Original Communications.

TEN YEARS OF OPERATIVE SURGERY IN THE PROVINCES.

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V.—OPERATIONS ON THE EYE.

[*Continued from page* 521.]

Mixed Cases. To conclude my series of operations undertaken for the restoration of sight, I have brought together, under the head of *mixed* cases, a few instances in each of which several operations were performed; namely, the formation of artificial pupil, with the extraction of cataract or opaque capsule; and they could not very conveniently be arranged with the others. Some are cases of considerable interest, and very successful.

CASE CCCCVIII. F., aged 61, had the lower part of each cornea opaque, and opaque capsule in the left eye, with dulness of the right eye. She could not find her way about. I operated on both, and succeeded in clearing the right pupil of the dulness, with the exception of a portion of capsule. At a second operation, I made a free corneal section downwards; and, not being able to withdraw the capsule, I removed a portion of iris, and extracted with some difficulty a yellow opaque lens. From this operation she recovered sufficient sight to see to go about readily. After a time, her sight became more dim; and I enlarged the pupil, so as to bring it opposite a clear part of the cornea; but it did not succeed; and, although the pupil was made, she went home with her vision very indistinct.

CASE CCCCIX. M., aged 30, had amaurosis of the left eye, and met with an injury of the right, by which the cornea had been opened, the pupil drawn down to the scar, and the capsule opaque. I made at the first operation an opening through the iris, and found an opaque lens behind. When the eye recovered, I extracted the cataract without difficulty. He had considerable headache afterwards, and for this he was bled; and, when he was quite well, I found some capsule obstructing the artificial pupil. This I removed by a needle-operation; and he went out with fair sight, able to drive a donkey-cart about the city.

CASE CCCCX. M., aged 8, a healthy-looking red-cheeked boy, was unlucky enough to have his left eye destroyed by a piece of crockery ware and the right by an arrow. The former is quite opaque; and in the latter the iris is adherent to a transverse opaque line across the cornea, and the pupil is almost closed and blocked up with opaque capsule. I introduced a needle behind the iris, and tried to remove the capsule; but in vain, for it was too firmly adherent, and the lens was behind. Upon a subsequent occasion I gave him chloroform, and removed a portion of the iris, when the opaque lens became visible. A little vitreous humour escaped.

I subsequently operated on this little boy three times more. At the third operation, I introduced a needle through the sclerotic, and tried to draw back some opaque matter which occupied the upper part of the eye. At the fourth, I divided the iris with the iris-knife, under chloroform; and at the fifth and last I repeated the section without chloroform. His sight improved gradually; and now he can see to go about everywhere, and distinguish objects, and with a lens can see letters. This termination was very satisfactory, considering that the patient had not as much as half an anterior chamber available for all these operations.

CASE CCCCXI. M., aged 40, injured his left eye by accident, and for ten weeks following suffered much from inflammation. When I saw him, about ten months afterwards, he had adherent iris and capsule and opaque lens in each, and he was blind. I began by making an upper corneal section in the right eye, breaking the capsule, and trying to extract the lens. It was necessary to snip the edge of the pupil with a pair of scissors before I could dislodge it; and, after all, I was obliged to pass in the curette and lift it out, which I did, leaving a clear black pupil, but no sight. At a *second operation*, this pupil having closed partly, I incised it; but he could see no better, and went home; and six years afterwards, when I saw him again, the right eye had gradually become atrophied and sunk, whilst the left looked stronger. On the third operation, I made a lower corneal section in the left eye (in which the original accident had occurred); and, after trying once or twice to withdraw some iris from the eye, which I could not do because it was soft and gave way readily, I withdrew the capsule, and, seeing the lens opaque behind, I enlarged my corneal incision, and turned it out. Some vitreous humour escaped at the same time, and the eye during the operation had become very vascular and painful. He recovered fairly; and the iris lost its discoloration, and the eye became much more sound. He could see to go about anywhere, and his health improved greatly.

