ON THE EXTRACTION OF SOFT CATARACT BY INJECTION.¹

By CHARLES G. LEE, M.R.C.S.,
Surgeon to the Liverpool Eye and Ear Infirmary.

It will be, doubtless, in the recollection of some present that, at the Belfast meeting of this Association, in 1884, the then President of our Section, Dr. A. M'Keown, introduced to the notice of the members his method for the extraction of cataract by the intracapsular injection of water; and subsequently, at a meeting of the Ophthalmological Society, held on October 15th, 1885, Dr. M'Keown brought the results of the added experience of the intervening fifteen months before that learned body.

Although, from the tone of the discussion that followed on each occasion, it might have been surmised some trial would have been made of M'Keown's operation, the absence of records of any such experiments in the English medical journals would seem to indicate that this has not been done. Moreover, during the debate on Mr. Brudenell Carter's paper on Cataract-Extraction, at the June meeting of the Ophthalmological Society, while such points as the retention of the speculum, the substitution of the third finger of the fixing hand for a lid-elevator, etc.,—points which each surgeon will for himself best determine,—were fully discussed, no reference appears to have been made to Dr. M'Keown's novel but effectual method for getting rid of soft matter.

I must add that Dr. Wicherkiewicz, of Posen, has adopted the same principle; but, as it appears to have been a spontaneous action on his part, and independent of inspiration from British surgery, it will not affect the present contention.

The particulars of the six cases I have to submit to your notice, in which M'Keown's ideas have been carried out—with, however, such modifications of the instruments employed as experience appeared to suggest would be improvements—will, I trust, be considered sufficiently interesting to merit the attention of the Section, and, perhaps, may induce some members present, tentatively at least, to adopt this practice.

On the two first occasions M'Keown's syringe was employed, but at once obstacles were encountered from the inefficiency of the piston, and the inability to regulate the amount of pressure used; the shortness of the syringe added to the difficulty in bending it over the eye-brow. With so marked a jerk was the flow that I had almost abandoned the operation; yet so satisfactory was the action in removal of soft matter, that I determined to try if by some irrigating apparatus these difficulties might not be overcome. It did not require much ingenuity to attach a piece of india-rubber tubing to one of M'Keown's terminals, the distal end of the tubing being fixed to an ordinary metal reservoir.

An objection to the use of M'Keown's terminal was made on account of the screw end being so large, that it would require a piece of tubing of such a calibre to receive it, that the stream of water passing would be too rapid and not easily controllable. To meet this, I have had the screw end replaced by a smooth bulbous one, large enough to distend the fine tubing I use to make it secure, and yet not too big to give rise to any difficulty in unattaching it. The irrigator thus constructed was accordingly substituted for the syringe in the remaining cases with most gratifying results. The reservoir being held by an assistant, or nurse, who elevates or lowers it under the operator's direction, no difficulty is experienced in obtaining a rapid or slow stream, and the surgeon holding the tube close to the terminal, between the finger and thumb of one hand, can in a second stop the stream much more readily than if he were dependent on any tap, or other mechanical contrivance.

I notice Dr. M'Keown states he has abandoned "the gravitation bottle" for the scoop-syringe. If the action of the bottle resembles that of the irrigator, I can only express my surprise. The difference between the intermittent and sudden action of the syringe, and the steady and controllable flow from the irrigator, is so great that I submit anyone who has seen the two in operation will have no difficulty in deciding on their respective merits. The experience of my colleagues of the Liverpool Eye and Ear Infirmary will, I think, support me in this observation.

I think the irrigator would be preferable to "the Undine" of Dr. Wicherkiewicz, because through the elastic tubing it is easily adaptable to the varying heights of the superciliary ridge, or the supra-orbital arch, while "the Undine," being an arrangement of

unyielding metal and glass, must in some cases be with difficulty applied.

