

## DIAGNOSIS AND AFTER-TREATMENT OF CATARACT CASES.

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*presented by the author.*

These lines are directed to those general practitioners who, while frequently seeing cases of cataract, still have either no desire to operate themselves, or lack the necessary facilities or confidence. Under such circumstances there are three questions that become of import to the family physician. The first is the diagnosis, the settling the question that there exists a cataract, uncomplicated, and amenable to operation; the second is the question of determining the time when the cataract is ready for an operation under favorable conditions; and the third is the question of the after-treatment.

### DIAGNOSIS.

The deciding of the point whether there really is present a cataract or not should seem a very easy question; but mistakes enough have been made to warrant fully discussing this point.

Senile cataracts begin either as a nuclear (central) or a cortical (peripheral) opacity. In the former case the opacity being behind and in line with the pupil, the patient is almost certain to seek advice early, complaining of a cloudy obscuration of vision. In the latter case, the opacity being peripheral and behind the iris, the process may go on for a very considerable time and make considerable progress before the pupillary area becomes involved and leads the patient to seek advice.

The means of diagnosis are available to all at trifling expense: a strong lens of two and one-half or three inches focus and a perforated mirror. The patient's pupil should be widely dilated with atropine, for in old persons the pupil is normally so small that little can be clearly made out without this assistance. But care should be taken to use only a very weak solution,

for a certain danger exists in old eyes of atropine starting up a glaucomatous process. One grain, or even half a grain to the ounce will be sufficient. The patient seated in a darkened room, a lamp is placed in front and towards one side, about two feet away. Then with the lens held between the eye and the light, at about its focal distance from the eye, a vivid cone of light is thrown upon the anterior of the eye and the dilated pupil brightly illuminated. In the case of nuclear cataracts the center will show gray, while if the cataract has made but little progress, around this central gray and next the pupillary edge will still appear a ring of darker background. In the cortical form the center will still appear dark, and upon this darker background from all parts of the periphery will shoot in little, narrow, spear-shaped sectors of opacity, showing gray.

Then the light may be moved back of the patient's head, still to one side, and the eye illuminated by the light being reflected upon it by means of a perforated mirror. For this purpose the ophthalmoscope is certainly the most convenient, but not indispensable. Any perforated mirror used for ear, or nose, or throat work may be used. If the physician's outfit may chance not even to supply this, he may make one good enough. A strip of ordinary looking glass is obtained, one end pasted around with paper for a handle, and from the back at the other end a small round area of the amalgam about the diameter of a quill is scratched away. Such a strip answers well enough for this purpose, and even for a very rude ophthalmoscope. In fact, is not much inferior to the original ophthalmoscope as designed by its discoverer, Helmholtz.



In the nuclear form the center now appears dark and around it a ring of red reflex from the background of the eye; in the cortical form the center of the pupil now reflects the normal red background, while showing dark upon it on all sides are the spear-shaped sectors coming in from the edges.

These two means should enable anyone to diagnose even *incipient* cataract. In the more advanced forms the oblique illumination with the lens will show the pupil entirely gray, and the mirror will not exhibit any red reflex from the pupil. With this growth of the cataract there will have occurred a corresponding impairment of vision, until finally only the presence of bright lights, or the position of the windows in a room, or the movements of the hand in front of the eye and between it and the light, can be observed.

As regards differential diagnosis, a few words are necessary. A cataract of the senile, uncomplicated form, not being accompanied with any inflammatory symptoms, should, from this very fact, be not confounded with cataract. Some diseases of the vitreous where that structure becomes infiltrated or filled with blood may prove deceptive by giving a gray or hazy appearance to the pupil and by intercepting the red reflex from the background of the eye. Such an opacity can be shown to be behind the lens by the so-called "catoptric" test. If the physician hold a light in front of the eye, somewhat to one side, and he himself observe the front of the eye from the other side, he will detect three images. One is a reflection from the front of the cornea, and is erect; one somewhat fainter is a reflection from the anterior surface of the lens, also erect; and the third and faintest is a reflection from the posterior surface of the lens (or, more accurately speaking, from the concave anterior surface of the vitreous), and is inverted. On moving the light up and down the two former are seen to move *with* the light, while the faint, inverted image moves in a direction *opposite* to that of the light. If now this last image can be made out, it proves that any opacity present is behind the lens. In *incipient* cataract with the lens becoming hazy this image is lost.

