

On a series of one hundred cataract extractions / by H. R. Swanzy.

Contributors

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ON A SERIES OF
ONE HUNDRED CATARACT EXTRACTIONS.

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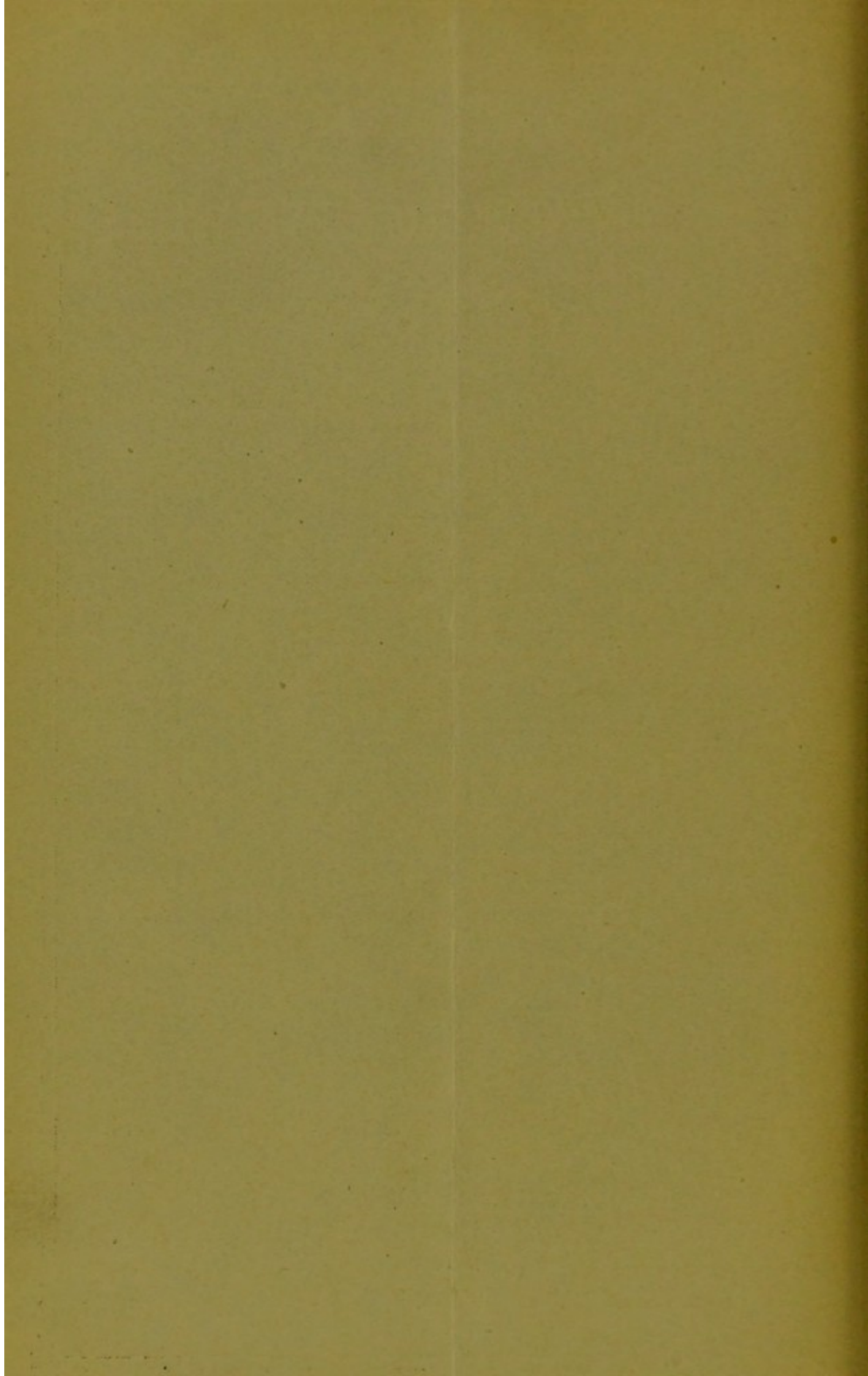
BY
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Reprinted from the Transactions of the Royal Academy of Medicine in Ireland.

