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## THE ADDRESS IN OPHTHALMIC SURGERY.

BY

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[Continued from page 718.]

CATARACT, and its treatment by operation, have been so long and carefully studied, as to afford little of novelty for our present consideration.

Surgically speaking, cataract is divisible into two varieties, hard and soft; the former being the disease of declining years, the latter, that of early life. For our present purpose, it is correct to add to these capsular cataract, which, practically considered, is traumatic, or a relic of the imperfect cure of the soft variety.

Soft cataract is cured by division with a needle introduced either through the cornea or sclerotic. When I was a pupil, the general practice was, to pass the needle through the cornea at the first operation, and through the sclerotic in the subsequent ones. Now we almost invariably practise keratonyxis or puncture through the cornea in all needle operations.

The needle employed for the division of cataract cannot well be too delicate. This point has been ably and successfully insisted upon by Dr. Jacob, and subsequent operators have abundantly verified the truth of his observations. A very fine needle is sufficiently strong, and does not inflict so much injury upon the cornea or sclerotic as a larger one.

*Extraction of Cataract.* Some few modifications have been practised of late years in the operation of extraction of cataract.

Beer's knife is used by most surgeons, but its proportions have been altered by operators to meet peculiar views; thus some use a short small knife, others a long and narrow blade.

I well remember that in my early days it was the fashion to make the corneal wound downwards; and I have seen several eyes lost by suppuration, from the entanglement of the lower lid in the incision. The frequency of this accident led to the performance of the upper section, which is now almost universally adopted. Its advantages are too obvious for comment. I have also practised an oblique section looking outwards and upwards, which has answered admirably; indeed, in some cases, I believe it to be the most suitable one. For instance, I operated last year upon a woman whose right eye was the subject of cataract, complicated with complete synechia anterior; I used the outer oblique section, and found it most convenient.

It is plain that, whenever it is necessary to incise the iris, or perform any delicate manipulation incident to an abnormal cataractous state, this section allows more space and facility for its performance, as the brow offers great obstacles to the easy introduction and manipulation of instruments when the direct upper section is adopted.

It is now common to seize the conjunctiva and its subcellular tissue with toothed forceps, in order to steady the globe in operations for strabismus, artificial pupil, etc.; but this plan, so

far as I am aware, was not extended to the extraction of cataract until advocated by Mr. France. Having frequently adopted this plan with great advantage, I strongly recommend its general adoption. Everyone knows that the great obstacle to the due performance of the corneal section is the irregular movement of the eye, dependent upon the excitement and nervous agitation of the patient.

Mr. France has written a short paper on the subject in the *Ophthalmic Hospital Reports*. He insists that, 1. The forceps should be moderately broad at the nibs with projecting teeth, so as to seize the subconjunctival tissue as well as the conjunctiva itself.

2. To effect this, the forceps should be pressed firmly against the sclerotic before closing and affixing the tissues in its grasp.

3. The assistant should maintain the cornea in the central position as passively as possible by gentle traction if required, but without dragging or pushing.

4. The operator should adapt his fingers and fix the globe in the ordinary manner, as if no forceps were in use.

5. The corneal incision having been made in the usual way, the forceps should be gently disengaged after counterpunctuation has been fully effected.

This diagram (Fig. 3), imitated from Mr. France's paper, shows the exact period at which the forceps should be disengaged.

