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# REPORT

OF

Four Operations for the Removal of  
Cataract without an Iridectomy, and  
by an entirely New Method,

WITH THE

Discussion before the Clinical Society of the  
New York Post-Graduate Medical School,

*May 21, 1887.*

By FRANCIS VALK, M. D.,

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“REPORT OF FOUR OPERATIONS FOR THE REMOVAL  
OF CATARACTS, WITHOUT AN IRIDECTOMY,  
AND BY AN ENTIRELY NEW METHOD.”\*

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MR. PRESIDENT AND GENTLEMEN :

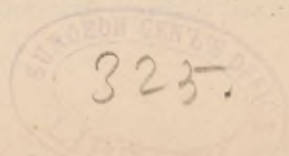
Since the days of the old flap operation for mature senile cataracts, there have been many changes in the method of performing this most important and capital operation in all eye surgery. Amongst these changes, it seems to me, there have been but two principal objects to be attained that would make the operation for cataract perfectly successful and complete. By this I mean that if we had some method by which we could successfully remove the lens *in its capsule* and *without an iridectomy*. That such an object will ever be attained, remains for the results of the ingenuity and experience of the ophthalmologist, but I do not think that, up to the present time, any one has succeeded in an operation that will accomplish these results and at the same time command the confidence of other operators.

If we quickly review the work that has been done in the past, we must first turn to the simple flap operation, which consists of the section of the cornea, laceration of the lens capsule, and forcible expression of the cataractous lens.

In this operation we accomplish part of the desired end, that is, no iridectomy is performed, but its disadvantages present themselves in the forcible expulsion of the lens through the section, carrying the iris with it, being doubled backwards on itself, rendering it liable to be more or

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\* Read before the Clinical Society of the New York Post-Graduate Medical School, May 21st, 1887.





less bruised in the passage of the lens, or to become caught in the angles of the section, or if not, so prolapsed, that it is difficult and sometimes impossible to return the iris to its normal position.

For these reasons I think this operation was almost totally abandoned until about one year ago, and for several years the operation called "Von Graefe's modified" was almost universally performed. This operation was as follows: Using Von Graefe's narrow-bladed knife, the section was made wholly in the corneal tissue, with probably a conjunctival flap, and followed by a broad iridectomy, then laceration of the lens capsule with the cystotome, and, lastly, expression of the lens with the spoon or fingers.

This has been the favorite operation for several years past by most surgeons in this country, though several eminent men have attempted to change or modify the operation, for the reason that, although an iridectomy was supposed to lessen the dangers of any consecutive inflammation, and at the same time remove an impediment to the easy exit of the lens, yet an iridectomy was *not to be desired*, for the reasons that it would admit too much light, that it disfigures the eye, and that in the removal of a portion of the iris, that membrane was apt to be caught in the wound or injured by the instruments. Galezowski endeavored to obviate this in his operation, by which he lacerated the capsule with the point of Von Graefe's knife, while the iris is dilated with atropine and before he makes the counter-puncture, then with a large section he forces the lens outwards. *But* this method has the same objections as the old flap operation, which will also apply to the later operation of Prof. D. B. St. John Roosa, of New York City, in which, without a laceration of the anterior capsule, he dislocates the lens in its fossa with the back of the knife, after the section of the cornea is partially completed, and then by pressure with the spoon or fingers, forces the lens through a large section made in the cornea.

While each of these operations may have certain advantages, and sometimes the results are excellent and all that could be desired, yet at other times they will partially fail, either in the loss of vitreous, or prolapse and entanglement of the iris, leaving a disfigured eye; it has therefore occurred to me that some method might be devised by which we could at least perform this operation without an iridectomy, and with little, if any, violence being done to the eye, or to the iris itself; as if we could *place the iris in the same position as if an iridectomy had been performed*, and holding it there until the lens passes outwards, we can allow

it to return to its normal position—we would at least gain one of the objects most to be desired.

It is for the purpose of gaining an uninjured iris, and at the same time the advantages of the iridectomy, that I have devised a small instrument, that seems to me will “quickly, safely and judiciously” assist us in the extraction of all cataracts, without an iridectomy, an operation which I will endeavor to describe, and one that I have successfully performed four times, as the accompanying report of these cases will show, and, as I believe, a method that will commend itself to others who desire to safely perform this most important operation without any disfigurement of the eye.