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ON A SERIES OF
ONE HUNDRED CATARACT EXTRACTIONS.^a

SEVENTEEN years ago, a communication on "Accidents in Flap Extraction of Cataract" was made to the old Surgical Society of Ireland by Dr. Archibald Jacob; and, since then, the subject of cataract extraction has not been brought forward in this place. Yet it seems desirable, that an operation, surrounded, as this one is, with so much interest from a humanitarian, as well as from a purely surgical, point of view, should occasionally form the subject of a communication to this Section of the Academy, although it is only some of those here who practise ophthalmic surgery.

Eventful as these seventeen years have been in the progress of general surgery, they have not been less so in the progress of ophthalmic surgery; and in nothing is this more apparent than in the statistics of the operation for cataract. As the chief agents in these improved statistics we recognise, above all, those antiseptic measures which have played so remarkable a part in other branches of operative surgery, and, next to these, the discovery of eserine and of cocaine.

From time to time, during this period, operators have proposed and practised new plans for different steps of the operation, and have devised new instruments for carrying out these new plans. But, although I may incidentally refer to one or two of these, I do not intend on this occasion to discuss any of them at length. Some of these proposals have been very generally adopted, while, again, others of them have had but an ephemeral existence.

^a Read in the Section of Surgery of the Royal Academy of Medicine in Ireland, February 21, 1890.

Just at the present time, the great question which is paramount in the minds of ophthalmic surgeons, as regards the operation of cataract extraction, is—Whether an iridectomy should form part of the proceeding, or not? Into this discussion a good deal of warmth has sometimes been introduced, and we hear some of those who do not practise iridectomy describing that step as “mutilation of the iris,” although they have not yet got so far as to call the iridectomists “mutilators.” And, on the other hand, an iridectomist, who holds a high position in our profession, has stated it to be his opinion that it is not moral to leave out the iridectomy. All this is to be regretted, for it must be taken for granted that each one of us, whatever method he employs, is animated by the desire to do that which seems to him the best for his patients, and for the art he practises; and difference of opinion here, as elsewhere in medical science, must rather be useful for the general welfare than the reverse, if only the discussion of the point at issue be approached in a spirit of tolerance.

The operation which I perform is commonly known as Von Graefe's, although it differs in some important particulars from the method as Von Graefe left it to us. It is also known as the three millimetre flap operation. I operate as follows:—About half an hour before the operation a drop of eserine solution (4 grs. ad. ℥i.) is put into the eye to contract the pupil; and the patient's face, especially the eyelids and their neighbourhood, is carefully washed with hot water and soap. The instruments are washed with absolute alcohol, then boiled in water, and then laid ready for use in a bath of a 1 per cent. solution of carbolic acid. After the patient has been placed upon the couch, the eyelids are everted, and the conjunctival sac is thoroughly washed and wiped out with lint soaked in a 1 in 5,000 solution of corrosive sublimate. The same sublimate solution is used all through the operation for irrigating the wound and surface of the eyeball, and for washing away blood coagula and morsels of cortical substance, as may be required. No sponges are used, but, in their place, small bits of lint, which have been boiled in sublimate lotion, and which are kept stored for use in a closely-covered glass jar filled with sublimate lotion. The patient receives about three drops of a 2 per cent. solution of

cocaine in the eye, with an interval of about five minutes between each drop, before the operation begins. This solution, as also the atropine and eserine solutions, is not made with plain water, but with a 1 in 5,000 solution of corrosive sublimate.

A wire lid-elevator having been applied, the eye is fixed with a forceps by a fold of conjunctiva and sub-conjunctival tissue below the vertical meridian of the cornea. The point of a Von Graefe's knife is entered just in the margin of the clear cornea, at the outer extremity of a horizontal line, the centre of which would lie 3 mm. below the summit of the cornea. The point of the instrument is then passed cautiously through the anterior chamber, and the counter puncture is made in the corneal margin, at the inner extremity of the imaginary horizontal line, just described, and then the incision is finished in the upper corneal margin by one or two slow strokes of the knife. While this is being done the aqueous humour flows away; but, owing to the action of the eserine, and to the slow way in which the aqueous has been allowed to flow off, the iris does not prolapse.

The fixation of the eye is now given over to an assistant, and the surgeon, passing a curved iris-forceps, or, perhaps better, a Liebreich's iris-forceps, into the anterior chamber, seizes the smallest possible portion of the sphincter of the iris, at a point corresponding to the centre of the corneal incision, draws it out, and, with the forceps-scissors, cuts out a very narrow bit of iris. I like to produce a coloboma of 2 mm. (Fig. 2) to 3 mm., and not more than 4 mm. in width.