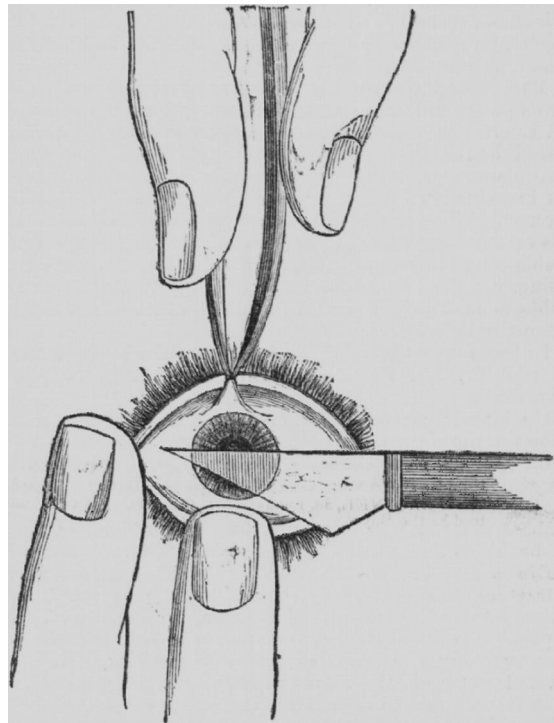


Fig. 3.—Operation for Cataract, showing period for disengaging the Forceps.

At the Plymouth Eye Infirmary, the eye is closed immediately after the operation, and the lids retained in apposition by the application of ordinary court plaster; sufficient space being reserved for lachrymation. If all proceeds favourably, the plaster remains *in situ* for a week.

I believe that you will concur with me, that the after treatment of the case of extraction of cataract which I now read to you, is full of interest and practical importance, although by no means novel.

In June last, I extracted a cataract from a woman, aged 58. The operation was all that I could wish. Ten days after, the incision had healed; the cornea was clear; the iris was normal

in texture; the pupil black and clear, but a little drawn upwards towards the incision. The vision was good. Her health, however, was feeble, and her nervous system unaccountably depressed. Three days after this, the aqueous humour was found turbid, the texture of the iris confused and muddy, and the conjunctiva loaded with vessels of a dull red colour. The next day there was slight hypopyon, and this increased with such rapidity, that in three days the pus occupied the lower fourth of the anterior chamber; vision was now almost abolished. The conjunctival vascularity was dull and intense. I now evacuated the pus by an incision with a broad needle near the corneal margin. The inflammatory symptoms at once receded, and in a few days the eye was nearly normal in all respects, and the vision excellent. The medical treatment throughout consisted of tonics, beer, and full animal diet.

I have reason to believe that I am correct in the statement that the excellent surgeons of the Exeter Eye Infirmary rarely perform extraction; that their experience is strongly in favour of the performance of division, even in the hard cataracts of the aged. I am informed that their patients so treated are well cured. I confess that this has not been my experience; I have rarely used the needle for senile cataract without regret; the tardiness of cure, the number of operations required, and the occasional impairment of retinal power, being the sources of disappointment. Dr. Jacob has recourse to the needle in many cases in which most surgeons would extract; yet he uses the knife in old persons, still stating that, under fifty years of age, the lens once broken in pieces must sooner or later be dissolved, the only question being the time required.

Professor Von Gräfe, in his monograph on iridectomy, says incidentally, "I cannot agree with the experience of English authors, especially of Jacob, as to the excellent action of keratonyxis in partially softened cataracts, even of old people."

Capsular cataract is usually of traumatic origin, or the relic of needle operations. It is most variable as regards extent, thickness, elasticity, adhesions to the iris, etc. Trivial often in aspect, its removal is frequently very difficult, and until of late years, at times impossible.

The Great Exhibition of 1851, among other benefits, gave us two delicate and important instruments, the cannula-forceps of M. Luer. They have, since then, been well known and appreciated by the profession. One is simply a delicately toothed cannula-forceps, which requires a previous corneal incision for its introduction; the other combines a sharp point with the forceps. When the capsule is not very firmly adherent to the iris or other structures, these forceps can safely tear it from its feeble connections and extract it; but when the adhesions are numerous, short and firm, the decided use of the instrument is liable to detach the iris from its ciliary attachments, and hence a limit to its efficiency.

In these instances of thick, dense capsule, strongly attached to the iris, Mr. Bowman's mode of clearing the pupil is admirable.

He introduces two straight needles through two different points of the cornea, penetrates the capsule at, or as near to the same spot as possible, and, by separation of their points, the resistance is torn through, and the pupil cleared. A curved needle is at times efficient, and if the membrane is soft or friable, the result is excellent, but it is not so extensively applicable as the cannula forceps or Mr. Bowman's method.

