the lower half of the outer margin of the cornea, and extended it by a curved knife. Then, introducing the sharp curette, I proceeded to break up the Cataract. It was with great difficulty, and after many attempts, that I accomplished this; and it was necessary to divide several adhesions which had formed between the Cataract and the inner margin of the pupil. These difficulties prolonged the operation. With care, however, the whole of the fragments were cleared away, and the flap replaced: the eye was closed; cold, wet compresses were applied; the patient was put to bed, and forty drops of tinct. hyoscyami administered. The patient passed a good night; and when, on the fourth day, the eye was examined, the wound had united. The case proceeded in the most satisfactory manner; and the object of the operation was perfectly attained. Relieved from such a source of suffering, the patient rapidly improved in health and flesh.

CASE III. Samuel Doyle, aged 54, became a patient of mine at the North London Eye Infirmary, on the 16th October, 1847. He had passed the greater part of his life in the army, had been much in the tropics, and had undergone a full share of the hardships of a soldier's life. For many years he had suffered from rheumatism, and his left eye had been attacked on three occasions with inflammation. After the second attack, the sight became considerably impaired; and he was rendered blind by the third, which was the most severe, and took place in 1830. From this time, the eye was a constant source of torment; the slightest local irritation, or an east wind, brought on inflammation and acute pains, extending over the side of the head, forehead, and down the nose. The pain was at all times increased by stooping.

The eye presented all the appearance of long continued disease. The sclerotic was of a dingy yellowish grey; numerous dark varicose veins coursed over the surface; and a dull red zone surrounded the cornea. The iris was convex, of a reddish brown, mottled with dark patches of lymph. The pupil was motionless, and bound by adhesions to a yellowish, stony looking cataract, which bulged through it. The eye felt (if I may be permitted to quote the expressive simile of a bystander), "like a stale gooseberry".

On the 26th October, I proceeded to remove the lens. The anterior chamber was not completely obliterated, and I succeeded in passing my knife[1] obliquely across the cornea, making the inferior section. To obtain sufficient space, the wound was further enlarged with the sabre knife. Many adhesions having been divided, an attempt was made, without success, to extract the lens. A free incision was then made in the margin of the pupil, and several other adhesions discovered. I then endeavoured to squeeze out the lens, but failed, and it became necessary to remove it piece-meal. The operation was tedious; but the whole of the fragments, which had constituted the ossified capsule, were at length taken away; the substance of the lens resembled gum water. From the length of time unavoidably spent upon the operation, and the injury inflicted on the iris, it was expected that the eye would have been attacked with acute

[1] This knife is considerably shorter and smaller than those used by Beer and Tyrrell; and the heel is rounded off.

inflammation; the flap was carefully adjusted however, the lids closed, and cold, wet rags directed to be applied. A full dose of henbane was administered. Contrary to my expectations, this man made a most satisfactory recovery; and although at times irritable, the eye no longer caused him the suffering which had rendered his life miserable.

Case IV. A soldier, during the Russian campaign, 1812, was struck by a spent ball on the left eye; the sight was immediately destroyed, and severe inflammation came on. From this time he was constantly subject to violent pains in the eye, lasting many days, and returning after they had seemed to have disappeared. He was seen by M. Desmarres, for the first time, in July 1846. On examination of the cornea, which was partially staphylomatous, an opacity was seen to occupy its lower third, and here there was partial synechia anterior. Near the cornea, the sclerotic was traversed by a number of reddish brown vessels, arranged in a circle, and forming a diffused injection. In the subconjunctival cellular tissue there were large violet-coloured varicose vessels, such as are seen in affections of the internal structures of the eye of long standing, and especially in choroidal disease. Scattered throughout the sclerotic, were slightly elevated blue spots, manifesting its attenuation. The iris was discoloured and motionless. In the pupil, which was open and misshapen, the crystalline was seen of a pale orange-yellow colour. This body, dislocated by the blow, had sunk in such a manner, that the upper border was inclined downwards and forwards, advancing into the anterior chamber, and touching the cornea; whilst above it, a portion of the back of the eye was visible. Vision had been lost about thirty-four years. The severe pains returned whenever the eye was inflamed, which was often the case. The patient was a tall man, but thin, and of a bad constitution: he declared that he had lost his health in consequence of the sufferings caused by his eye, and entreated speedy relief. M. Desmarres, judging that the suffering was caused by the presence of the lens in the anterior chamber, proposed to extract it; and with this view punctured the cornea, as in the operation for cataract, by an oblique incision. The lens was then seized with forceps; it grated like a piece of stone, and could not be extracted on account of the solid adhesions it had contracted with the neighbouring parts. Several other unsuccessful attempts were made. The corneal flap, on examination, presented a multitude of wrinkles, similar to those seen in the corneæ of the dead, after having been exposed for some time to the air; and could not be adapted, on account of the shrinking, to the other lip of the wound. A considerable portion of the cornea was then removed with the keratotome, as in the operation for opaque staphyloma; and M. Desmarres was then enabled, by means of scissors and forceps, to divide the adhesions and extract the lens, which was found to be entirely osseous, or stony. But little pain was felt; but three or four hours after the operation, severe hæmorrhage took place. The blood flowed abundantly, so that the bed of the patient was quite soaked. Compresses of ice, applied to the eye for five or six hours, diminished, but did not arrest, the flow of the blood, which continued for twelve hours after the removal of the cornea. The lids were then cleansed and closed, and covered with sufficient bandages to completely cover the eye. A considerable coagulum formed under the upper lid, and the hæmor-

rhage stopped, but the eye was completely destroyed by suppuration. The patient recovered after three months.