The operator now takes the fixation-forceps from his assistant, who gently raises the speculum with the eyelids off the globe, so that no pressure may be made on it during the remainder of the operation. The cystotome is then introduced, and the anterior capsule divided freely. Until recently I scored the capsule chiefly from below upwards several times, making one final horizontal division of it along the upper margin of the lens. But I have of late practised horizontal division of the capsule exclusively, making several transverse scorings at different levels of the anterior surface of the lens. My reason for this is, that, while an equally

free opening is made in this way, I think the cystotome, as it is being withdrawn, may be less likely to drag tags of the capsule into the corneal wound—an event which it is very desirable to avoid—than when the instrument is drawn directly towards the wound in opening the capsule. But I must state, that I know the method does not form a guarantee against a tag of capsule being found in the wound. I have occasionally employed the capsule-forceps for tearing a bit out of the centre of the capsule, as recommended by some surgeons. I have never used what is known as the peripheral capsulotomy. Both of these methods have much to recommend them; but I think there are disadvantages connected with each, which more than neutralise its advantages.

The cataract is now delivered by placing the edge of the hard rubber, or tortoise-shell, spoon just below the lower edge of the cornea, and making with it gentle pressure backwards, until the upper margin of the lens presents in the wound; then, the same pressure being maintained, the spoon is advanced over the cornea, pushing the lens before it and out through the wound; but, as soon as the greatest diameter of the lens has passed the lips of the wound, the pressure of the spoon must be instantly diminished, lest rupture of the zonula, with prolapse of the vitreous, be caused. The fixation forceps and speculum are now removed from the eye, and a cold compress, with sublimate lotion, is laid on the closed eyelids for a few minutes.

The condition of the pupil is then examined, and, as a rule, it is seen to be clear and black. On the other hand, it may be found that some of the cortical portion of the cataractous lens has not come away. It is well to clear the pupil of this, so far as possible, although very slight remains have no serious significance. For this purpose I employ, exclusively, what we know as “the lid manœuvre.” Facing the patient, the operator raises the upper lid with the thumb of his left hand, while he lays the tips of the first and second fingers of his right hand on the lower lid, and, with the latter, makes slight rotatory motions over the cornea, so as to collect the masses towards the pupil, and then a few rapid light motions upwards with the margin of the lid will usually drive these

masses towards and out of the wound. But great care and delicacy of touch are called for here, as any undue pressure on the eye may rupture the hyaloid. Some operators stand behind the patient, and make the lid-manceuvre with the thumb, which does not seem to me to be a good method, for the delicacy of touch with the thumb is inferior to that with the first and second fingers.

I do not employ irrigation of the anterior chamber, or intracapsular injection, for the purpose of washing out cortical masses, as recommended by M'Keown, Wieckerkiewicz, and others. I rarely operate on unripe cataracts, and, consequently, I find no use for this proceeding as a routine method; while in those exceptional cases in which considerable cortical masses remain, and where they cannot all be delivered by the lid-manceuvre, I prefer to leave some of them behind, to be dealt with later on, if necessary, by discission, rather than apply irrigation, which seems to me a somewhat rough measure. I did use Dr. M'Keown's syringe on one occasion in this series to wash out cortical remains, without effecting the desired end. Perhaps I should have employed more force, but I shrank from doing so. Subsequently, I succeeded in expelling the masses by the lid-manceuvre in the ordinary way, and I think it likely I was assisted in this by the fluid which had been introduced into the anterior chamber by the syringe. Both before and since this experience, I have often thought that assistance in the expulsion of cortical masses might be obtained by simply introducing a few drops of suitable fluid into the anterior chamber; but I have not as yet carried out the idea in practice. We know that cortical masses often come away more readily, after we have waited for the formation of some aqueous humour.

The next step is one which I think is peculiar to myself, at least I have not seen it described by anyone else; nor, of the many oculists I have seen operate did any practise it. It consists in searching the corneal wound for any tag of capsule, which may have become prolapsed into it. Owing to the transparency of the capsule, a tag of it may lie in the wound but be invisible to the surgeon, and, if allowed to remain, it becomes incarcerated in the cicatrix, and can, even long afterwards, give rise to serious and