*Linear Extraction of Cataract.* The operation termed linear extraction, was devised by Gibson many years since; having fallen into disuse, it has of late years been revived. It is applicable to fluid cataract, to certain cases of congenital cataract, or to a very softened condition of the lens, which, when divided by the needle, allows an undue and dangerous quantity of broken up lens to escape into the anterior chamber.

In most instances, the lens is broken up through the cornea with one needle, the puncture enlarged with the broad needle or Beer's knife, and the fragments escape either with the flow of the aqueous humour, or are removed by the scoop.

This operation has of late been employed frequently, and in well-selected cases has been followed by good results.

*Depression and Reclination of Cataract* are almost in disuse in England, and neither operation is based upon sound scientific principles; still some cases of cataract are so unsuitable for division or extraction, that the surgeon is unwillingly compelled to practise either one or the other of them.

Mr. Vose Solomon has lately practised reclination with two needles. One is passed through the nasal side of the cornea in front of the lens to push it backwards, and to allow ample space for the second needle, which, passed through the tem-

poral side of the sclerotic, traverses the space made by the first needle, is applied against the front of the lens, and is the active agent in the reclining process.

[A diagram illustrating Mr. Solomon's method of reclination appeared in the BRITISH MEDICAL JOURNAL for April 2nd, 1859.]

**ARTIFICIAL PUPIL.** When, by accident or disease, the natural pupil is obscured or obliterated, the surgeon is often able by artificial means to establish a passage for the rays of light to the retina. The ocular conditions which demand this operation are obviously so numerous as to require various modifications in the mode of its performance. Most of the old methods were rude, and dangerous to the transparent lens, and few cases were deemed suitable for any operation.

As science has advanced and mechanical art has become perfected, the number of eyes submitted to operation for artificial pupil has been larger, the success more certain, the result more encouraging and satisfactory.

Until Mr. Tyrrell invented his iris-hook, no instrument existed, which, even in skilful hands, could enlarge or displace the pupil without endangering the lens. This hook is now in constant use. Its recess is long, and its extremity rounded to avoid injury to the lens or its capsule. An opening being made in the cornea about a line from the sclerotic with a broad needle, the hook is introduced, passed through the pupil, and the iris being engaged in its loop is drawn through the corneal wound, and either excised, or allowed to remain strangled in it.

The invention of Luer's cannula-forceps and Wilde's cannula-scissors has established a new era in the history of operations for artificial pupil.

The former is now often used where Tyrrell's hook was previously the instrument selected. It has the advantage of being suitable for the operation of artificial pupil when the lens remains transparent. Thus, if the pupil is quite obliterated, a transparent lens behind it, and it is desirable to form a new pupil near its centre, the cornea is opened with the broad needle near the corneo-sclerotic junction; the closed cannula-forceps entered; the anterior surface of the iris seized, drawn through the corneal opening, and an adequate portion is excised.

Within the last two years, Mr. Critchett has invented a new and valuable operation for artificial pupil, which he terms *iridæsis*, *i. e.*, tying of the iris, from *iris*, the iris; *deosis*, a tying. He states that it is applicable to nearly every variety of case in which an artificial pupil is required; it enables the surgeon to regulate with accuracy the size and position of the pupil he proposes to make; it insures to it a defined boundary and the natural mobility (provided some portion of the pupil in its natural state existed prior to the performance of the operation); it secures stability to the new pupil, so that it will continue of the form and size just made." These are great and important advantages, offered by no other artificial pupil operation with which I am acquainted. Mr. Critchett says it has been adopted, with favourable results, in the following group of cases.

**I.** Central leucoma corresponding in size and position to the natural pupil.

**II.** When there has been a penetrating ulcer of the cornea, with some surrounding opacity, and the pupil altered in shape, diminished in size, and drawn towards or behind the opacity.

**III.** In cases of opaque capsule with adherent pupil, in which it is desirable to enlarge the pupil slightly in one direction, so as to expose a clear part of the lens.