CASE CCCCXII. M., aged 21, a feeble emaciated youth, came under my care in 1856, with acute iritis of both eyes. The disease was apparently of a strumous nature, and had existed three weeks when I saw him, when he had pus in the lower part of each anterior chamber, corneal opacity and lymph on the iris in the right eye, with purulent deposit in the upper part of the anterior chamber in the left eye. I have seldom seen so destructive a case. He grew progressively worse, and partial sloughing took place; and, when he recovered his health, he could barely distinguish light from darkness. Two years afterwards, his right eye had about the upper half of the cornea clear, but no pupil; and the left eye was flat. At the *first* operation, I made an artificial pupil in the upper and outer part of the right eye, and discovered a cataract behind; and as the poor fellow, who worked to support his mother, had only the chance of sight in this mutilated eye, I allowed it to heal, and, after a time, performed a *second* operation, which consisted in the removal of the cataract through an upper corneal section. This did well, and he recovered a fair amount of sight, and was able to work for a time; but, after a few months, the pupil became blocked up with opaque capsule, and his sight was very indistinct. The *third* operation consisted in removing the capsule through a corneal section; and it was accomplished readily, but was followed by some inflammation; and his pupil became closed. At the *fourth* operation, I cut across the iris with an iris-knife, and made a good pupil, through which he saw well for a minute or two, when blood was effused, and obscured the vision. After this he recovered partial sight, so as to be able to get about; but his pupil was not satisfactorily clear; and therefore, for the *fifth* time, I operated, and removed by a needle some opaque matter which occupied part of the pupil, and he regained his sight. He now sees very fairly with a four-and-a-half-inch lens, and his health is much improved.

CASE CCCCXIII. M., aged 55. (I introduce this case from the similarity in its origin to the last.) The patient was, for his age, an old-looking man, weak and ill, with pus in the anterior chamber of the right eye, following an abscess in the cornea of a month's standing, which gave way internally. The pus increased in spite of treatment, until it had reached above the margin of the pupil, giving a dull appearance to the capsule. He could make out the light from darkness, but could not

distinguish the bars of the window-frame with this eye. I made a lower corneal section, to get rid of the pus; but it was very thick, and did not escape readily with the aqueous humour; and he went home with no sight in this eye, the left being good.

Exactly a year afterwards, this patient came up again with the same condition in the left eye, namely, an internal abscess discharging into the anterior chamber; but the other eye had become strong, and in it the lower half of the cornea was completely opaque, the iris adherent to it; and a similar oval pupil existed just above the corneal capacity, and he saw tolerably well. The progress of the disease in the second eye was like the first. I made a section, to save the organ. He went home entirely dependent on the sight in the right eye (that first affected); and when I saw him for some other ailment, three years after, the left eye was exactly like the right, with corneal opacity, adhesion, and minute oval pupil, with very good sight. There was an unusual degree of parallelism in the origin, treatment, and result of the disease in these two eyes.

Case ccccxiv. F., aged 52. I began the treatment of this patient as long ago as the beginning of the year 1857, when she had been blind with the left eye for fifteen years, and the right for one year. In both there was closed pupil, adherent iris and capsule, with lymph occupying the position of the pupil.

I made, first of all, an artificial pupil in the left eye, by removing a part of the iris at the lower and outer corner of the anterior chamber through a corneal section; and she saw better afterwards, but not well, for the lens was opaque. At the *second* operation, I made an artificial pupil in the other eye; and she went out with more sight, and a good sized aperture in each iris. Some months afterwards, I extracted the left lens by a lower corneal section. A little vitreous humour followed, and the cataract was very dark. She recovered fairly, with a very small pupil, but sight enough for her ordinary domestic work. A *fourth* operation was performed a few months afterwards, when I removed the cataract from the right eye, and she obtained some sight in it, but it was imperfect. She managed, however, to get on comfortably for eighteen months, when she reappeared, blind once more. The right eye had an indistinct pupil in it, partially occupied by opaque capsule; and the small pupil that existed in the left eye had become too contracted for useful sight. I therefore, on the fifth operation, made a cut across the iris of this eye with the iris-knife, and she regained excellent sight instantaneously. The pupil thus made became gradually almost round; and I supplied her with a two and a half and a four and a half inch glass, with which she saw very well.

Remarks. The operations for artificial pupil, although generally performed upon damaged eyes, are, on the whole, very satisfactory and successful. No regular and systematic directions can be given as to the mode of operation, and the surgeon must act in each particular case according to its special peculiarities, remembering that a hole is to be made in the iris opposite a clear part of the cornea; and, of course, the nearer to the centre the better. The actual plan to be pursued can only be decided after the first step of making a corneal section has been taken. The exception is in the case of closed pupil after the extraction of cataract; for there, a cut with the fine iris-knife will restore sight as if by magic; and, if the incision be expertly made in the middle of the iris, the pupil attains a wonderful degree of roundness.

I have no experience of a plan recommended some time ago, according to which a piece of iris was to be tied at the edge of the cornea; nor can I understand how it can have any advantage over other modes of proceeding.