deep-seated mischief. This mischief may take the form of chronic irido-cyclitis, or it may appear in the form of acute purulent inflammation of the uveal tract originating in the cicatrix.^a Again, Mr. Treacher Collins has recently^b pointed out, that another serious condition may arise from entanglement of capsule in the cicatrix, for his investigations have shown it to be extremely probable that the accident may sometimes produce a tendency to glaucoma. It is my routine practice, then, at this stage of the operation, to pass the points of a curved iris-forceps, slightly opened, between the lips of the wound, then to close them, and to cautiously draw them back again. Frequently, it will be found that a tag of capsule has been captured by the forceps, and, if so, it is snipped off with the scissors; or, it may be, that no capsule is caught. The forceps is then similarly inserted at an adjacent part of the wound, and in this manner the wound is searched from end to end for capsule. In the one hundred operations of the series, a tag of capsule was found in the wound nine times. This proceeding is an extremely delicate one, and requires the greatest caution on the part of the operator. I have not myself had any disaster during its performance, but, as it must be done without fixation, the surgeon has to be on his guard against an unexpected upward motion of the patient's eye, which would bring the points of the forceps into the vitreous humour; and, when he has captured a tag of capsule, he must draw it out sufficiently, and yet not too far, or he will rupture the hyaloid. Indeed, one sometimes comes across patients who have such restless eyes, that it is quite impossible to search for capsule in the wound. This has happened to me three times. I think that this proceeding is an important one, and that it almost removes the one serious drawback to this method of cataract extraction.

The last point in the operation is to see that the whole of the iris has returned to the anterior chamber; and, in order to be quite

^a Dr. A. Wagenmann, in his recent important paper, *Ueber die von Operationsnarben und vernarbten Irisvorfällen ausgehende Glaskörpereiterung*, *A. von Graefe's Archiv*, XXXV. 4, brings microscopic proof to bear upon this and upon other interesting points.

^b *Trans. Ophthal. Soc.* January 30th, 1890.

sure of this, it is necessary to pass a narrow, and slightly curved, silver spatula into the anterior chamber, and to stroke down each pillar of the coloboma, as far as it can be brought. The influence of the eserine, dropped in before the commencement of the operation, being still present, the iris responds to this manipulation all the more readily.

The surface of the eyeball, and especially the wound, having been irrigated with the sublimate lotion, a drop of solution of atropine is instilled into the eye, and the dressing is applied. This consists in a piece of lint, which has been boiled in sublimate lotion, and of a size sufficient to extend $\frac{1}{4}$ inch beyond the orbital margin in every direction; again soaked in sublimate lotion, and laid on the closed eyelids. Pledgets of absorbent cotton wool, also previously boiled in sublimate lotion, and now again soaked in it, are placed over this piece of lint in such a way that the bandage, when applied, may exert equal pressure on every part of the eyeball. Over this again comes a layer of oiled-silk protective; and then the bandage—a narrow roller of fine flannel, which passes three times over the dressing and round the head.

The patient remains in bed for two or three days. The dressing is changed for the first time after 48 hours, and then once every 24 hours for a week, when it is left off. The eye should be protected from strong light and from cold until it is quite white, but glasses can usually be ordered in a fortnight, or three weeks.

And now with regard to the results which I have obtained by this method in 100 consecutive cases—the vision noted being that possessed by the patient when last seen, and the last of the series being the final extraction in the year 1888^a—there were only two failures; and these were the result of suppuration, and were the only cases in which suppuration supervened on the operation.

There was one case in which the resulting vision was finger-counting at 2.5 m. This was one of three cases, in which a considerable amount of cortical substance remained behind. The

^a This paper was to have been read last Session but that circumstances interfered with this being done. All the extractions performed in 1889, and so far in 1890, have been successful.

patient was discharged twelve days after the operation with the "eye quiet and doing well," and he was to come back for further treatment, which would probably give him very much better sight, but he has not returned.

There were two cases in which vision amounted to finger-counting at 4.0 m. Of these, one had a patch of central choroiditis, which would have prevented any better vision, even if the patient had never had cataract. In the second case, a minute bead of vitreous presented in the wound, just as the patient was closing his eye after the speculum was removed, became incarcerated in the cicatrix, and, no doubt, gave rise to some irregular astigmatism with its consequent deterioration of vision.

There were two cases in which the vision was finger-counting at 6.0 m. In one of these there was a thick capsule, which the patient would not remain in hospital to have torn, or else his vision might have been vastly better, but still he was enabled to read large print (with + 16.0). In the other case, too, there was a thick capsule, which was torn, but unfortunately the house surgeon failed to take a note of the improvement that resulted, so that I am unable to credit my statistics with it. *And here*

In ^{one} ~~two~~ cases the vision was 6/60. ~~In one of these~~ there was tobacco amblyopia.