In cases of intra-ocular tumors, the new growth filling out the vitreous may in the same way give a deceptive color to the pupil and shut off the red reflex. These

may be detected with the mirror alone. In the normal eye with the mirror only a *diffuse* red reflex is obtained from the fundus, no details being made out; but such is the optical nature of the eye that any structure situated at some distance in front of the retina can be clearly made out. So with the mirror reflecting the light into the pupil, a tumor can be seen as a solid-looking body, most probably nodulated, and the delicate blood-vessels can be seen running over its surface. So a detached retina, when of considerable extent, can be seen as a wavy surface with a steely-blue reflex and the blood-vessels taking tortuous courses over it. So large floating opacities in the vitreous can be clearly seen, showing black upon the red background, and moving in the fluidified vitreous.

In such cases a mistake in diagnosis is only disagreeable in creating false hopes on the part of the patient and injuring the physician's reputation when the nature of the case becomes apparent. The cases have a bad prognosis, anyhow, and the mistake is not in itself responsible for any of the subsequent damage, as a rule, although earlier enucleation might have been better for the tumor case; proper treatment of the detached retina early might have produced some good effect; and in the vitreous troubles, if a syphilitic or malarial basis is present, corresponding treatment would probably have been of some benefit, or in the hemorrhage cases, early use of ergot might have spared some of the damage.

But a mistake that unfortunately is sometimes made, and which is of fatal gravity, is diagnosing a case of simple, chronic glaucoma as *incipient* cataract. A case of simple glaucoma comes to the physician. There are no inflammatory symptoms; vision is impaired, and, as is usual in these cases, there is a hazy reflex from the pupil, due to the faint turbidity of the media. On these symptoms alone a diagnosis of beginning cataract is made; the patient is told to wait until the complete blindness indicates that the cataract is "ripe" for an operation, and is thereby unwittingly doomed, if this mistake be not soon detected, to a life-long incurable blindness.

This error is one which is a result of superficial examination. The diagnostic points of difference are sufficient when properly utilized. The lack of inflamma-



tory signs, the hazy pupil and the impaired sight are the only points in common. In the eye of the aged the pupil is normally small, in glaucoma the pupil is dilated; in cataract there is a smoky clouding of objects, in glaucoma there is apt to be a "rainbow halo" around lights; in cataract the red reflex from the pupil is interfered with as indicated above, in glaucoma it is not (at least not in this simple form); and in glaucoma the tension is increased and the field of vision narrowed in a characteristic way. The increased tension is detected by palpation with the finger tips. The patient is directed to look downwards and gently close the eyes. Then the two forefingers are lightly placed upon the upper eyelid; delicate pressure is made by one finger-tip while the eyeball is steadied by the other. The normal eyeball under this light touch will slightly "dimple," with a soft, elastic sensation like a little india-rubber ball; the glaucomatous eye will resist this touch and give more of a sensation of hardness or solidity, like pressing a cherry or, in marked cases, like touching a marble. This increased hardness is the marked characteristic of glaucoma.

The field of vision is contracted to the nasal or inner side. The examination of the visual field, when scientific nicety is not aimed at, is an exceedingly simple affair. If it is only desired to approximately compare the patient's visual field with one that is presumably normal (the physician's), the two should seat themselves face to face a foot or eighteen inches apart. Then, for example, to test the patient's right field, his left eye is to be closed and his right is to look attentively at the doctor's left, the doctor's right being closed. In this way, the patient's right eye and the doctor's left looking fixedly at each other, their fields practically correspond. Now the doctor can bring his hand (holding some small white object) in from arms length to a point on the line joining the two eyes, care to be taken that the hand remains in a plane vertical to the line connecting the two eyes, and just halfway between. If now in all meridians the patient observes the object as soon as the physician, the fields are similar and normal in extent. If now the doctor sees the white object approaching before it is observed by the patient, this shows that the patient's field is contracted in that meridian. Even the degree of contraction can be

roughly approximate. Normally the nasal field reaches out to about  $60^\circ$ , and is rather sharply bounded by the line of the nose. In glaucoma this is contracted and may be brought in almost to the fixation line. If rather more comparative accuracy is desired the doctor may map out his own visual field on the wall, standing one foot away and gazing fixedly at a mark on the wall at the level of his eye. Then a small