A perusal of the foregoing cases (from No. 359 to 414) will also shew some other points of interest. Probably twenty of them were blind of both eyes, because one had been injured; and to this I will add my belief that, in any of these, extirpation of the injured organ would have saved the other; and the examination of similar cases at the Bristol Blind Asylum originally suggested the idea of excising the damaged eye.

When the cornea has been opaque from inflammation or accident, and has afterwards cleared, and a section is made in it for the purpose of making an artificial pupil or removing opaque matter, it will become cloudy again after the operation, and in time will be restored to its former transparency; but this is a work of some time, and many cases then turn out better than they promised, and are supposed to do, because they cannot be kept under the surgeon's care sufficiently long.

When the cornea sloughs, and the pupil is closed from small-pox or purulent ophthalmia, the lens generally becomes opaque also; and when a stain of blood is left on the knife after making a section of the cornea, the cases invariably do badly from inflammation or sloughing.

The late Mr. Estlin of this city read a paper upon injuries to the iris, at one of our annual meetings, at Leeds, and he showed how little it resents injuries inflicted upon it, either by accident or the surgeon's hand. In that paper, he describes the operation I have alluded to, of dividing the iris by the "iris-knife," a fine narrow blade, scarcely wider than a needle, which is introduced across the anterior chamber, and then its edge being turned towards the iris, a sudden movement of the hand runs it through the iris and withdraws it instantly. I have above narrated many cases where this little operation proved very successful. If there be an opportunity of selection, the cut should, of course, be made at right angles to the strained fibres of the iris, as thereby a larger, and somewhat circular, pupil is made.

Staphyloma. The operation for the relief of the irritation caused by staphyloma is not unfrequently called for, and is invariably successful. I will describe a few of which I have preserved some notes, and they will be sufficient to indicate the progress of such cases.

Case ccccxv. F., aged 17, with staphyloma of the right eye from an injury. I removed it, and a clot formed, and after a certain amount of suppuration, the part healed. Her eye was unusually sunken afterwards, but an artificial eye was introduced.

Case ccccxvi. M., aged 3, with staphyloma of the right eye, of eighteen months standing. With tenaculum and knife, I removed the cornea, and some vitreous humour followed. The lens did not come out. The child was taken home on the sixth day with the wound almost healed.

Case ccccxvii. F., aged 17. Her right eye was opaque, the left very prominent. I removed the front of it with a tenaculum and knife, and the lens and some vitreous humour followed the section. There was a little hæmorrhage. She complained immediately of great pain in the head, which lasted a few days; the eye slowly contracted and did well.

Case ccccxviii. Aged 4 months, with staphyloma of the left eye after purulent ophthalmia. The vitreous humour gushed out, and the eye looked collapsed immediately the anterior part was removed, and some little hæmorrhage followed. A compress and bandage was applied. The wound was healed in eleven days.

Case ccccxix. M., aged 18, with staphyloma of the right eye. A week before I saw him, as he was blowing his nose, sudden pain came on in this eye. I removed the front of the eye; and it appeared that a hard chalky lens had escaped into the anterior chamber and had produced the irritation. Some healthy vitreous humour escaped with the lens, and it was necessary to divide the hyaloid membrane with a scissors. There was a little hæmorrhage, but he soon recovered.

CASE CCCCXX. M., aged 10. I removed the cornea with a tenaculum and scalpel. The vitreous humour did not escape at first; but in puncturing the clear surface of it with the point of the knife, it gushed out suddenly, and the eye became collapsed. He recovered speedily.

CASE CCCCXXI. M., aged 11. (I operated on this patient under chloroform; all the previous ones were without.) I removed the cornea, and the iris, which was adherent to it, and the lens followed. He recovered immediately.

CASE CCCCXXII. F., aged 13 months, with staphyloma of the left eye from birth. The cornea (very much thickened), and the iris adherent to it, with the lens and some vitreous humour, were removed, and the wound healed at once.

CASE CCCCXXIII. F., aged 22, an otherwise good-looking young woman, with very prominent eyes. I operated under chloroform; and passing a needle and thread through the cornea, removed it, with the lens and some vitreous humour. A clot ultimately formed in the eye, and was discharged, and she recovered well. She called upon me sometime afterwards with an artificial eye, and it was difficult to recognise her.

CASE CCCCXXIV. F., aged 11. I operated without chloroform, removing, by tenaculum and knife, the cornea and iris, and some vitreous humour. She was soon cured.

CASE CCCCXXV. M., with staphyloma of the right eye. The irritation kept his left eye weak. With tenaculum and knife, I removed the cornea. There was an unusually free flow of blood, and after a day or two a clot projected from the eye. The case did very well.

