capable of penetrating the corneal tissue; whereas I hold that complete penetration of the cornea with the discharge of the aqueous, is a result to be avoided, as unnecessary and dangerous, and believe the same object as regards reduction of conicity can be attained without the escape of the fluid. I have therefore had constructed by Messrs. Pickard and Curry, an instrument with which it is not easy to penetrate the corneal tissue. Performed in the way I do with this instrument, the operation becomes one of extreme simplicity, and the danger attaching to it is reduced to a minimum. Iritis and anterior synechiæ are practically impossible, and suppuration of the wound is extremely improbable. In fact, the only difficulty in connection with the operation is to hit accurately the desired spot on the cornea. To be able to do this well, I think it is always advisable to have the pupil well dilated, as the conicity can best be observed against the dark background. This having been done, and the cornea rendered insensitive by means of cocaine, the operator seizes the eye with a pair of fixing forceps in the left hand, while with the other he heats the cautery in the flame of a spirit lamp. When it is of a dull red heat, he dips the point in the apex of the cone, pressing slightly but not sufficiently to penetrate the whole substance of the cornea. On the withdrawal of the instrument, it will be found that the normal curvature of the cornea has been restored *on the spot*, and that instead of a cone there now appears a deep pit at the apex, lined of course with a thin eschar. The patient is hardly aware that anything has been done, and the whole process need not last more than a minute or two. The eye is then dressed as if for an ulcer. The process of healing is somewhat tedious, as in all cases of a burn, but, as far as my experience goes, there need be no anxiety whatever as to the result.

Although I arrived on theoretical grounds at the conclusion to give the cautery a trial, the aim of this paper being purely practical, I shall not detain you by theoretical considerations of any kind, but shall proceed briefly to relate my cases as they occurred.

CASE I is instructive on account of the means of comparison which it affords between the actual cautery and the plan of von Graefe, and shows, in my opinion, the undoubted superiority of the former. Miss W., aged 22, first consulted me on October 13th, 1886. Some months previously she noticed "things were misty," and lately she had suffered a good deal from the glare of the sun, and the eyes ached sometimes. She said her general health was good, and with the exception of a well-marked condition of dilatation of the capillaries of the cheeks there was nothing remarkable in her general appearance. There was very decided keratoconus, especially in the right eye, and vision had deteriorated during the summer. At the above date $V = \frac{1}{2}$ in each eye without a glass. With +2 cyl and -2 cyl at right angles to each other, V rose to $\frac{3}{4}$, partly. These glasses were ordered, and she returned home to Cumberland. Three months later, on January 18th, 1887, she called again. The apex of the cone in the right eye was now irregular, and evidently thinner than when last seen; vision had deteriorated, but I have unfortunately no exact note. On January 24th, with the assistance of my colleague Mr. Lee, I touched the apex of the cone in the right eye with the cautery in the manner already described. The conicity immediately disappeared, and a pit was formed at the apex. The eye was dressed with a pad and bandage. No drops were used. On the following day there was moderate injection and lachrymation. The ulcer healed without any untoward event, and the patient went home and returned again in May. The eye was then quite well, the resulting leucoma being about 2 millimètres in diameter. By this time $V = \frac{3}{4}$ partly, and there was no trace of conicity.

In the left eye vision had latterly diminished, and the glasses were no longer of much use to her, and I decided as a matter of experiment to try von Graefe's plan in this eye. I accordingly removed an elliptical piece of the cornea, and in doing so the anterior chamber was accidentally opened and the aqueous escaped. Atropine was instilled, and the eye was dressed with a pad and bandage. On the seventh day after the operation, the cornea became hazy, and a hypopyon formed. I immediately cauterised the wound, and in a few days the hypopyon had disappeared and the wound was healing favourably. When last seen, on September 27th, the eye was perfectly free from conicity, but owing to the rather large leucoma caused by the double operation, $V = \frac{1}{2}$ only. An iridectomy was advised, but the patient was so satisfied with the result in the other eye that this operation was postponed.

The occurrence of suppuration in the wound in this case reveals

one of the dangers of this operation, and it is not at all improbable that the eye would have been lost had it not been for the good effect of the cautery in arresting the suppurative process. An important advantage is thus gained by the use of the cautery.