R FIELD.

white object can be brought in from all directions, and the points at which it first appears to view can be marked. These

points connected by a line form a rude oval or egg-shaped field, narrowed to the inner side and above by the nose and brow, and broadened below and especially to the outer side, the fixation point being thus toward the narrower end. Then the patient, placed in the same position, his field can be also mapped out to superimpose; and the changes will be apparent, and can be sketched for purposes of future reference and comparison.

By using all the simple means mentioned above, no case of glaucoma should escape detection, and no such unfortunate and lamentable mistake should be made.

I have purposely avoided laying stress on the ophthalmoscopic examination, so that the physician may not feel himself dependent on a method of examination with which he may not have sufficient skill and practice. Of course, if the examination with the ophthalmoscope can be made, in these cases there will be found the glaucomatous cupping or excavation of the optic papilla, almost invariably.

The above differential points come up with cases of incipient cataracts; but even with more mature cataracts the question whether they are associated or not with any pathological changes in the fundus must be answered in the negative before an operation is warranted. For the determination of this condition the so-called "light projection" must be ascertained. With even a mature (uncomplicated) cataract the position of a light held before the face can be indicated by the patient. The physician then, seated before the patient, takes a lighted candle in one hand, and then causing the patient to gaze fixedly



directly forward in a constant direction, as far as this is possible, moves the light in various directions. The patient indicates the various positions by pointing. If the position of the light is indicated with fair accuracy in every direction, the fundus may be assumed to be normal. If in certain positions the light be not seen, or projected falsely, the condition of the fundus is doubtful. If, for example, the light is lost to the nasal side, we may have a cataracta glaucomatosa; if in the upper part of the field, probably a detachment of the retina; if all around the field the light is lost and only seen directly in front, probably some optic atrophy beginning. This examination must be carefully and patiently made, and should be several times repeated at such intervals as the family physician may find necessary or convenient. This examination is important, as upon its result will depend whether an operation may be made with the average chance of success, and may give needed warning to the physician to be guarded in his prognosis.

#### TIME FOR OPERATION.

The diagnosis settled, the next important question is that of the progress of the cataract towards maturity, and consequently towards the time when an operation can be most advantageously performed.

The maturity of the cataract can be approximately determined by the amount of impairment of vision; but still cases occur with a small, but densely opaque, nucleus in which vision is reduced to mere perception of light, while, however, the cortex is still clear and soft, and would remain behind during the operation. This condition is easily determined by oblique illumination with the lens. In a mature cataract, by oblique illumination the entire pupil shows gray or white to the edge on all sides. With a layer of clear cortex surrounding the opaque nucleus, the pupil will appear gray to the edge *farthest* from the light, while along the edge *towards* the light will appear a narrow crescentic band showing dark. This is caused by the iris at this edge throwing a narrow shadow through the anterior clear layer upon the opaque gray nucleus. Thus the progress towards maturity can be watched and followed, as this crescentic band becomes narrower and narrower, and finally disappears. This determination is important, for it is extremely embarrassing for the pa-

tient or the operator to travel long distances and then find that the case is not yet ready for an operation; and often, under such circumstances, either to shield the physician or because the journey would not be the second time attempted, the operation is made under conditions not so favorable as would have existed later on.

To be sure, of late years it is often customary to operate earlier than was formerly done. Under strict antiseptic precautions the remnants of the cortex may be worked out by skillfully insinuating the spoon into the lips of the wound; and lately the device of irrigating the anterior chamber by means of a delicate and specially constructed syringe is useful to clear out broken bits of cortex remaining behind. In favor of the earlier operation is the abridgement of the period of blindness by the length of time it takes the outer shell of cortex to become opaque (often a very considerable period). Against the operation is the fact that some cortex is almost certain to be left behind; this may swell and even proliferate; some eyes prove very intolerant of its presence; and it aids in leaving pupillary membranes and obstructions which call for a secondary needle operation. Unless the period of blindness proves very depressing, and lowers the general condition of the patient, it is better, as a rule, to wait.