In ^{twelve} ~~ten~~ cases the vision was 6/36.

In eight cases the vision was 6/24.

In thirty-seven cases the vision was 6/18.

In seventeen cases the vision was 6/12.

In fifteen cases the vision was 6/9. Of these one became glaucomatous some months later.

And, in three cases, the vision was 6/6.

Briefly stated, according to a conventional method, there was good vision in 93 per cent., moderate vision in 5 per cent.,^a and no improvement in 2 per cent.

^a But, of these, one case probably did obtain good vision, but no note was taken of the final result; a second case had central choroiditis, which alone interfered with what would have been good vision; while two cases might have obtained good vision had they submitted to a slight secondary operation.

If the advanced age of most cataract patients be alone taken into account, the restoration of what we call normal vision can be but rarely expected; but, with a vision of 6/36, and even less, patients operated on for cataract can get about freely, and can even enjoy their sight for reading.

Now, the foregoing results, as they stand, are satisfactory. But they would present a yet more favourable appearance, were it not that they are for the most part the results noted a fortnight or three weeks after the operation. It is not often possible to keep patients in hospital for a longer period, and even many private patients, when they once obtain their spectacles, do not present themselves any more to the surgeon. But frequently, when I have had the opportunity of testing the sight some months afterwards, I have found the acuteness of vision improved in a marked degree, from what it had been soon after the operation. As an example of this, I may mention the case of a Catholic clergyman from the South of Ireland, upon whose right eye I operated in July, 1887. The vision a fortnight afterwards, just before his return home, was 6/36, but, a year later, I found the sight improved to 6/9 without a change of glass. I then operated on the left eye, and thirteen days later its vision was 6/60, but when, after eleven months, he paid me a visit, I found the sight of this eye, too, 6/9 with the same glass. I could give several other similar instances, and I have no doubt that if all the eyes in the series could have been examined some months after they were operated on, a much higher average standard of sight would have been noted.

I had not to record a falling off in the power of vision after a time in any of the eyes operated on, except in a case of glaucoma, and in those cases in which the capsule became slightly thickened. These latter were, of course, readily put right by discission, but to them I shall again refer.

Accidents during Operation.—Portions of the cortical substance were left behind eleven times. In eight of these cases the remains were insignificant in amount, and had no influence whatever upon the success of the result. But in the three other cases a considerable portion of cortical substance had to be left. In two of these

the cataract had been artificially matured, and probably was not yet sufficiently ripe at the time of the extraction. One of them (already referred to) was very capable of considerable improvement by a needle operation, but did not have it performed. (V.=Fingers at 2.5 m.) In the other case the cortical remains gave rise to some increased tension, which subsided when the masses became absorbed, and at the time of the patient's discharge V.=6/36. In the third case the cortical remains were needled, and V.=6/18 obtained.

Loss of vitreous occurred only twice in the whole series of one hundred cases. In one case there was a defective zonula with fluid vitreous, and the cataract had to be delivered with the vectis (V. obtained=Finger-counting at 4.0 m. Patch of central choroiditis). In the other case, the lens being remarkably small, I did not think I had delivered it all, and, in applying the spoon to the cornea in order to press out some hypothetical cortical masses, I caused slight loss of vitreous to take place. (V.=6/18.) In one case some vitreous presented in the wound just as the operation was concluded, and became incarcerated in the cicatrix. (V.=Finger-counting at 4.0 m.) These are the only accidents during operation which I experienced in this series.

Anomalies of the Healing Process.—There were, as already stated, two cases of suppuration of the wound. Both were in hospital patients. In one of these the operation was perfectly normal, and I failed to trace any way in which the eye could have become infected. Yet, there is no doubt but that, in some particular, the antiseptic precautions were defective. In the other case of suppuration there was some difficulty in delivering the lens, probably from insufficient eyeball-tension, and after delivery a bead of vitreous presented in the wound, but there was no loss of it. At the end of the operation the eye looked well. Here, too, I credit the suppuration to some oversight in the antiseptic measures, rather than to the unimportant irregularity in the operation. In both of these cases the eye was lost, and, as I have said, they were the only total losses in the series.

