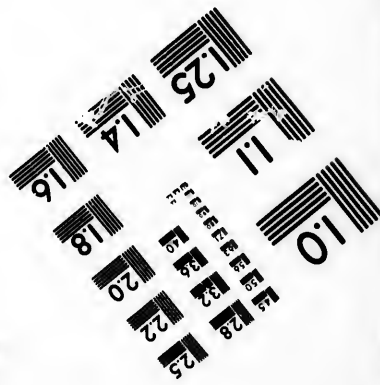
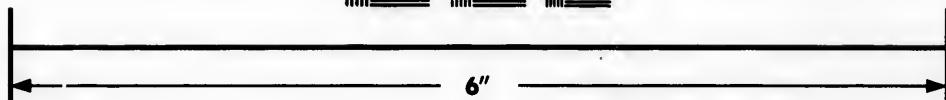
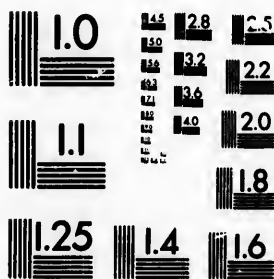


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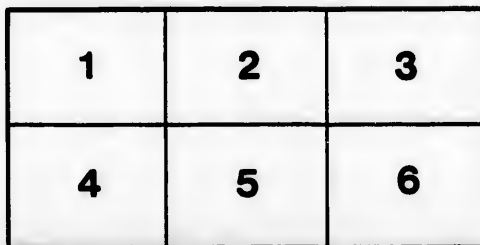
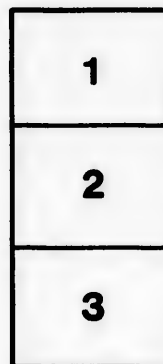
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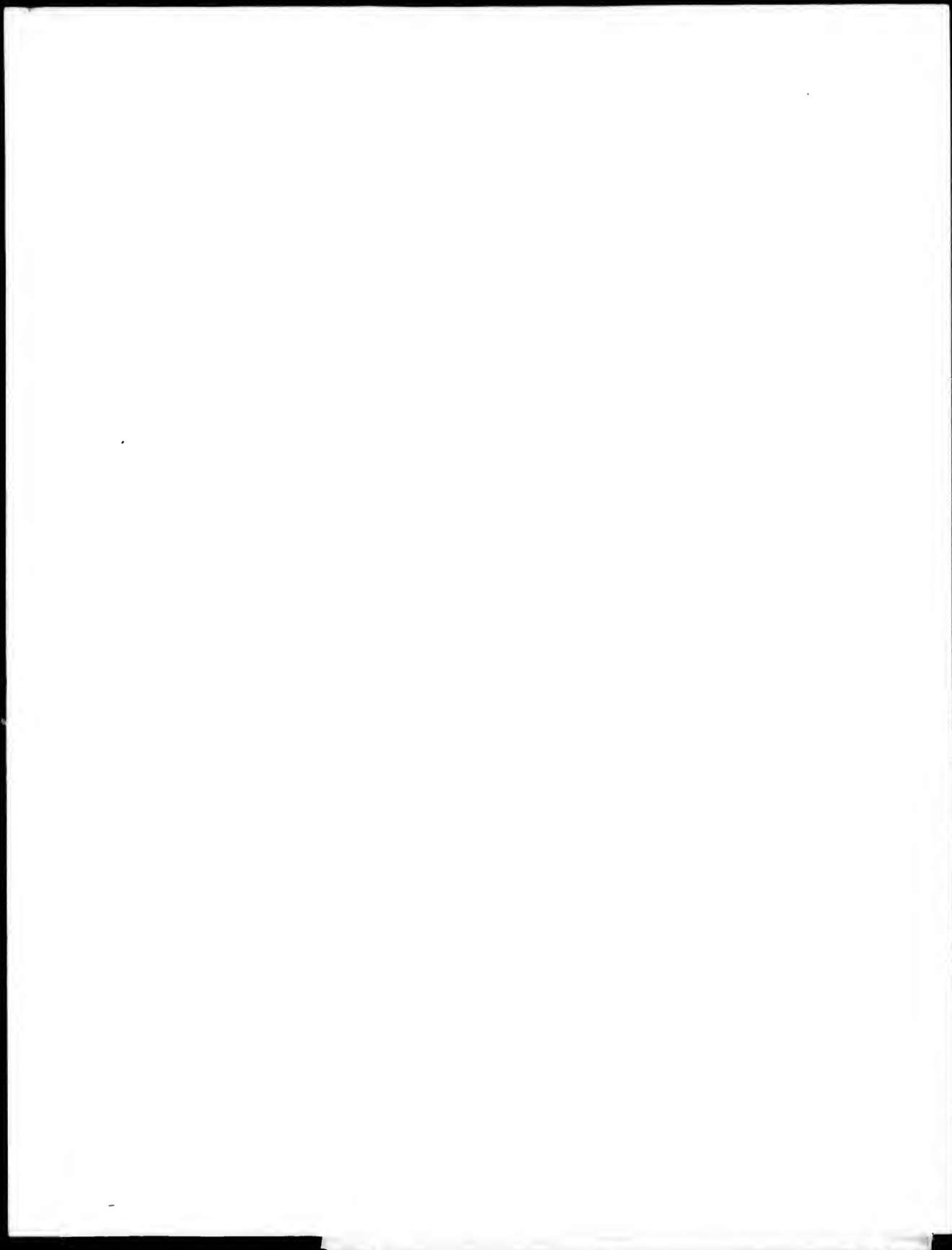
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By **CASEY A. WOOD, M.D.,**