When, then, it has been determined that the cataract is uncomplicated, as this period of opacity throughout all the layers is reached, the most favorable time for operating has arrived. Beyond this time delay is rather a disadvantage, for the hyper-mature cataract is from its size and hardness not as convenient for operating, and its long-continued presence may set up other degenerative changes in the eyeball.

#### PRELIMINARY TREATMENT.

Under this head may be grouped several points necessary for further discussion, although the term is usually limited to that course of tonic treatment undertaken shortly before the operation to put the patient in the very best general condition to stand the operation nicely.

In cases of nuclear cataracts it very frequently happens that when the pupil is widely dilated the patient is thereby enabled to see very much better through the clearer zone of cortex thus uncovered. In such cases it is the practice of many



physicians to prescribe a weak solution of atropine to be used as long as its dilating effect produces any improvement in sight, and thus prolong the period of serviceable vision as long as possible. If the patient can be closely watched, the undoubted comfort this gives may warrant this plan; but atropine has the unhappy property of exciting the glaucomatous condition in a certain number of the eyes of old people, and therefore its use is always to a certain degree hazardous. I would not recommend this long-continued mydriasis as a routine in such cases, and to discard it altogether would only be to exchange a certain amount of comfort for freedom from a certain amount of danger.

Another preliminary point that must be looked after is the condition of the lids and tear-passages. Should a scaly, crusty trouble of the lids exist (blepharitis marginalis) it should be patiently treated with salves of boracic acid or salicylic acid, or a mercurial ointment (not the citrine, but one made of the amorphous yellow oxide in vaseline, gr. x. to  $\frac{3}{4}$  i.). But particularly dangerous is a pre-existing inflammation of the tear sac. Cataract operations made when such a dacryo-cystitis exists are very likely to prove failures. The operation wound becomes infected from this secretion, the cornea becomes hazy and ulcerates, an iritis blocks up the pupil, and even panophthalmitis is apt to ensue. This condition should be very carefully looked after and treated. The canaliculus should be slit up and kept open; the passage should be syringed daily with antiseptic or mildly astringent solutions by means of the little lachrymal syringe (for which purpose an ordinary hypodermic syringe with the needle point cut square off can be adapted); and if necessary the nasal duct must be probed with little probes for this purpose to relieve any stricture. The physician must persist in this treatment, for although he may not effect a cure (these cases being very intractable), still he may bring about a period of amelioration, during which the operation may be made with relatively perfect safety.

One point the general practitioner should look carefully after preliminary to this operation (as well as any other important one), is the general condition of the patient. For some weeks prior to the operation the patient should be put on good generous diet, with a little wine or

ale; as much fresh air and exercise as is practicable; appetite and digestion must be regulated and tonics given if necessary; especially must the respiratory tract be watched, and any cough (so common in old age), which might prove troublesome during the few days immediately following the operation, should be quieted by proper treatment. Above all, the physician should employ all his tact to allay that dread and worry which so torment old people prior to an operation. This fear and nervousness is often a very marked obstacle to the favorable progress of a case. Impress them with the facts that, according to the average statistics, they have nine chances out of ten of securing fair to good sight; that people don't die from cataract operations; that under cocaine the pain is a mere trifle; and that the *worst* that can happen is to leave them, as regards sight, just where they were before the operation was made.

The writer himself feels more particularly the need of calling attention to these apparently trivial and matter of course details, because he still retains a very vivid remembrance of the first cataract case that proved a total failure in his hands.