CASE II is that of a young man, aged 28, who had been trephined and iridectomised in the left eye ten years before by a well-known ophthalmic surgeon, but had not been benefited by these operations. There was a central scar, but the conicity remained apparently undiminished. The right eye had not been touched. Vision with his eyes normally open was $\frac{1}{2}$, and he was not improved with glasses, but by narrowing the palpebral fissure with his finger and thumb it was raised to $\frac{3}{4}$ in the unoperated eye, and to $\frac{1}{2}$ in the other. On October 5th, 1887, I applied the cautery as above described to the right eye. In a month he was well enough to go home. On January 22nd, 1888, about three months after the operation, he returned and reported that his sight had been better than it was then, and on examination it was found that the conicity was returning at the upper end of the former scar. I accordingly applied the cautery again. This time the anterior chamber was accidentally opened, and the aqueous escaped. In six days the opening had closed and the chamber refilled without any accident to the iris. On February 5th, fourteen days after the operation, $V = \frac{3}{4}$ partly, without a glass and without blinking. Three months later it remained the same. There was no conicity, and there was a strong, firm scar. On June 1st a small iridectomy inwards and downwards was done. When the anterior chamber was opened and the aqueous escaped, it was noticed there was puckering all round the scar, showing that the surrounding cornea was more yielding and thinner than the scar itself. A fortnight later the patient was shown at the Lancashire and Cheshire Branch meeting, when $V = \frac{3}{4}$ and No. 4 Wecker, and still improving.

CASE III.—J. G., aged 22, a strong, healthy man, was first seen on March 29th, 1888. His general health was excellent, but his vision had been failing for four years. On examination, well-marked keratoconus was found in both eyes, worse in the right. $V R = \frac{1}{2}$ and letters of J 16, not improved with glasses; $V L = \frac{3}{4}$. On April 4th the right eye was cauterised and then dressed in the ordinary way. His progress was uninterrupted, and on May 24th $V = \frac{3}{4}$ and J 4 at five or six inches. When last seen on July 30th, vision remained the same. There was complete absence of conicity, and the scar appeared firm and strong. I have no doubt an iridectomy would improve this patient's vision; but even without this operation an improvement from J 16 to J 4 is an extremely good result. The left eye has not yet been operated on.

On the whole, I believe the foregoing results will bear favourable comparison with those of other operators obtained by means of either Bowman's or von Graefe's plan. Speaking from my own limited experience, I have no hesitation in recommending this operation, on the grounds, first, of its great simplicity and ease of performance; secondly, of its freedom from danger, sloughing of the cornea and anterior synechia being practically impossible; and thirdly, on account of its good results, both visually and as regards the arrest of the morbid process.

ON EXTRACTION OF SENILE CATARACT, WITH THE RESULTS OF 1,248 EXTRACTIONS.¹

By DAVID LITTLE, M.D.,

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THE question whether extraction of senile cataract should be combined with iridectomy or not is one engaging the attention of ophthalmic surgeons at the present time. I may say, at the outset, that I prefer the three-millimètre, or small upper-flap operation, with iridectomy. Everyone will admit that this operation, or one very similar to it, has achieved most excellent results, better than any previous method. Its success has been materially increased since the introduction of antiseptics, and my own experience is an evidence of the value of this additional treatment. About the beginning of 1887 I began to carry out antiseptic treatment systematically in every case of extraction, and from that period up to the end of June of the present year I have performed 133 consecutive extractions in hospital and private practice.

¹ Presented to the Section of Ophthalmology at the Annual Meeting of the British Medical Association, held at Glasgow, in August, 1888.

There has been no case of suppuration of the cornea, and no absolute loss of the eye from any cause; the worst result is one case of closed pupil, in which there is a prospect of improving sight by iridectomy; previous to that I had not anything approaching the same number of successful cases without loss from suppuration or other acute inflammation, so that I am justified in asserting that the employment of antiseptics has at least largely diminished the risks to suppuration or other destructive inflammation.

The main objection I have to extraction without iridectomy is the difficulty one encounters with the iris—prolapse or bruising at the time of operation, and prolapse or adhesion during the healing process—and this I consider the *bête noire* of the operation.

It is true, if the prolapse cannot be efficiently replaced at the time, by eserine or other means, iridectomy can still be performed. I grant you will succeed, in most cases probably, in replacing the iris, and have a perfectly central and round pupil, but there is still the danger of prolapse and adhesion afterwards, within the first two or three days, and at a time when you cannot well interfere without endangering to some extent the safety of the eye. Besides, these accidents occurring must retard recovery, if they do not immediately give rise to serious inflammation.