It would serve no useful purpose to particularise each case, nor to give in detail every step of the operation; the summary handed round will supply most of the important points. A few general remarks, however, will not be out of place. I may observe, in the first place, that no departure was made from our usual method of operating; in each case an iridectomy was performed upwards twice, as a preliminary step to the extraction, while in the remaining four cases, the whole operation was completed at once; the line of incision was in the sclero-corneal junction.

As a rule the speculum was removed, if not before, immediately after expulsion of the lens, and the patient allowed a moment or two's interval before the removal of cortical matter was commenced. Then, the lids being held either by an assistant or by the operator himself taking the upper lid when the irrigator was employed, the terminal was introduced well in the capsule, often right across the area of the pupil to the lower edge of the iris, or wherever cortical matter was seen, and the stream of water allowed to flow steadily but slowly; sometimes the instrument was withdrawn to be re-introduced, if any soft matter was observed; or if the patient's inability to count fingers made it likely that some remained. It was most interesting to watch the pieces of cortex slowly floating up, sometimes from behind the iris towards the incision, there to escape with the out-going stream.

While the irrigation is most effectual in removing soft matter, it is at times inefficient in getting rid of capsule; in one case, a piece of capsule was observed to be attached to the lower border of the iris; and although three attempts were made to induce it to "move on" by inserting the terminal well beneath and behind the obstruction, it had to be abandoned. The fragment remained *in situ*, fortunately without any ill effect on vision. I have in every case employed simple distilled water, at a temperature of about 95° Fahr., nor do I see any reason to substitute any so-called aseptic solution; the water appears to fulfil all requirements, and its use has not been followed by the slightest indications in any case of septic mischief.

No general anæsthetic has been used; a 4 per cent. solution of cocaine has been instilled. In the case of children, or excitable persons, I should, however, have recourse to ether, as it is an important point to ensure the eyeball being perfectly still while the instrument is in its interior.

The results as regards vision cannot but be considered satisfactory; in no case has a less acuity than $\frac{2}{3}$ been obtained; while the residence of the patients in the infirmary has not been prolonged, sixteen days being the average. One patient, both of whose lenses were extracted, might have been discharged fully a week earlier had he had a home to go to.

The table shows that all the patients were past 40 years of age; consequently, their lenses would at least have a certain amount of nuclear density. I have not yet employed the irrigator in either the semi-gelatinous cataract of adolescence, or the fluid one of infancy; I can, however, easily imagine the benefits likely to be derived from it. For example, the necessity for repeated operations will be obviated; the dependent risks of iritis and of panophthalmitis, which all must have seen follow the introduction of even a single needle, will at the same time be minimised.

I freely admit that the number of cases I have to report is small, yet it is sufficiently large to indicate that irrigation or injection is a method of practice deserving of more credit than has hitherto apparently been accorded to it, seeing that in not one of my cases has a single accident happened during the operation, nor has it been followed by a single bad symptom that could be attributed to it, while the ease and effectiveness with which the soft matter was expelled appeared little less than surprising, in some cases large masses of cortical substance being removed, almost equalling in size the portion that represented the nucleus.²

Mr. EDGAR BROWNE had employed the method in some six or seven cases. For removing sticky cortex it was a valuable aid, but it must not be considered as a routine procedure. In extraction, the fewer instruments introduced into the eye the better.

Mr. ARTHUR H. BENSON had used a saturated solution of boric acid for irrigation in cataract cases, and found it also useful for the removal of hæmorrhage from the anterior chamber after iridectomy and before opening the capsule of the lens. He had now a small glass instrument with an india-rubber top like that of the ordinary drop bottle, to which a fine silver nozzle (flattened) had been fixed;

² A table of cases illustrating the results of the method of extraction described in the above paper was prepared, but cannot be published here owing to want of space.

¹ Read in the Section of Ophthalmology at the Annual Meeting of the British Medical Association in Brighton

Wecker, he believed, was the inventor. He had so far seen no disadvantages from the use of irrigation.