The patient, an old man, was to all appearances in first-rate health, and the eye appeared to be in good condition for operation. There had been, however, a very slight dacryo-cystitis that was overlooked, and no apparent signs called attention to it prior to the operation. The old man had apparently been subject to attacks of dyspepsia at times, and the day after the operation his stomach became disordered by the change of water and diet and refused to retain any nourishment for four or five days. The operation did not go along smoothly; the lens luxated to the temporal side, and attempts to extract it by the ordinary pressure caused loss of vitreous. Closed and allowed to rest quietly until the next day, the lens was found again in place, and extracted by the aid of the curette. The old man was a remarkably quiet and tractable patient, but appeared to be of a deep, intensely nervous temperament, and the double operation probably had much to do in contributing to the depressed general condition. The day after the operation a minute clump of pus was found at the inner angle; the wound became infected; cornea hazy and then purulent; conjunctiva chemotic; the deeper



structures became involved; and after the usual picture of a rather severe panophthalmitis the case ended in a phthisis bulbi. The local trouble, the general condition, and the complicated operation, all together, are to be held responsible for the disastrous result. Whether a preliminary course of tonic treatment, with the necessary local treatment to relieve the slight tear-sac trouble, would have prevented the disastrous result, is too much to affirm specifically for this individual case; but it is to the necessity of this preliminary treatment for increasing the chances of success, as a general rule, that I wish to urgently call the attention of the family physician.

#### AFTER-TREATMENT.

In those cases in which the specialist is called upon to travel some distance and operate at the patient's home, the after-treatment necessarily rests with the family physician, and becomes a matter of importance to him. Speaking, I believe, for the unanimous wish of the special profession, the general practitioner who has decided to call in the specialist to operate, should exercise all his powers of persuasion to induce the patient to come to the specialist, so that the operator himself may carry out the subsequent treatment. A conscientious operator who has assumed the responsibility of the operation, is perfectly willing and ready to assume the further responsibility of the after-treatment; indeed, some operators consider this a greater responsibility than the operation itself.

One reason that should lead the physician to send his patient to the specialist is that, in a certain proportion of cases, he thereby may escape some perfectly undeserved blame. There is hardly a single cataract case (done without anæsthesia), where the fundus is normal, that the patient at the moment of the escape of the lens does not see *relatively* vastly better than was possible a moment before. The patient is almost certain to obtain what to him or her is a comparatively clear and vivid picture of the bright window before which the operation is usually made, and the operator bending over his work. Usually, at this point, they utter some quick exclamation indicative of their rapture at this unexpected glimpse. If now the case should go badly and no visual result be obtained, it is difficult to rid the minds of old people (set in their views and imperious to argument) of the idea that this

primary vision should have remained, and that the subsequent treatment had something to do with the poor permanent result.

On the other side of the question, however, we must take into consideration the fact that traveling bears hardly upon some old people; that they dread, almost to terror, leaving home and friends to go among strangers; and that in some cases the advantage of home surroundings, with home nursing, home food and pure air, more than counterbalance other advantages. In some cases the old people refuse to leave home in a way which settles the question at once.

After the operation the operator will make what applications in the way of eye-drops, antiseptic washes, etc., that he may think proper; he will bandage the eyes so that they may be left for twenty-four or forty-eight hours, or longer; and he will give proper instructions to the family and the family physician. In thus fairly assuming, so far as he can, the responsibility for the subsequent course, it is only fair that these instructions be carried out as closely as possible. Still, there are certain general rules for the after-treatment, and especially for the complications, that warrant reviewing.

#### BANDAGING.

As regards the bandaging, the tendency of late has been towards decidedly lighter and simpler bandages. The old binocular, a flannel roller wound round and round the head, and obliquely across one eye and then the other in turn, until about five yards had been built up into some resemblance to a Turkish turban, is a thing of the past, and of so-called manuals on bandaging, where it affords a very gorgeous wood cut. The heaviest bandage now used is a rather wide flannel roller given two turns straight across the two eyes and over nose and ears, the depressions of the eyes being packed level with loose antiseptic cotton. An exceedingly nice bandage, of which two can be *knit* previous to the expected operation, is of fine, soft yarn, made two inches wide, long enough to go straight across the eyes and reach just back of the ears, and with two narrower tails upon each end, the upper to be tied above and the lower below the occipital protuberance. Some operators of late have even come to discard these relatively light and very comfortable dressings, and simply close the



operated eye with a slip of soft isinglass plaster, placed vertically over the closed lids. But this "open dressing" for cataract cases had better receive very wide and general trial by the specialists before being adopted as the routine by the general practitioner. A bad result would be apt to be laid to insufficient support by the dressing, until such treatment had become so common as to change the views of the laity.