It is admitted by those who adopt the simple flap section, that adhesions result much more frequently than by the iridectomy method. I do not quite know the percentage, but I think it must be large. Now this is by no means a satisfactory condition in which to leave an eye. I always recollect a remark I have heard Sir William Bowman make that, after recovery of an eye from cataract extraction, the future safety of that eye largely depends upon the freedom of the iris. Such eyes are liable at any time afterwards to take on inflammatory action, and I believe old eyes are less tolerant of iritic adhesions than young ones. Nothing will happen probably to many, but in some serious changes do undoubtedly occur at one time or other. Iris complications are also occasionally met with by the iridectomy method, and of their evil effects, I have seen cases turn up, months, and sometimes years after the extraction, with serous iritis, subacute or chronic glaucoma, and other inflammatory mischief, in every one of which there was distinct evidence of cause, namely, an imperfect operation with incarceration or dragging of the iris at one or other part. I am apprehensive, therefore, that these cases would be more common after the simple flap operation, seeing that adhesions are more frequent.

Of the plan so largely practised by Wecker, Panas, and other French surgeons, and recently adopted by Knapp and Schweigger, I have no experience, but in 1873 I performed a series of extractions according to the method of Le Brun and Liebreich, an operation involving similar difficulties within the iris. I found that so many cases resulted in adhesion and prolapse, that I abandoned it for the small flap with iridectomy, which I have done in all cases of senile cataract ever since.

From 1873 to the end of 1887 I have performed 1048 extractions, favourable and unfavourable, in hospital practice, and I am indebted to my colleagues Drs. Emrys-Jones and Hill Griffith for their help in tabulating from the hospital books a large number of those cases. I have also a complete record of 200 consecutive cases in private from 1873 to the end of June of the present year. Time will not permit me to enter into details of these cases, and I shall only lay before you the general results. Before doing so, I shall detain you for a few minutes, and mention very shortly a few details of the operation and after-treatment, since surgeons vary somewhat in this respect.

The patient undergoes no special preparation; the operation is performed on a table in good daylight. A 4 per cent. solution of cocaine in boric acid is dropped three or four times in the upper part of the cornea. Before the introduction of cocaine into practice, it was quite the exception for me to give chloroform or ether. The conjunctival sac and external parts of the eyelids are well washed with corrosive sublimate solution 1 in 5,000. Formerly I used 1 in 2,000, and I cannot say that I ever saw irritation caused by it. All instruments are carefully wiped or washed in the same solution. A stop speculum is introduced, and the eye fixed below with conjunctival forceps by an assistant. With a second pair of forceps I fix the eye at the horizontal meridian inwards, so as to ensure perfect steadiness and the making a perfectly even incision. With a Graefe's knife the incision is made throughout its whole extent in the apparent corneo-scleral junction, and the iris excised close to the periphery. If the incision is made too corneal in any part of the section, the iris probably cannot be ex-

cised close enough to the periphery, and adhesions or dragging may result. If the iris after excision does not retract well within the anterior chamber from the corners of the wound, I do not hesitate to excise more. The capsule is ruptured from below upwards with a Graefe's bent cystitome, and the lens expelled with a rubber spoon in the usual way. As soon as the nucleus has escaped the speculum is removed, and the pupil is cleared of cortex by pressure within the fingers over the eyelids only. I never introduce an instrument to remove cortex. Conjunctival flaps are avoided, if possible, as they hinder the exit of cortex. The wound is well cleared of cortex and blood-clots with a piece of cotton-wool soaked in sublimate. The dressings consist, first, of a piece of lint soaked in corrosive, then a thin layer of dry cotton-wool and a single strip of plaster from cheek to forehead. The other eye is covered with a round piece of muslin, and both supported by a double flannel bandage.

The patient is kept in bed for two days, and the dressing left undisturbed for three or four, unless unfavourable symptoms appear. At the end of the third or fourth day the eye is examined; if irritable, or if the pupil contains cortex or capsule, a drop of atropine is used; dry dressing and bandage are applied, and changed night and morning, and the unoperated eye left uncovered. In a week or ten days the bandage is discontinued, both eyes are shaded, and in a fortnight or so the patient is discharged. In the event of undue reaction, hot camomile fomentation, as hot as the patient can bear it comfortably, is frequently applied, along with repeated instillations of atropine. In threatened suppuration in the wound, I have used iodoform, but without apparent benefit.