Iritis was seen only once in the whole series. It appeared on

the third day, and was very slight in degree, the eye gaining 6/18 of vision, 18 days after the operation. The almost total absence of severe plastic iritis is eminently satisfactory, because it is a process by which formerly many an eye was lost. It is now held to be as much an infective process as is suppuration of the wound, and the freedom from it which we enjoy must be referred to the antisepsis. Of course, in a good many of the cases, there were a few fine synechiæ between the pupillary margin and the capsule, but these have no such significance as that possessed by the violent plastic iritis, which may jeopardize sight.

Incarceration of the iris in the cicatrix occurred once. In this case the patient was very unruly during the operation, so that the attempts at reposition of the pillars of the coloboma had to be abandoned. (V.=6/6.) In several cases there was an anterior synechia, an adhesion of a small portion of the iris to the posterior surface of the corneal cicatrix, but without any prolapse of the iris in the wound. In my opinion, this condition is not of importance, although there are some who do not think it innocuous. I believe myself that this anterior synechia is only liable to occur in those cases where, owing to some unknown cause, the wound in the corneal margin, instead of becoming sealed in the course of a few hours after the operation, with restoration of the anterior chamber, remains patent for a more lengthened period—it may be for several days. During this interval the iris is in contact with the cornea, and with the inner aspect of the wound; and then, between it and the wound, delicate adhesions form, which are not always broken down when, the wound healing, the anterior chamber refills, and the iris returns to its normal plane. Mr. Priestley Smith considers this anterior synechia more likely to occur when no iridectomy has been made.

In one case, already twice referred to, a small prolapsed portion of vitreous healed in the cicatrix, and caused slight bulging of the latter. Vision resulting=Fingers counted at 4·0 m.

In one case the patient was attacked with gouty scleritis nine days after the operation. Two days later he got a marked attack of gout in his toe, and this, along with the scleritis, rapidly gave

way to salicin and colchicum without any ill result to the eye.
 $V = \frac{6}{12}$.

A remarkable anomaly in the healing process occurred in one case. It consisted in an extraordinary long interval between the operation and the complete closure of the wound. The operation itself was absolutely normal, there being not even an atom of cortical substance left behind. There was subsequently no inflammatory reaction, either in the wound or in the iris; while the patient's health was perfectly good. Yet, although the eye was kept carefully bandaged, and other measures were taken, the wound did not completely close for a period of eight weeks, during which time the aqueous humour was dribbling away. The case was seen by several ophthalmic surgeons, who all declared they could find nothing to account for the tardiness in closing, and to this day I have not myself been able to account for it. I repeatedly searched for capsule, which might have prolapsed into the wound, but never found any. Finally, the wound did close, as stated, after eight weeks, and the patient obtained 6/9 of vision, which he enjoyed for five months. Chronic simple glaucoma then set in, and this necessitated operative treatment. The case is still under observation, but it is to be feared that marked deterioration of vision will be the consequence of the glaucomatous process. How far the delay in healing may have had to do with the subsequent glaucoma as its cause would be an interesting subject for consideration, but one upon which I cannot enter here. It is right to state that there was one small anterior synechia, at one side of the coloboma.

As regards secondary operations—in addition to sclerotomy in the case which became glaucomatous—discission of the capsule was performed in 21 of the 100 eyes of the series, and a needle operation, to break up cortical remains, was performed in one eye.

I am, then, one of those who perform an iridectomy in the course of every cataract extraction; but the coloboma which I make is a narrow one. I hold to the iridectomy because the writings of surgeons who perform the simple extraction have not, I think, shown it to be as safe a procedure as this one; for, in the

simple extraction, it is not yet possible to guard with certainty against prolapse of the iris occurring, not merely at the time of the operation, but even after it is concluded, and after the bandage has been applied. The consequence of this prolapse is incarceration of the iris in the cicatrix—a condition, as all ophthalmic surgeons know, of serious import. In such eyes, after a few weeks, the incarcerated iris is liable to become cystoid and bulging, causing displacement of the pupil and irregular curvature of the cornea, with resulting deterioration of sight. Nor is this all. Such eyes, even more frequently than those in which a tag of capsule has become incarcerated in the cicatrix, are liable, weeks, months, and even years after the operation, to take on severe irido-cyclitis either of the plastic or purulent form, ending in total loss of sight. And in these eyes I think inflammatory reaction, often of a serious character, is more apt to attend upon a slight secondary operation, such as discission of the capsule, than in those eyes where no incarceration of iris exists.