Professor of Ophthalmology in the Chicago Post-Graduate Medical School; Oculist to the  
Passavant Memorial Hospital, Chicago.

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Published by the American Society, February, 1925



## The After-Treatment of Normal Cataract Extraction.

By CASEY A. WOOD, M.D.,

Professor of Ophthalmology in the Chicago Post-Graduate Medical School; Oculist to the Passavant Memorial Hospital, Chicago.

Although one commonly thinks of cataract as an opacity of the crystalline occurring in an eye otherwise normal, it is nevertheless incorrect to regard the ocular structures surrounding the diseased lens as being themselves unaffected. A cataractous eye is not an *oculus sanus in orbita sana*.

There is a sense, however, in which the healing process pursued by the wounds involved in the extraction of cataract may be described as normal. At any rate the subsequent course followed by the process of repair, the visual results, and the ultimate fate of the eye, are usually determined at the time of the operation. Fortunately the cases in which the final result is in every sense of the word good, where the normal healing process is not interrupted, and useful vision is obtained, are in the majority; but that the proportion of these can be still further increased by strict attention to the details of after-treatment, is my firm conviction.

After the removal of senile cataract (if the operation be performed without iridectomy) the pupil should remain round, small, and central. It matters not what plan of extraction be followed, there should be no presentation of vitreous or iris between the lips of the corneal or scleral wound; there should be no undue loss of blood from, or continuous bleeding into, the anterior chamber—which should itself be free of lenticular or capsular detritus. The wound-edges should be neatly and closely applied to each other, and no extraneous matter—such as blood-clots, iridic, capsular, or lenticular debris—should be permitted to remain between them; there should be no collapse or wrinkling of the cornea, and no eversion of the wound-margin. The patient should be able to count fingers and to tell time by the watch.

Assuming the operation to have been correctly performed, and that there are no complications, the question at once arises as to the advisability of washing out the anterior chamber for the purpose of expelling any remnants of blood, cortical matter or capsular tissue that have not been previously extracted. Although my own experience and that of older operators is opposed to this method, there are still ophthalmologists of repute who advise it. If resorted to at all, the greatest care and gentleness should be exercised. Panas—who, by the way, has recently abandoned the method which he was among the first to advocate—advised the use of a specially devised syringe (Fig. 1), the point of which is to be introduced between the lips



FIG. 1.

of the wound, and the anterior chamber flushed with one of the following solutions, all of which are to be *warm*:

Borax, 4 Gm.;  
Boric acid, 3.5 Gm.;  
Hot sterile water, 100 Gm.