The operation is thus performed. The patient, if not very resolute, is well chloroformed, to insure perfect quietude. The eye is exposed fully with the spring wire speculum. A broad needle is then entered close to the corneo-sclerotic junction, and an opening established, of just sufficient size to admit the cannula-forceps. A small loop of moistened floss silk is then laid on the eye over the corneal opening; the cannula-forceps is passed into the anterior chamber, encircled by the loop of silk; the iris is then seized midway between the ciliary and pupillary margins, or, if possible, rather nearer the former, and withdrawn to the requisite extent. An assistant lays hold of the ends of the loop with two small broad-nibbed forceps, and carefully ties it upon the eyes, so as to include and strangulate the portion of iris drawn out. The ends of the silk are then cut off, and the process is completed. The only objection which Mr. Critchett makes to the operation is an occasional tendency of the loop of silk to be drawn into the anterior chamber. This is obviated by making the corneal wound small, by inclosing

the entire prolapsed iris with the silk, and leaving the ends of the loop long, so that they may readily be seized and withdrawn at the proper moment.

Mr. Critchett ends his last paper on the subject in the *Ophthalmic Hospital Reports* thus: "I believe that it possesses important advantages over every method hitherto proposed, and that it enables the operator to insure every optical advantage that the nature of the case and the previous condition of the eyes permit; and I confidently anticipate its very general adoption."

You will observe how very different this operation is from every other now in use, inasmuch as it preserves a free and pupillary margin, which by the older method was always sacrificed. The pupil also is more central, and therefore opposite to the most sensitive parts of the retina—a most important advantage, as, for the finer purposes of vision, a small or imperfect central pupil is more useful than a better pupil placed excentrically. Again, the iris-fibres are not torn nor divided; and the artificial opening is made of a definite size, which could not be attained with any certainty by any of the old operations.

I entertain a very high opinion of the merits of iridectomy, and esteem it to be a very ingenious, scientific, and practical discovery. I have selected the following case from my own practice, as an illustration of the operation.

CASE. Edward Brown, aged 35, a healthy looking sailor, came under my care in June last. In August 1859, while in China, he was attacked by purulent ophthalmia, which totally destroyed the cornea of his left eye, and led to the formation of a dense and extensive leucoma of his right cornea. This opacity covered all the upper parts of the cornea, and extended so low that the lower margin of the pupillary aperture was only visible by raising his head and looking upward under the leucoma. He could not see if any person was before him at a greater distance than six feet, and could dimly distinguish the bars of a window at two feet. On the seventh day of June last, I performed upon him the operation of iridectomy, as before described. Slight vascularity succeeded; but in ten days he could distinguish men from women in the street at thirty yards, whether there were one or two horses in a carriage, as well as their colour, at forty yards; and could read printing an inch long at eight feet.

The advantage gained would have been much greater, but the cornea was hazy even at its most transparent part, opposite to which the new pupil had been formed. This diagram (Fig. 4) explains the condition of his pupil before and after iridectomy.



Fig. 4.—A. Before Iridectomy. B. After Iridectomy. a a, Leucoma. b, New Pupil.

In No. 9 of the *Ophthalmic Hospital Reports* is an important paper by Mr. Bowman, on Conical Cornea, and its Treatment by a New Operation. He points out that, up to the present time, nothing conclusive or satisfactory has been devised for the relief of the results of conical cornea. Many operations have, indeed, been invented; but no certain benefit has been derived from them. Professor Von Gräfe has used iridectomy, which, by diminishing intraocular pressure, has in some cases been advantageous. But many eyes affected with conical cornea are abnormally soft.

It has long been known that an eye the subject of conical cornea sees better when a slit or diaphragm is placed in front of it; but it is difficult to adapt an apparatus which is practically available.