Before speaking of the successive steps of this operation, I will describe this new instrument, which I propose to call an *Iris Retractor*, made for me by Mr. Ford, of Hazard, Hazard & Co. This is shaped like a pair of iris forceps, about the same size, but with the action crossed, so that the instrument can be firmly held when opened and in use; at the centre is a small screw, to regulate the distance between the blades when opened and holding back the iris. Each blade terminates in a blunt, rounded extremity, perfectly smooth, and passing at right angles to the blades, turning directly downwards when the instrument is in position.

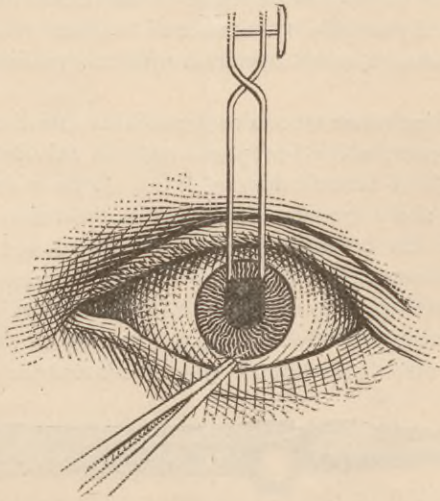


In using this little retractor, it is to be held lightly in the left hand, or if the operator is ambidexter, it may be held in either hand to suit the section and the position of the operator; then pass the ends of the blades, closed, through the section to the pupillary space; the blades are then opened with strong, firm pressure (the hand resting upon the forehead, if the section is made upwards, or upon the cheek, if the section is made downwards), and as you draw the instrument backwards, the rounded extremities will catch on the pupillary border, and you can place that portion of the iris lying between the blades, about in the position of full dilatation of the iris, appearing as if an iridectomy had been performed. Then pressing gently but firmly downwards, at the same time stroke the opposite part of the cornea with a rubber spoon, and the lens will rise upon the blades of the retractor; as it does so, the left hand must be slowly lowered, causing the instrument to act as if resting on a fulcrum placed at the bend of the blades; then pushing it inwards slightly, the



iris is released, and you remove the instrument with the lens probably lying in the concavity of the blades, and the iris will be found in its normal position.

When the retractor is in position, the eye presents the appearance of having had a large iridectomy performed, as shown in this drawing, being only drawn backwards or towards its periphery to about the position of full dilatation.



In reference to the slight pressure that is made upon the iris by this retractor, I ask to be allowed to quote from Prof. D. B. St. John Roosa's paper, on his operation for cataract, read before the New York State Medical Society, and reported in the *Medical Record*, Vol. 27, p. 155.

"To say that the cutting off of a tissue so vascular, so richly supplied with nerves, and having such a perfect muscular system, is less dangerous than the moderate and momentary pressure of the lens (*or retractor*) upon its yielding structure, is to say something that has generally been accepted as true, but, nevertheless, I am disposed to question its correctness. I am persuaded that a return to the old method of operating *when the iris is not cut*, whether the capsule be divided by an instrument or not, would be a gain for ophthalmic surgery."\*

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\* The words (*or retractor*) in italics, in the quotation from Prof. Roosa's paper, was inserted by myself.

The various steps that I have taken in performing this operation are as follows: The patient is properly prepared, but no atropine is to be used before the operation, as it is much better that the pupil should *not* be dilated, so that the iris may not be wounded in making the section, as if the iris is dilated it will contract as soon as the intraocular pressure is relieved, and may fall against the edge of the knife, causing it to be lacerated as the section is made.

Having instilled sufficient of a four per cent. solution of cocaine hydrochlorate, the lids are opened with the speculum, and the eye washed with a saturated solution of boracic acid. Section is then made, wholly within the corneal tissue, with the Graefe knife, either upwards or downwards, as may be most convenient. Generally I make the section upwards on the right eye, and downwards on the left, but I prefer the downward section. In making the section, I keep within the corneal margin, and at its completion, turn the knife on its axis, so as not to make a conjunctival flap. I now pass inwards the cystotome, and lacerate the anterior capsule freely, as far beneath the iris as possible, towards the limit of the section.

An assistant now holds the eyeball steady with fixation forceps, drawing it slightly away from the operator, and the retractor is passed inwards through the section, until the ends of the blades are within the pupillary space. Firmly open the blades by steady pressure, and draw backwards the iris, until the portion within the blades is about in the position of full dilatation, as shown in the illustration. Then with the right hand make gentle counter-pressure on the opposite part of the cornea with a rubber or shell spoon, at the same time slightly depress the retractor, and the lens will present at the section. As the lens passes outwards, slowly raise the points of the blades and push the retractor inwards under the lens, to allow the iris to resume its primary position, and then remove the retractor; as you do so, allow the blades to close, completing the operation; as the lens clears away, the pupil will be found round and clear.