Mr. GRANGER (Chester) objected to the form of instrument used by Mr. Lee, as being more difficult to keep clean than a simple bottle, the contents of which can so satisfactorily be removed by syphon action.

Mr. LEE, in replying, said he was careful to pass an antiseptic solution through the tube before using. In reply to Dr. Bell, Mr. Lee said he had reported the first six cases on which he had operated, and without any drawback whatever; he had also done three cases subsequently to the completion of the table.

ON THE RELATION OF HEADACHE TO THE CONDITION OF THE EYES.

By C. HIGGINS, F.R.C.S.,
Ophthalmic Surgeon to Guy's Hospital.

HEADACHE arising from ocular causes is very frequently met with. Ophthalmic surgeons have again and again called attention to the subject; but as yet the bulk of the profession do not appear to recognise the necessity for a thorough examination of the eyes in all cases of obstinate head-pain.

As a rule, when a case of ocular headache comes before the ophthalmic surgeon, the patient has undergone a protracted course of medical treatment, having been looked upon as nervous, plethoric, bilious, or anæmic. Indeed, in some cases, after having "suffered many things of many physicians," a patient has been pronounced the subject of incurable brain-disease, when all that was necessary to effect a cure was a properly selected pair of spectacles.

The symptoms of ocular headache are fairly well marked; they nearly always begin in early life, though a reference to any ophthalmic surgeon's case-book will show that, in many instances, the cause has never been discovered till late on in life. "I have had headaches as long as I can remember," or "I have had headache off and on ever since I first went to school," is what we are frequently told. The most marked symptom is that the headache is either brought on, or made worse, by reading or working. The object of this paper is more especially to call attention to ocular headache as occurring at the time of life which is mostly taken up by education, and I thought this occasion appropriate, as Brighton seems to be a favourite place of education. The ocular conditions causing headache are anomalies of refraction (hypermetropia and myopia), astigmatism, and insufficiency of the internal recti muscles. All these conditions are easily remedied by optical means, but are quite beyond the reach of medical treatment. I have looked over two of my case-books, containing rough notes of 1,072 cases, and find that 31, or nearly 3 per cent., suffered from obstinate headache which appeared to be due to the condition of the eyes. The following five cases will serve as illustrations.

Simple Hypermetropia.—Ernest W., aged 10, came to me on April 3rd, 1883. He had suffered from headache for four months, and had lately noticed that the headache was made worse by reading. He was thought to have some brain trouble. Hypermetropia (manifest) $\frac{1}{2}$ was found in both eyes, and he was ordered +30 for reading, etc. On January 17th, 1884, he consulted me again for phlyctenular ophthalmia. He had had no headache since he got the glasses.

Simple Hypermetropic Astigmatism.—Miss N. B., aged 14, came to me on April 26th, 1883. She had suffered from headache for some years. She had always found the headache much aggravated by reading or doing any work. She was ordered +36 cyl. for all purposes. On May 28th of the same year a letter was received from the child's father, from which the following is an extract: "The glasses you ordered for her we got.....and from that time her headaches have entirely disappeared."

Hypermetropia: Periodic Squint.—Miss H. D., aged 6½, came to me in January, 1884. She had periodic squint in the left eye, and complained of headache. The ophthalmoscope showed hypermetropia of 2 D in the right eye, and 3 D in the left. She had manifest hypermetropia of 1.50 D in both eyes. She was ordered +1.50 for reading, etc.; nine months later +1.75 was ordered. On July 12th, 1886, the squint was scarcely noticeable, and she had never had a headache since the glasses were ordered.

Hypermetropia: Insufficiency of Internal Recti Muscles.—Charles E., aged 11, seen May 5th, 1884, complained of headache and double vision at times. Manifest hypermetropia $\frac{1}{2}$ was found, and either eye diverged when covered; both were unsteady when trying to fix

an object at 10 inches or nearer. Ordered +40 decentered inwards for reading, etc. The use of these glasses cured both the headache and the diplopia, but both returned if they were not used.