In any changing of the bandages, great delicacy must be exercised. Even in the cases with prompt healing there is apt to be some discharge, and in the cases where any considerable reaction takes place this is likely to be rather abundant. The discharge drying causes the cotton to adhere to the lids, and when removed this should be thoroughly soaked with the antiseptic wash, and very slowly and gently worked off. The author recalls a case under the care of a colleague, where roughness in making this change caused the patient to winch and nip the lids together, and the wound was reopened. The result was that the case, which had been a brilliant operation and was doing splendidly up to this time, developed a keratoiritis and ended up with a hazy cornea and blocked pupil.

Whatever bandage is used should be discarded as soon as reasonably safe. Many operators advise laying aside bandages on the third or fourth day. This contributes much to the comfort of the patient, while by this time a cleanly made corneal incision has united firmly enough to be safe. However, if the patient sleeps restlessly, the light bandage may be reapplied on going to bed, and so worn for two or three nights longer. We must not forget that to these old persons a bandage is irksome, and after a period becomes intolerable.

Whatever dressing be used, it is not advisable to darken the room, as is customarily done. This bugbear of light being injurious to the eye, or even uncomfortable, is exploded. When kept in darkness the eyes become hyper-sensitive, and the patients depressed. It is best to keep the room just as ordinarily illuminated.

Another exploded idea is that of the necessity of keeping the patient quiet in bed for five or six days. It is well to keep the patient quietly in bed for say twenty-four hours. Allowing the patient to walk out of the operating-room and sit or walk

around the same day is going to the other extreme, and is decidedly not advisable. A short stay in bed, twenty-four or thirty-six hours, is not irksome; after that the continued stay in bed becomes very irksome and depressing to these old patients. When sitting up and moving about, however, great care must be taken to avoid jarring and jostling, and assistance must be given by the nurse or friends.

The operation for cataract is now made by all careful operators under antiseptic precautions; and in the subsequent dressings, until the wound has thoroughly and completely healed, antiseptic solutions should be used to wash and cleanse the eye. The standard solution is one of the bichloride of mercury 1 to 5,000; this is rarely irritating and is an effectual germicide. The much-used Panas' solution, the biniodide of mercury 1 to 20,000, rendered soluble by the addition of 400 parts of absolute alcohol, has no advantage. It may prove irritating, it is doubtful whether it is so effectual, and it is not so readily made. Boracic acid in saturated solution is not a germicide. Carbolic acid cannot be used sufficiently strong without proving irritating. And other germicides are not applicable to the eye.

#### COMPLICATIONS.

To thus properly dress the eye, and look after the general condition and comfort of the patient, is all that will ordinarily fall to the lot of the family physician in the successful cases. But certain complications may arise which demand treatment. Some congestion and slight pain may persist in certain cases; this is best treated with a 2 or 3 per cent. solution of cocaine hydrochlorate. In others a more serious complication may arise by *iritis* setting in. Although cocaine has some mydriatic effect, it is weak and transient, and in these cases atropine in a 1 or 1½ per cent. solution must be used. These cases will be diagnosed by severe pain commencing; by the iris becoming dulled and discolored; and by the oblique illumination, showing fresh exudations taking place into the pupil. In these cases the atropine should be instilled from once to five or six times a day, according to the severity of the inflammation and the promptness with which it responds to the remedy. It is exceedingly important that any *iritis* beginning should be recognized as early as possible, and most promptly and energetically



treated; otherwise, the eye will suffer irretrievably. If iritis does not occur it is not best to use atropine as a routine treatment. Atropine is in many cases an irritant; and although after the incision and iridectomy of a cataract operation no danger of glaucoma now exists, still, its tendency to increase the intra-ocular tension may prevent prompt healing of the wound. To use cocaine is a better routine treatment; still, in cases in doubt, atropine should be used. To supplement the atropine, in cases where great pain and congestion are present, local depletion should be employed. One or two leeches should be put on close to the angle of the lids. The most convenient way of applying the leech so that it will attach itself at exactly the point desired and not crawl upon the conjunctiva, is to put the leech into a small vial and then to place the open mouth upon the point of the skin selected. They can remain until full of blood, when they drop off. The bleeding can be encouraged by warm fomentations; only very rarely will any measures be necessary to stop it. The leeches can be reapplied, if desirable, on successive days. If leeches cannot be obtained, the artificial leech may be used, or if the physician lacks this instrument, the part may be scarified and a narrow cup applied. If none of these means are at hand, a blister may be applied to the temple; but this is much less effective than the abstraction of blood. With these measures ice-cold or hot fomentations can be combined, according as either proves more comforting to the patient. Medicines to produce copious and easy purgations will contribute some share of assistance. Care must, of course, be taken that the bleeding and purgation be not pushed too far in old, debilitated subjects.