Should the cataract be not fully mature, and some portions of cortex be left, you may again introduce the retractor in the same manner as before, and with the spoon gently press out the soft cortex remaining.

The eye is now closed by removing the speculum, a drop of sol. of eserine sulphate added, washed with a solution of boracic acid, a little white vaseline rubbed on the edge of the lids; and with a pad of absorbent cotton over the eye, a flannel bandage is neatly applied.



In these cases that I now report, I have not used atropine for several days after the operations; in fact, would not use it all, only to see that the iris was readily movable, as I wished to note the effect of this manipulation upon this delicate structure, the iris; and in all the cases I have had no trouble, as there has been very slight, if any, irritation as the cases proceeded towards complete healing.

My first operation was performed on *W*—, who presented himself at my clinic, at the New York Dispensary, with a traumatic cataract of the left eye from a blow. V. R. E. =  $\frac{2}{3}0$ . I consented to operate because he wished to have it done, and because the blindness on that side was very inconvenient and interfered with his work. The operation was performed at the New York Post-Graduate Hospital, assisted by Dr. Geo. J. Bull, strictly following all the steps of the operation as I have described. On laceration of the capsule with the cystotome, the cortex was found to be fluid, and portions came out into the anterior chamber. Dr. Bull now held the eye steady with the fixation forceps, and, after the iris was drawn backwards, which was done with no difficulty, the nucleus was readily pressed outwards with the spoon. As it passed out, I released the iris by passing the retractor inwards, raised the points as I closed them, and removed the instrument. The iris was found back in its normal position. As there were some small portions of cortex remaining in the pupillary space, I again passed in the retractor, opened the blades, drew back the iris, and with the spoon pressed out gently the remaining cortex. I then allowed the iris to return, and withdrew the retractor. No atropine, eye closed, and flannel bandage applied.

I had great difficulty in making this patient realize that I had performed a very serious operation on his eye, as he was perfectly free from pain until he was discharged.

There was no evidence of any inflammatory action at any time, and the eye was opened on the fifth day, when the pupil was found perfectly round and clear, with the section healed. The bandage was reapplied, and on the seventh day he could readily count fingers. I then ordered atropine solution three times a day, simply to see if the iris was perfectly free, and on the next day found the pupil fully dilated. The atropine was at once stopped, and a shade applied. Two weeks after the operation, V. =  $\frac{2}{3}0 + 1$  with  $+\frac{1}{4}$ , and he was allowed to return to his work.

My next operations were upon *Ellen C*—, age 55. Senile cataracts, both eyes; in the left fully mature, not so in the right.



R. E., field good in all directions, while in the left the field was only fair on the temporal side.

Assisted by Dr. Geo. J. Bull and Dr. T. T. Gaunt, I operated in her room, top floor, tenement house, in the neighborhood of the Five Points, in this city; so you may judge that our surroundings were not of the best, but still her room was clean and neat; and as she was very anxious that the operation should be performed, I felt satisfied that she would do well.

As I made different sections in each eye, I will describe them separately. After each eye had been cocainized with six drops of a four per cent. solution, the R. E. was opened with a speculum, and the section made upwards. The capsule was lacerated with the cystotome, when I again found the cortex very soft. The retractor was now passed inwards, and the iris drawn back. I now made counter-pressure with the spoon, and the lens passed out easily, leaving some small portions of cortex behind, which in this case I decided to let remain and remove by a second operation if necessary. There was a slight tendency for the iris to prolapse in this case, but it readily resumed its position by a few gentle strokes of the spoon. A bandage was then applied to the eye.

Proceeding in the same manuer as with the R. E., I operated on the left, making this section downwards, within the corneal tissue. In this case, the lens being fully mature, I readily drew back the iris with the retractor after the capsule was lacerated, and with gentle counter-pressure the lens presented at the section. As it passed outwards, the retractor was made to retrace the same steps by first pressing it forwards, depressing the handle so as to raise the points, and then removing the instrument. As the lens passed free from the section, the iris was found in its natural position, with the pupil round and clear.