In Prof. Knapp's last published and interesting series of one hundred cases, by the simple method, incarceration of the iris occurred in two cases. But there were four other cases in which, in order to avert incarceration, the author had to abscise prolapsed iris on the 5th, 6th, 9th, and 14th day, respectively, after the operation; while in a fifth case the swollen and cystoid prolapse was abscised two months after the primary operation. And I think it will be admitted by a large proportion of ophthalmic surgeons, amongst whom I may probably reckon Prof. Knapp himself, that, when once prolapsed iris has lain in the wound for even three or four days, it is difficult, if not impossible, to be sure that any measure we can adopt will reduce it, so that no portion of it will remain incarcerated. Nevertheless, this record of Prof. Knapp's is a remarkable and an unusually good one for the simple operation, so far as my reading informs me. In the series of another friend of mine, Prof. Stedman Bull, which was operated on by the same method, the iris was incarcerated in fifteen eyes; and this, too, is a good record. But in this series of mine the iris was incarcerated once only; and in this one case the incarceration was not due to secondary

prolapse, but to the impossibility of completely reducing the pillars of the coloboma during the operation, owing to the uncontrollable restlessness of the patient.

Nor was there in any case, except in the one just referred to, a cystoid or bulging cicatrix. Nor had I, in this series, to resort to any secondary operation in order to reduce a secondary iris-prolapse, because no such prolapse occurred.

I think, too, the clearing of the pupil of cortical remains must often be a more incomplete detail, and must be attended with greater danger to the hyaloid, in the simple method than in that with iridectomy.

The advantages claimed for the simple extraction are, first of all, the round and movable pupil. Now, so far as the question of beauty is concerned, I readily admit that an eye with a circular pupil is a prettier object than one with a keyhole pupil; and when this round pupil is movable—*i.e.*, when there are no synechiæ, æsthetic perfection is attained. But, I submit that the patients with whom we have chiefly to do in these cases are advanced in life, and that to them the question of personal beauty is altogether secondary to that of useful sight; consequently, that the operation to be preferred for them is that one which will give to the greatest number of them comfortable and lasting vision.

Again, it is claimed that the simple operation gives a higher average acuteness of vision than the operation with iridectomy; and it is also stated that persons operated on by the simple method have a better power of guiding themselves—a better power of “orientation,” as it is termed. But in all this discussion one point is constantly left out of view, or passed over in silence—a point, to my mind, of very great importance—namely, the position and width of the coloboma, which those surgeons, who now advocate the simple operation, were in the habit of making in connection with their operations, before they adopted the simple extraction. There are iridectomies and iridectomies, colobomata and colobomata. Operators, of whom, as I know, there are many, who thought it necessary, as at one time I myself did, to remove a portion of iris corresponding to nearly the whole length of the wound at the

corneal margin (Fig. 1), would, I can understand, be amongst the first to fly to the other extreme of making no iridectomy at all. And, no doubt, with small circular pupils they obtain a better acuteness of

Fig. 1.



vision and better orientation, than they previously did with their enormous colobomata, even if the latter were made above and partially concealed by the upper lid. But I know, moreover, that amongst those who have adopted the simple operation, there are surgeons whose practice it was to extract through a section made in the lower margin of the cornea, and with a wide iridectomy. That the simple extraction compares favourably with such a method, I shall not deny. But in the method which I employ the coloboma is very narrow—some 2 to 4 mm. wide (Fig. 2).

Fig. 2.



It is easy to understand why, in the simple extraction, prolapse of the iris with subsequent incarceration is so liable to occur, even some days after the operation, and why it is so difficult to devise a sure means for preventing the accident; as, also, how it is that even a very narrow coloboma is sufficient to protect the eye from this disaster. And yet I am inclined to think, that among those oculists who have reverted to the simple method, there are some who do not realise the *modus operandi* in either case. Within a few hours after the operation, as I have already mentioned, the wound in the corneal margin most commonly closes, the aqueous humour collects, and the anterior and posterior chambers are restored. But it takes many hours more for the delicate union of the lips of the wound to become quite consolidated, and during this time it requires but little—a cough, a sneeze, a motion of the head, the necessary efforts in the use of a urinal or bed-pan, no matter how careful

the nursing—to rupture the newly-formed union; and, as a matter of fact, this often does take place. The aqueous humour then flows away through the wound with a sudden gush, and, where the simple extraction has been employed, carries with it the iris. Doubtless, in this event, it is that portion of the aqueous humour which is situated behind the iris in the posterior chamber, which is chiefly concerned in the iris-prolapse; the aqueous humour in the anterior chamber probably flows off without influencing the position of the iris. The advocates of the simple operation endeavour to prevent secondary iris-prolapse by a spastic contraction of the pupil, produced by eserine, which is instilled at the conclusion of the operation, and, again, by some operators, a few hours afterwards. In most instances the desired end is by this means effected. But there is a considerable percentage of the cases, in which the contraction of the sphincter iridis is overcome by the pressure of the aqueous humour from behind, and iris-prolapse takes place.