Another and graver complication that may arise is on the part of the cornea. This structure may become infiltrated and go on to ulceration and destruction. This danger is not so apt to occur if the operation has been made cleanly, and if the proper antiseptic precautions have been carried out. This affection is to be combated on the same general principles laid down above. It has been customary to employ atropine also in this connection, but this is of questionable value. The first indication here is to preserve, if possible, all, or some, clear cornea. With an opaque cornea it matters nothing what the condi-

tion of the structures behind it may be. For this reason it seems more advisable to use that remedy which has proven most valuable in corneal affections, viz., eserine. A solution of eserine salicylate (3 grs. to the ounce) may be instilled once, or at most twice, a day. The chances are very unfavorable at the best, but this seems, all things considered, to offer the best prospect for ultimately affording an opportunity for securing some visual result.

Another complication that may arise is spasmodic entropion or inversion of the lower lid. The skin of the lids in old people is extremely lax, and the irritation following the operation gives rise to strong reflex contraction of the orbicularis. This rolls the lower lid in and causes the eyelashes to sweep over the eyeball; this, in turn, prolonging the reflex spasm and causing mechanical irritation to the cornea. If allowed to persist it may cause the grave corneal complication mentioned above. It is to be combated in several ways. The dressing of any sort must be laid aside. The lid can then be held everted by the application of contractile collodion. The collodion is tested by dropping a drop upon the back of the hand; if, upon drying, this draws the skin into little wrinkles, it may be employed. The eyelid is to be rolled out by the dragging action of the left thumb; the lid is then to be wiped *perfectly* dry by absorbent cotton, otherwise the collodion will not adhere properly; then a thick layer is to be applied with a camel's hair brush, from the *very edge* of the lid along its entire length and down some distance upon the cheek. The lid is held in position until this dries, any tears being kept away by a little mop of absorbent cotton, and then the surface is to be oiled. The tears will not now affect it and it may be removed and renewed each day. This is most effective, but if proper collodion is not at hand an attempt may be made to substitute for it ordinary plaster. A strip an inch wide may be applied, commencing at the lid border, and with some traction drawing it down and applying over the cheek. If these means do not succeed the physicians should not hesitate to excise a transverse elliptical fold of skin and bring the edges together with sutures, care being taken not to cut out too large a piece.

One curious phenomenon which may disturb the patient is the colored vision which ensues in some cases for several days



after the operation. Some patients complain that all objects seem to have a reddish tinge; some complain of a bluish tinge to objects. The physician can assure them that this will gradually pass away.

#### USE OF GLASSES.

As regards the fitting of glasses, it is best to have this done by a specialist having a comple test case. But when this is very inconvenient, even the smaller towns usually have opticians who have stocks full enough to supply cataract glasses. The glass which, upon trial, gives the best result for distance, can be worn constantly after the eye has quieted down — say in three or four weeks. After quite an interval, say three or four months, the still stronger glass for reading or working distance can be selected by trial and used thereafter. It is unnecessary to attempt to

correct the astigmatism which usually results from the corneal incision, for this alters with time and may even disappear.

A troublesome phenomenon which is noticed when the glasses are first worn is the displacement of images, especially noticeable on looking down. This is caused by the edge of the strong glass having the effect of a prism. The patients can be reassured that they will soon become accustomed to these new relations, and at first need only be a little slow and cautious in going up or down stairs to avoid stumbling.

The general practitioner can thus see how very helpful his assistance can be to the specialist, both previous to the operation and in the after-treatment; and of how much importance and what comfort his attentions can be to the aged patient.