Both eyes were now bandaged, and the patient left in the care of her ignorant friends with whom she was surrounded. I saw her every day after this, and, although she complained of considerable pain in both eyes, yet, on removing the bandage on the third day, there was no sign of any inflammatory action in either eye, as both lids appeared perfectly natural.

I afterwards found that her pain, which she complained of for more than a week, was due to neuralgia caused by a decayed molar tooth of the upper jaw.

The eyes were opened on the sixth day, and both sections found to have healed nicely, with both irides in good position, a clean black pupil in the left eye, which you will remember had a mature cataract; but in

the pupillary space of the right eye, I found some masses of cortex and capsule that I had allowed to remain at the time of operation. About one month after, this was removed by a secondary operation, cutting the membrane loose on the temporal side, and removing it through a very small section with a fine hook. After the eye had completely recovered, her V. =  $\frac{2}{8}$ , with  $+$   $\frac{1}{3}$  convex lens.

On March 14th, 1887, I operated on *Mrs. M. A. Le*—; senile cataracts, both eyes, but more mature in the left. This operation was done at the Post-Graduate Hospital, assisted by Dr. W. H. Fox, before the class of matriculates. No antisepsis; cocaine, four per cent., used; and the section made downwards, by what I believe is the method of De Wecker of Paris, and wholly within the corneal margin. The eyeball was now steadied by Dr. Fox, and passing in the retractor to the pupillary space, the iris was drawn backwards and slight pressure made, the blades of the retractor depressing the corneal margin of the sclerotic; at the same time counter-pressure was made with a spoon, and the lens quickly presented at the section. The iris was then released as before, and the retractor removed. There were some small portions of cortex that remained behind; the iris was found in good position and free from the wound, with the pupillary space black and round.

A bandage was applied, and she made good and rapid recovery. No atropine was used until the fifth day, when the pupil readily dilated clear and round; so it was stopped on the second day, and the pupil returned to its normal size.

Two weeks after operation she had slight conjunctivitis, which readily yielded to an astringent solution. On April 15th, 1887, V. L. E. =  $\frac{2}{8}$ , with  $+$   $\frac{1}{3}$  convex, and she reads No. 4 Jaeger at 12" with  $+$   $\frac{1}{2}$ .

Such is the history of the four successful operations that I have done; but I would not consider this paper complete did I not say that in one case not yet reported I failed in the operation of removing the lens. But as the cause of that failure was not due to the method of operating, but wholly to unavoidable causes due to myself, it is not necessary to report them here.

In presenting this operation to the favorable notice of the profession, I know that it is an entirely new departure from the former brilliant methods of operating, and will, no doubt, be criticized from the fact that we are compelled to pass more instruments into the eye than the present tendency seems to warrant; as in Galezowski's operation, no instrument except the knife enters the anterior chamber; the same in that of my



riend Dr. Roosa's operation ; while at the same time, there is a disposition on the part of some of our best ophthalmologist to return to the old flap operation, as performed by Professors Panas and Knapp. But I think that these methods have most decided disadvantages from the bruising and displacement of the iris, as the lens in its outward passage forces the iris back upon itself, causing it to readily prolapse or be caught in the angles of the corneal wound.

Then, in the operation where iridectomy is performed, there is no question, that, by cutting off a portion of this vascular membrane, we facilitate the exit of the lens, but, at the same time, the operation is much more severe, and causes a noticeable defect in the future appearance of the eye, as the upper lid will not completely conceal the coloboma of the iris ; while, by the use of the retractor, we gain, I think, all the advantages of an iridectomy, at least as far as its mechanical action is obtained. Yet the iris is not wounded or impaired in any way, but is simply drawn backwards towards its periphery, so as to allow the lens to pass out readily through the pupillary space. I do not think that this slight manipulation of the iris, by drawing a portion of it backwards to a position of full dilatation, can possibly cause any more injury nor act as a source of irritation to this delicate membrane than that of forcing the lens through the pupillary space.

There is no question that the hand must be steady, and the movements gentle in the extreme, while at no time can any hurried movements be made ; but should any accident threaten the success of the operation, the retractor can be at once removed from the eye by simply raising up the points of the blades, when the iris is at once set free ; while, if a small amount of vitreous presents at the section, I should still hold the iris back and with the spoon endeavor to bring the lens forward.

In presenting this small number of cases for your consideration, I can only say that I have been more than pleased with my continued success, and would only ask a fair trial of its merits.



CLINICAL SOCIETY NEW YORK POST-GRADUATE  
MEDICAL SCHOOL AND HOSPITAL.