The crystalline was of an absolutely stony consistence; when struck with a stylet, the instrument resounded as if it had touched a stone; the cornea, placed in alcohol, presented the traces of synechia anterior, and it was thickest in the spot of the opacity. The anterior surface of the cataract presented numerous striæ, tolerably regular, converging towards the centre of the crystalline, which was covered with capsule, in part osseous, in part sound; the posterior surface was less dense than the anterior, and on being scraped with a pen-knife, a certain quantity was removed, which being placed dry in a bottle, resembled pounded stone.

Remarks. Ossification of the lens itself is extremely rare. Mr. Tyrrell relates one instance of it, where the capsule was opaque and thick, and contained a mass about equal to one-third of the original lens, hard and brittle, so that it broke on attempting to separate it from the capsule: it was the result of a blow, and was extracted from the eye of a lad of fifteen, who speedily recovered from the operation. A well-marked case is also related by Mr. Wardrop: it was from an eye sent to him by Mr. Allan Burns, of Glasgow. On dissecting back the choroid, the posterior chamber was found filled with a white pulpy mass, and on dividing the crystalline, its central portion was found converted into hard bone. The external laminæ of the lens were soft, those near the centre more consolidated, and the central portion itself of a deep brown colour, perfectly osseous, and exhibiting a laminated structure. Case IV is another example. And it is worthy of remark, that in two out of the three instances, this remarkable change was the result of a blow upon the eye: of the third there is no history.

Ossification of the capsule of the lens is the most frequent form of Osseous Cataracts. The character is that of a shell of bony matter irregularly deposited, some parts being thick, others as thin as tissue paper. The colour is yellowish, and when viewed in the eye, appears as if dotted with white paint. For the following analysis of the cataract extracted in Case I, I am indebted to Dr. Hoffman of the Royal College of Chemistry. "The ash left on incineration was found to consist principally of phosphate of lime; it contained besides small quantities of sulphate of lime, and traces of sulphate of potassa and chloride of sodium. It therefore has a very analogous composition to that of bone."

The agonising pain caused by these cataracts is of a neuralgic character, being the result of the constant irritation of the iris by the pressure of the hard body. So severe is it at times, that it causes temporary delirium; and I have known two instances in which the patients were driven into the pernicious practice of opium-eating, to drown their sufferings in stupor.

There is one point in the history of such cases as those I have related, which cannot fail to strike the observer: that, despite of the difficulty and duration of the operation, the amount of violence inflicted on the eye (which far exceeds that of the ordinary operation of extraction), and the diseased state of the organ itself, which might be supposed to render it prone to inflammation, the recovery is, in the

majority of instances, rapid and satisfactory. The unusual step adopted by M. Desmarres, of cutting away a large piece of the cornea, is of course an exception; and the alarming hæmorrhage described resembles that which occasionally follows the removal of a staphyloma, and is not to be anticipated unless such a proceeding be practised. It certainly may happen, as occasionally, though very rarely, occurs after extraction, that severe hæmorrhage may arise from a branch of the central artery of the retina, but in the three cases of this, with the particulars of which I am acquainted, there was good reason for supposing that a diseased condition of that vessel rendered it incapable of contracting.

In the performance of the operation, the almost entire obliteration of the anterior chamber by the projection of the lens and iris, renders it extremely difficult to pass the knife across it; in such a case, it would be found easier to direct the incision obliquely. That should be free; and if the cataract knife do not make it of sufficient size, the blunt-pointed sabre knife cutting on the convex edge, will enlarge it with facility. In the event of the adhesions to the cornea being so extensive as to preclude the possibility of performing the operation in this manner, it may become a question whether an incision directly across the cornea may not be the best mode of proceeding; the object in view is not to give sight, but simply to relieve suffering, and it must be familiar to many, that similar wounds of the cornea inflicted by accident unite kindly if judiciously treated. The great difficulty, however, is the extraction of the cataract. The iris having lost its elasticity, and being bound by adhesions to the lens, and possibly to the cornea, does not yield to pressure; and the lens, being solid, cannot be forced through the contracted pupil, even after the adhesions have been divided, with such an amount of force as can be prudently applied. The better way then, is to break down the osseous shell and remove it piece-meal, having previously divided the adhesions by sweeping round the margin of the pupil with a fine iris knife. Before placing the flap in apposition, a careful examination should be made, to see that none of the fragments are left. After the lids have been closed, two or three folds of rag, dipped in cold water, should be applied to the eye so long as is felt agreeable, and a full dose of hyoscyamus administered.

Many persons cannot take any preparation of opium, without subsequent nausea and sickness; and therefore hyoscyamus is to be preferred as a sedative after operations on the eye. A tincture, sent to me by Messrs. Taylor of Vere Street, made from henbane dried rapidly at a low temperature, then placed in hot bottles which are immediately sealed up, possesses so much strength, that 30 drops is a full dose. This I usually administer after eye operations, with the best effect.

2, Tenterden Street, Hanover Square, June 1849.