Reasoning upon this fact, Mr. Bowman concluded that a slit-like aperture in the eye might accomplish what is requisite. During the last two years, he has experimented upon the form of pupil most effectual in the improvement of vision. He has operated upon six cases, with satisfactory results. Mr. Bowman has called to his aid Mr. Critchett's operation of iridectomy, to produce the end desired; viz., a slit-like pupil, capable of contraction and dilatation. The corneal opening is made with a broad needle, as in ordinary iridectomy. In his first operations,

he used the cannula-forceps to seize the iris about one-third from its pupillary margin, this margin being left free in the aqueous chamber. In subsequent ones, he has found it more effectual to seize the margin of the iris with a short Tyrrell's hook, which is a simpler method, and less liable to injure the iris, and affords greater precision in affixing the pupillary edge to the wound. After the iris is drawn through the corneal opening, it is tied as in ordinary iridectomy.

It is very necessary that there should be an accurate correspondence between the hook and the corneal wound, so as to permit the ready entrance of the hook, and yet be small enough to prevent the return of the ligature into the anterior chamber. In some instances, Mr. Bowman has executed only one iridectomy, by which a balloon-shaped pupil is formed, as in Fig. 7; but, in most cases, two operations have been performed, the one exactly opposite the other, and the second a week or ten days after the first.

This has produced a slit-like or elliptic pupil. He has also modified the pupillary direction, sometimes making it vertical, and at others horizontal. He gives the preference to the former, as presenting a more agreeable cosmetic effect, and also as practically diminishing the size of the pupil in ordinary vision by the overlapping of its angles by the lids. He truly observes: "It is difficult to render a pupil smaller by operation; indeed, its natural tendency is to enlarge it." Therefore the slit-like aperture, and especially the vertical one, the result of a double iridectomy, renders the pupil equal in size, if at all larger than the normal one. The improvement in vision has in some instances been most gratifying. The influence of the operation in reducing the corneal convexity has also been remarkable, and appears to arise from a modification of ocular tension, a like influence to that which is said to be produced in glaucomatous eyes by iridectomy.

Mr. Bowman advises an early operation in slight cases by one iridectomy, merely to arrest the progress of the disease, the second iridectomy being supplemented if it becomes necessary; but he depends upon future observations to test the accuracy of this proposition.

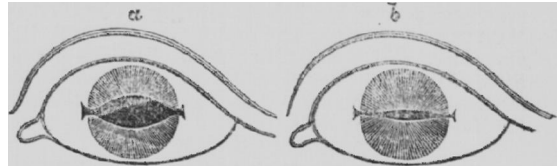


Fig. 5.—Iridectomy: Horizontal Pupil. a, dilated; b, contracted.

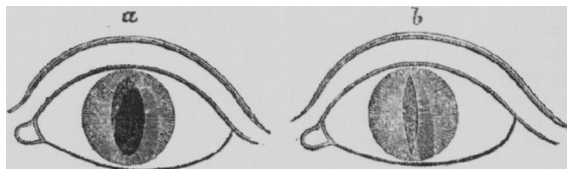


Fig. 6.—Iridectomy: Vertical Pupil. a, dilated; b, contracted.

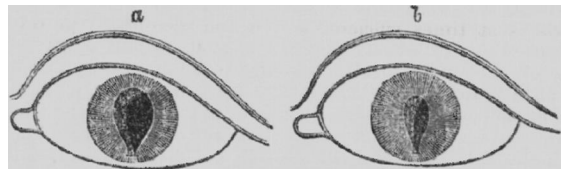


Fig. 7.—Iridectomy: Balloon-shaped Pupil. a, dilated; b, contracted.

These diagrams (Figs. 5, 6, 7), taken from his paper, show the form of the pupils, dilated and contracted.

[To be continued.]

MEANS OF RECOGNISING ERGOT OF RYE. M. Wittstein has recommended a means of recognising ergot of rye when mixed with farinaceous substances, depending on the disengagement of trimethylamine, which takes place when ergot of rye is mixed with solution of potash. The suspected substance is mixed with a little water, introduced into a tube, and covered with a layer of solution of caustic potash. In a little time an unmistakable odour of trine is developed, which is increased by heat, but is then quickly dissipated. (*Pharmaceutical Journal*, September.)