Taking first the hospital series of 1,048 cases, which includes all cases favourable and unfavourable, I had, as incidents occurring during and after operation, 5 per cent. loss of vitreous and 11½ per cent. of iritis. In the vitreous loss one in every five was followed by inflammation. Division of the capsule, as a secondary operation, was performed in 12 per cent. of the cases. The results obtained, in a very large proportion of the cases, are based upon an examination of the eye and amount of vision at the time of the patient's discharge or within five or six weeks of the operation. In a certain number the vision was tested a few months later. I have made four classifications: 1. Good results include all cases that have vision equal to ⅙th, and not less, 90 per cent. 2. Moderate results, all cases between ⅙th and 20 Jäger or counting fingers, 4½ per cent. 3. Doubtful includes cases of closed pupil, with good anterior chamber, normal tension, good field and perception, in which there is a reasonable prospect of doing good by iridectomy, 2 per cent. 4. Failures, losses from suppuration, iritis, or irido-cyclitis, 3½ per cent. Of the losses one-half were from corneal suppuration or suppurative iritis. Four per cent. of the cases obtained vision equal to ⅙; 7 per cent. were equal to ⅙.

With regard to the private series of 200 cases, I may say that operations of this kind conducted in private have many advantages over those performed in hospital. Inflammations occur after operation in hospital, not so much from any fault of the operation, but from various causes which would not happen in private. One great advantage amongst others is this, that the case receives one's own personal attention from beginning to end, and I believe if the cases were numerous enough they afford a better test of any particular operation.

Adopting the same classification in these 200 cases, the general results are as follows:—1. Good results, 94½ per cent. 2. Moderate results, 3½ per cent. 3. Doubtful, 1 per cent. 4. Failures, 1 per cent. The accidents were: vitreous loss, 4 per cent.; iritis 10 per cent.; secondary operation, 12 per cent. 17½ per cent. obtained vision=⅙: 25 per cent. had vision=⅙. This high standard of vision in some of these cases is due to correction of astigmatism.

Two of the cases included in the above list as successful had ultimately an unfavourable termination. In the one case, a lady aged 70, the eye recovered from the operation with excellent vision, presenting a small prolapse of iris at one corner of the section. It remained good for four months, when suddenly acute iritis came on. She attributed the inflammation to exposure to a hot sun for several hours, and to having got stung by insects on the face and other parts of the body. The stinging gave rise to swelling of the parts and irritation for several days, after which the eye became inflamed. The acute iritis was followed by typical sympathetic disease in the other eye, and ultimately total loss of both.

In the other case, a lady aged 68, there was incarceration of the iris after operation, with fairly good sight. The eye remained

good for twelve months; at that time the patient fell into bad health from severe domestic trouble. The eye was attacked with serous iritis, and was ultimately lost.

I have brought forward these statistics in support of my contention for iridectomy, and I believe, on the whole, it is the safest operation. In the flap section, besides the difficulties with the iris, it is very desirable to have a perfectly steady patient, not always to be had even with cocaine. Then there is a difficulty in clearing the pupil of cortex, and there is the possibility of hæmorrhage in the anterior chamber and rupture of the vitreous, all of which are no hindrance to the successful completion of the iridectomy operation, but are rather serious obstacles to the other. I believe further percentage of loss will be less, and the standard of vision quite as good.

MALFORMATION OF EXTERNAL GENITALS IN THE MALE.

By JOSEPH COLLIER, B.S., F.R.C.S.,

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On April 13th, 1888, a child, aged 3 weeks, was brought by its mother to the Gartside Street out-patient department in connection with the Children's Hospital, Pendlebury. It presented a peculiar deformity of the external genitals; and as I cannot find any account of an exactly similar condition, I am desirous of placing this one on record. The child was extremely feeble and emaciated, and evidently would not long survive. On its death, which took place about a fortnight later, I removed at the *post-mortem* examination the parts involved in the deformity, and from the preparation give the following description.

Examining the perineal region from behind forwards, the anus and perineum are seen to be perfectly normal. The scrotum is likewise normal and well formed, except that in front the skin is not continued on to the penis, but goes to form an anterior aspect to the scrotum in every way like the posterior, for there is no trace of penis. Neither corpus spongiosum nor corpora cavernosa are present. The central *raphé* runs from the anus along the perineum, on over the posterior surface and the most dependent part of the scrotum, and fades about the middle of its anterior aspect. The testicles have fully descended, and are well formed, and during life it was seen that there was a congenital inguinal hernia on both sides.