CASE CCCCXXVI. M., aged 30. I operated under chloroform; and as another plan had been recommended, I tried it in this case. With a strong silk, I tied up his cornea by the (so-called) Fergusson's knot—*i.e.*, a double figure-of-eight knot—and punctured it as well. He suffered more pain than is usual after these operations; but the case did perfectly well.

CASE CCCCXXVII. M., aged 4½. In this, and other subsequent operations, I returned to the old plan, and removed the cornea and iris, with the aid of the tenaculum and knife. The mother took the child home, and when I saw it, in a few days time, acute inflammation and suppuration, with severe constitutional disturbance, were set up, which afterwards subsided, and the case did very well.

REMARKS. I believe that, in performing this disagreeable operation, the old plan of simply cutting off the projecting part is the best. During the time that I was surgeon to the Blind Asylum here, I operated on a considerable number of such cases; but I have no particular record of them. I found, not unfrequently, that the patients, seeing a great glare of light streaming through the vitreous humour, after the removal of an opaque cornea, were much disappointed that they did not recover any sight. There are two symptoms following operations on the eye, of very constant occurrence, and very painful to the patient, and unmanageable: they are the vomiting (in young subjects particularly) which follows needle operations for cataract, and the intense pain at the back of the head and brow, which follows equally frequently the operation for staphyloma, particularly if much vitreous humour have escaped. I cannot explain the pathology of these symptoms; nor do I know how to treat them with full confidence of cure. Opium does not answer our expectations in such cases. I have formerly bled adults from the arm, and this plan seemed most effectual. It is important to get rid of the lens in staphyloma operations.

[*To be continued.*]

FERRI CARBONAS EFFERVESCENS: A NEW AND ELEGANT FORM OF CHALYBEATE.

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BELIEVING that the protocarbonate of iron, even in a solid state, is one of the best preparations we can administer in the thousand and one diseased conditions in which chalybeates prove useful, and that its present officinal preparations are incapable of preserving it from decomposition for any reasonable length of time, I have long thought it a desideratum to obtain it nascent, and in a soluble form, at the time of ingestion. I am now happy to state that, after a great deal of trouble and experimenting, both by myself and by various experienced chemists, I have, at last, succeeded in obtaining the protocarbonate in the permanent and elegant form of an effervescing granular powder.

Formula and Process of Preparation. The effervescing carbonate of iron is made as follows:—

℞ Acidi tartarici ℥iij; sodæ bicarbonatis ℥v; ferri sulphatis ℥x; pulveris sacchari ℥j ℥vj; acidi citrici ℥ij.

1. Mix the sulphate of iron with the sugar and part of the tartaric acid. 2. Mix the citric acid with the remainder of the tartaric acid and the bicarbonate of soda. 3. Add the mixtures, and thoroughly incorporate them by sifting. 4. The whole is now to be thrown into a metallic pan set in a water bath; in a few minutes it will separate, when it should be rapidly stirred until granules are formed. If preferred, it may then be flavoured with oil of lemon; hitherto, however, the preparation has been without it.

Physical and other Properties. When the above is carefully prepared, it has all the appearance of the popular and well known granular effervescent citrate of magnesia, with the addition of a slight yellowish green tint. Every drachm and a half contains ten grains of sulphate of iron, which, with a complement of bicarbonate of soda, is certain to produce, in a state of solution, four grains of nascent protocarbonate of iron. At the same time, there is developed a tartrate with a little citrate and sulphate of soda, which is, if anything, an advantage, as they act the part of a very gentle saline aperient, obviating the usual astringent effect of preparations of iron, as well as the too frequent constipation attending cases requiring chalybeates, particularly amongst females. The taste of it depends very much upon the amount of dilution. When taken in the dose and manner hereinafter recommended, the taste is that of a mild, sparkling, and refreshing chalybeate.

After the effervescence subsides, a perfectly clear, light-green solution remains, which, if allowed to stand for some time, becomes of a deeper green colour on the surface, gradually increasing from above downwards, and floating like a cloud upon the upper stratum of the liquid. This appearance was at first mistaken for oxidation, but the more correct explanation seems to be that it is the carbonate of iron which was retained in solution by excess of carbonic acid gas; that, as the excess escapes from the surface, the carbonate separates from the solution in the form of a fine cloud and becomes ultimately precipitated in the form of an impalpable powder. So far as permanency is concerned, the preparation has stood the test of several months, and it now remains as good as the day when it was made.

Dose, Uses, Mode of Administration, etc. The dose is a teaspoonful, more or less (about a drachm or a drachm and a half), twice or thrice a day, in half a tumbler or more of water, an hour after, between meals, or upon