Compound Myopic Astigmatism.—Arthur E., aged 13, was seen on January 17th, 1884. He had had headache for twelve months, always made worse by reading. In each eye there was myopia $\frac{3}{4}$, with myopic astigmatism $\frac{1}{2}$. He was ordered —20 spherical —30 cylindrical for both eyes for reading, etc. He did not care to have glasses for distance. On September 4th in the same year, the myopia was the same, but he had had no headache since he used the glasses.

I have said that treatment by optical means is all that is necessary in these cases. This is not quite all, however. In the case of children and young adults, more especially young ladies, we should inquire into the methods of education. Many of our patients, I have no doubt, suffer severely from the strain of many hours' work, which, with or without glasses, is more than their eyes or brains can bear. Here is the daily programme of a "young ladies' finishing school" given me by a late pupil: Rise at 6 A.M.; work from 7 to 8.30; breakfast; work from 9.30 to 12 or 12.30 on alternate days; go out for a walk from 12 or 12.30 till 1; dinner; work from 2 to 5; tea; work from 6 to 8.30 or 9; go to bed at 9, or soon after; Saturday a half holiday. With the exception, therefore, of Saturday, the daily routine was not less than nine hours of work, and not more than one for exercise. Such a system requires no comment from me, and will, I think, be condemned by all reasonable beings.

Mr. CRITCHETT ventured humbly to suggest that general physicians should seek the aid of the ophthalmic surgeon at an early period in cases of persistent headache. He called attention to the importance of seeking whether there were insufficiency in these cases. Professor Liebreich had been our pioneer in this direction, and he had been well seconded by Dr. Landolt, of Paris. The former relied chiefly on the use of prisms, and the latter had recourse to operation.

ON A CASE OF ANEURYSM OF THE ABDOMINAL AORTA.¹

By HENRY F. A. GOODRIDGE, M.D., F.R.C.P.,
Senior Physician to the Bath Royal United Hospital.

R. B., aged 38, but looking older, a porter, was admitted on December 19th, 1871. He confessed to intemperate habits, but stated that, except for some winter cough, he had usually enjoyed good health, and was not aware of anything much amiss with him until eleven days before admission, when he was attacked somewhat suddenly, whilst walking, with pain in his left lower limb, so that he was scarcely able to get to his home. The pain was chiefly in the knee, and was attended with swelling of the limb. He kept his bed, in consequence, for the next four days, when, the swelling being nearly subsided and the pain much relieved, he began to move about again. He soon, however, got worse; the swelling increased, and the pain, though not so severe as at first, continued very troublesome. He now, therefore, December 19th, applied for advice, and was at once admitted an in-patient, his state at this date being as follows. The left lower limb from the thigh downwards presented considerable oedematous enlargement; this having commenced, he said, above and not below; there was none whatever in the fellow limb. On further examination, an irregularly globular but smooth resisting mass, causing distinct bulging and tension of the iliac and lumbar parietes, especially of the former, was found to occupy the greater part of the left half of the abdomen. It extended superficially, from near the vertebral column behind, to an inch or two beyond the umbilicus, where it dipped deeply with a rounded, well-defined border; and from Poupart's ligament and the crest of the ilium below to nearly the left false ribs. In this upper direction in front it seemed gradually to subside; moreover, the dullness on percussion which its surface pretty uniformly yielded elsewhere, shaded off here into the normal resonance of the part. It presented a certain amount of elasticity on pressure, varying, however, at different spots; but its most marked feature was its strong heaving pulsation, perceptible anteriorly at its most prominent part, but hardly less distinctly felt in the vertebral groove, when the patient was on his hands and knees. The mass was quite immovable, and free from tenderness on manipulation, and no *bruit* could be detected on auscultation anywhere over its extensive area. Just above the pubes on the left was some ecchymotic discoloration of

¹ Read before the Section of Pathology at the Annual Meeting of the British Medical Association held at Brighton.