*Meeting held May 21st, 1887.*

DR. D. B. ST. JOHN ROOSA in the chair.

Dr. VALK read a paper upon "Four Cataract Operations by a New Method."

Dr. ROOSA invited Dr. Hermann Knapp to take part in the discussion. The Society was honored by the presence of Dr. Knapp, a valuable critic upon all ophthalmic matters, but especially upon cataract operations.

Dr. KNAPP thought the method described by Dr. Valk an ingenious procedure; he had some operations where it seemed to him that this method of procedure was what he wanted to assist the exit of the lens, and inquired who was the manufacturer of the retractor.

Dr. VALK replied, Mr. Ford, of Hazard, Hazard & Co., but it was necessary to look for an instrument with a smooth surface, all were not perfectly finished.

Dr. ROOSA remarked that as the speaker had been kind enough to allude to his extraction of the lens in the capsule, he would say that he adopted this method in every case of late cataract extraction. The removal in the capsule, so far as he could see, prevented the after closure of the pupil and the nullification of the operation. Except in rare cases, he found it possible to extract the lens without iridectomy. No more brilliant operations had ever been done than by Alfred Graefe while the speaker was a student in Vienna, without iridectomy. An objection to Dr. Valk's instrument would come from the general principle to keep all instruments out of the eye. One hundred cases at least would be necessary to establish its value. Dr. Valk had however the testimony of Dr. Knapp in its favor; and who shall speak after the king? All know of Dr. Knapp's great experience in cataract operations, both in Heidelberg and in this city. Dr. Valk could have no higher approbation. Extraction in the capsule he thought destined to a greater following. One of his assistants had done it six times, and another twice recently.

It had been feared that loss of the vitreous would be more apt to occur with extraction in the capsule than without. This fear had however not been sustained. Further, all were apt to overestimate the loss of the vitreous and to underestimate the iritis resulting from division of the capsule, necessitating a second operation, especially deplorable in very old people. The speaker thought the extraction in the capsule the best operation which he performs. Even if the iris were distorted, it was a safe eye, and he had watched some of the cases for six years. Cataract operations should be adapted to the individual case more than was now done.

Dr. VALK thought that in removal of the lens in the capsule his retractor would be valuable in replacing preliminary iridectomy.

Dr. KNAPP thought the operation of extraction in the capsule without iridectomy especially valuable for old degenerated cataracts with chalky or fatty decomposition. Twice he had had the anterior chamber inundated with this material with the result of an iritis, not suppurating but plastic, the same as could be obtained from croton oil. One of the pupils cleared, the other was still muddy. In a case of cataract fifteen years old, not white but yellow, and dusky yellow at that, the lens came out, more or less of the putrid liquid escaping. This peculiar iritis had closed the pupil, and iridectomy would be required in order to give good sight. Removing the lens in the capsule obviated all of this trouble. He had done this operation without iritis and with brilliant results. In this operation, however, prolapse of the iris was the thing to be guarded against. If thoroughly sterilized in the flame of a spirit lamp or by chemical means, he would not fear to introduce such an instrument as Dr. Valk's into the eye. Whether the iris would go back or not he could not say.

Dr. VALK stated that he had done four operations by this method and that the iris had readily returned to its former shape.

Dr. KEARNEY inquired whether cicatricial tissue had the same tendency to contract where the wound was hermetically sealed. In tenotomy, while adventitious tissue grows, it does not contract. Did Dr. Knapp think that there was this difference between the results of a plastic and a suppurative inflammation.

Dr. KNAPP had seen contraction in cicatrices of the iris where there had been no suppurative inflammation.

Dr. ROOSA wished to add that he would extract in the capsule not only for over-ripe cataracts, but also for those which ripen slowly. The

patient was thus not incommoded by waiting. He would remove the immature cataract also in the capsule.

Dr. Roosa, before adjourning, referred to the completion of the fifth year of the School's history. This had been the most prosperous of any. The Society had this evening received eighteen new associate members; the College had had two hundred matriculates during the year. New York City was destined to be a great medical centre. The Post Graduate School and the Polyclinic had done a great work in waking up the colleges of the city to what was expected of them. So important had post-graduate schools become, that it was probable that we should have discussions as to who invented them before long. While we regret that we have not the facilities granted to Baltimore for original research, we look hopefully to the future. All things great in every department gravitate to New York, and it cannot be doubted that the great coming university will be located here.