There is no external urinary aperture, but on slightly everting the anal margin it could be seen, especially well during life, that the urethra opened on the anterior wall of the rectum about the eighth of an inch from its lower termination. The canal from this opening, in the first part of its course to the bladder, runs superficially to the sphincter ani externus muscle.

Embryologically considered, the explanation of this deformity seems to be very simple. The common cloacal aperture, shortly after the fifth week of intra-uterine life, becomes separated into an anterior uro-genital part and a posterior or anal. The mode of formation of the septum which intervenes between these two portions of the original aperture is not as yet clearly made out, but it probably takes place by the meeting and fusion of outgrowths from the sides and below.

In the above deformity the fusion of the lateral outgrowths has been incomplete in the deeper parts, so as to form merely a bridge instead of a septum, thus leaving a canal between the two parts of the original cloaca. Subsequently there has been, on the one hand, an arrest of development, causing, from the non-appearance of a genital eminence, an entire deficiency of penile structures; and, on the other hand, a too thorough closing in of the uro-genital aperture, perhaps due to the already existing abnormal passage, has led to the absence of any external urinary meatus. This latter condition, then, is the opposite of that defective closing which gives rise to the various forms of hypospadias. Moreover, the common form of imperforate anus in the female, in which there is a fistulous tract opening in the vulva internal to the fourchette, and communicating with the lower end of the occluded bowel, seems to be developmentally allied to the above deformity in that, associated with a closing in of the anal aperture, here exists a bridge-like condition of the cloacal septum.

EPIDEMIOLOGICAL MEMORANDA.

A SHORT REPORT ON AN OUTBREAK OF MEASLES AT A BOYS' SCHOOL.

On Thursday, May 3rd, 1888, I was requested to see one of the masters at the boys' school here. On inquiry I learned that he returned to the school on the previous Monday evening, April 30th, about 10 P.M., having been away for some weeks during the Easter holidays. He felt poorly on Monday, and on Tuesday and Wednesday he felt ill. He thought he was suffering from a bad cold. When I saw him on Thursday, May 3rd, he had the measles rash out on his face and chest, and he must have then been in the fourth day of the disease.

During Tuesday and part of Wednesday he came into contact with twenty-nine boys, whose ages varied from 7 to 14 years. After Wednesday evening, May 2nd, he was completely shut off from all communication with the boys. The school was closed on Friday, May 4th, when all the boys (most of whom were boarders) were sent to their homes in different parts of the country.

Out of the twenty-nine boys, fifteen had had measles at some previous time; the remaining fourteen, who had not had measles up to then, were all taken ill with the disease within seventeen days. The first boy was taken ill on Thursday, May 10th, and the last boy a week later (May 17th). The incubation period in the majority was about fourteen days.

This outbreak is, I think, a very important one, from the short time the boys were exposed to the contagion, being certainly known to be not more than thirty-six hours. It therefore enables us to calculate the exact time of incubation within narrow limits. It shows that the incubation period varies from 8-9 days to 15-16 days in different cases. It proves that measles is extremely contagious before the rash appears, as not one of the boys saw the master after the rash came out on him, it having made its appearance on Wednesday night. The tables given below indicate the important points in the outbreak at a glance:

Time Master was in Contact with Boys.	First Boy Taken Ill.	Last Boy Taken Ill.
May 1-2	May 9-10	May 16-17
Total Number in Contact with Master.	Total Number who had the Disease Previously.	Total Number who took the Disease from Master.
29	15	14

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CLINICAL MEMORANDA.

HÆMATOMA AURIS, OR "INSANE EAR."

THERE is nothing new in the statement that this affection is to be found in the sane as well as the insane, and Dr. Southam did not infer as much in his paper; in fact, he quoted an author who had described it as common among football players so far back as 1874. It is strange, therefore, to hear your correspondent, "Asylum Medical Superintendent," applauding as new the record of a case of hæmatoma auris in a sane patient. If your correspondent will look at Bryant's *Practice of Surgery*, second edition, he will find that so far back as 1876 Mr. Bryant says, "that the affection [hæmatoma auris] occurs in persons who have no hereditary history and show no symptoms of insanity is undoubted."

Since it was first described by Ferrus in 1838 much has been written on the subject. For a time it was supposed to be peculiar to the insane, but soon it was discovered to be common amongst boxers, wrestlers, football players, and others whose ears are exposed to violence. That it is still more common amongst the insane than the sane cannot, I think, be doubted; and that in the insane it is frequently traumatic is equally certain; but that all cases of hæmatoma auris as occurring in the insane are traumatic in origin is by no means proved. Hun,