How, then, does the formation of a coloboma prevent prolapse of the iris when the wound bursts, as I have described? Not because the portion of iris which is liable to prolapse has been taken away. That would mean nothing less than the whole of that part of the iris which corresponds to the length of the opening in the corneal margin. But the coloboma averts secondary iris-prolapse, because it provides a gateway for the aqueous humour, contained in the posterior chamber, to escape directly through the wound, without carrying with it the iris in its rush; and it is evident, that the narrowest coloboma which can be formed will be amply sufficient for the purpose. To my mind, a narrow ireductomy here is no “mutilation of the iris,” but rather a measure which rests upon a sound scientific basis, and which is calculated to insure the safety of the eye in an important particular.

As to disfigurement of the eye, there is practically none, when the coloboma is so narrow, and is situated in the upper part of the iris. The pupil, too, is movable, almost, if not quite, as much so, I venture to say, as in most cases of simple extraction. For it is entirely a mistake to suppose that a narrow coloboma renders the pupil immovable. Where there are no adhesions between the

pupillary margin and the capsule, as frequently happens, the reaction to light is active, a drop of atropine will dilate the pupil widely, and a drop of eserine will contract it.

That the average acuteness of vision, in cases operated on by the simple method, is higher than in those operated on with a small iridectomy, is a statement of which, I think, there is no proof. The average acuteness of vision in Prof. Knapp's last series is no doubt very high, and I have seen it quoted as convincing evidence of the advantage, in this respect, of the simple method. But the high acuteness of vision in that series was not due merely, if indeed at all, to the round pupil; but rather, as Prof. Knapp himself states, "the cause of this gain was the subsequent discission of the capsule, which was done in seventy-four cases." In Prof. C. Stedman Bull's recent series, discission was performed in fifty out of the one hundred cases, and his average vision is very good. Doubtless in my cases a higher average vision would have been obtained, had I discised the capsule in nearly every case, instead of in only twenty-one of them. But we must take the public as we find them; and in private practice in this country, when patients obtain sight which enables them to read and write fluently, or even, sometimes, to sketch and play billiards, as well as to go about with comfort, they are satisfied, and do not care to submit to a further operation, no matter how trifling, in order to increase their power of vision fractionally—no, not even to enable their surgeons to improve the statistics of their operations. In hospital practice our patients are always eager to get to their homes, as soon as they find themselves allowed to leave their ward for the day-room, and to take a walk in the garden; and it is not easy to submit more than a few of them to secondary capsulotomy.

With regard to the statement, now so often made, that the power of orientation is better in persons operated on by the simple method than where an iridectomy has been done, I would say that this may be the case if wide iridectomies are in the minds of those who make this statement, but my patients labour under no difficulty of orientation once they become accustomed to their spectacles.

In conclusion, I may say a few words with reference to the state of the general health required, in order that the operation for cataract may be successfully performed. In my opinion, there is hardly any chronic disease which contra-indicates this operation, and, as ether or chloroform have become unnecessary, as the operation with cocaine is almost painless, as it entails but a short confinement to bed, and as it is the only means of restoring sight in these cases, it should be done, whenever the state of the eye renders its prospects good, and the patient's life is likely to last for even a few months longer. Nor do very advanced years form a contra-indication. I have frequently operated on persons over 80 years of age, and in them always with a good result. I know no more pitiable sight than that of an aged and infirm person, with bright mental faculties, who is doomed to pass the last years or months of life, deprived of the joy of seeing those who are nearest and dearest; nor is there anything of which I feel more certain than this, that a successful cataract operation gives a renewed lease of life, by reason of the improved psychological condition which follows upon it. I do not wish to convey that the state of the patient's general health is a matter of absolute indifference to me; but, merely, that I do not decline to operate on account of serious organic disease of a chronic nature, which, so far as can be known, may not have a fatal termination for months, or, perhaps, for years to come. I have operated successfully in a case of pronounced Bright's disease, as also in the presence of diabetes. Nor does chronic disease of the heart, liver, or lungs, even when they are all present in the same individual, cause me to decline to operate.