Or,

Common salt, 1 Gm.;  
Sterilized warm water, 100 Gm.

Where an *antiseptic* is for any reason desired almost any of the well tried germicides may be used, but it must be remembered that a very lively reaction sometimes sets in even

\*A lecture delivered at the Post-Graduate Medical School, Chicago.



after the employment of the simplest irrigating liquid. For example:

Mercuric iodide, 0.01 Gm.;  
Alcohol (better omitted), 30 Gm.;  
Steril water, 200 Gm.  
Shake well, and filter.

A less irritating mixture (also used warm)

is:  
Formol (formalin), 0.01 Gm.;  
Water, 50 Gm.

Or,

Boric acid, 3.5 Gm.;  
Hydrarg. bichlor., 0.01 Gm.;  
Water, 100 Gm.

All sorts of instruments besides Panas' syringe have been devised for the purpose of irrigating the anterior chamber. (See Fig. 2).



FIG. 2.

Instead of using the syringe piston or bulb as the propelling force, I have been in the habit of flushing with the following apparatus: A pint bottle filled with the warmed irrigating fluid, and provided with a nozzle and stopcock at its bottom, is placed about four inches above the patient's head. Rubber tubing connects the bottle with the point of a Bowman's syringe. After the whole apparatus has been carefully sterilized, the syringe-point is placed within one angle of the operation wound, and the chamber is washed out by a stream from the bottle. The process is repeated at the outer wound-angle until the pupil becomes black and the chamber clear.

Whether we wash out the anterior chamber or not, a simple, but at this stage of the operation exceedingly useful, procedure is the removal, by means of a spoon, spatula, iris repositor, or similar instrument, of all the foreign bodies from the wound-angles and along the line of the sclero-corneal incision. For this purpose I prefer and often use the instrument devised by Beltman (Fig. 3) for



FIG. 3 (reduced one-half).

the maturation of unripe cataract. The point of the instrument is entered at one angle of the wound and carried to the opposite side. We ought to repeat this manœuvre, if necessary, to allow of close apposition of the wound-edges.

The whole length of the incision should now be closely examined with a lens for the purpose of detecting and removing any lenticular shreds, pieces of capsule, iridic pigment, vitreous beads, or minute blood-clots, that have escaped the earlier inspection. When even very small tissue shreds are allowed to heal in the wound, they are prone to attach themselves also to the iris, to the posterior capsule, or to floating bodies left in the anterior chamber, and so greatly mar the final result. Not only that, but they establish a communication between the interior of the eye and the outside world, and thus sooner or later become the means of infecting the delicate parts within.

Knapp and others have warned us of the danger which attaches to massage of the cornea with the finger and lid-edges in attempts to remove any of the anterior-chamber contents. The free borders of the lids are the parts of the external ocular apparatus most difficult to sterilize and most crowded with pathogenic microbes. It has again and again been demonstrated bacteriologically that the palpebral edges remain infected long after the surrounding skin has been rendered fairly sterile. The cilia perform for the conjunctiva much the same office that the vibrissæ do for the nasal mucosa, and the number and variety of bacterial colonies planted upon the free borders of the alæ nasi closely resemble those which we find infesting the skin about the eyelashes. Consequently, to rub, ever so lightly, the free edge of the lid over the freshly made wound in the cornea, is to invite infection of the latter.

The apparatus for flushing the anterior chamber just described (or some modification of it) may well be used for washing away foreign matter from the eyeball, sac, and lid-edges, before the final toilet is made. Instead of the syringe-point, a sterilized pipette or the glass end of a medicine-dropper may be employed. I have used for this purpose a warm one-per-cent. solution of common salt, and prefer it to the elaborately prepared antiseptics employed by some operators. As it is about as difficult to sterilize the conjunctival sac as it is to sterilize the lid-edges before operation, it may be accepted as truth that we cannot render it completely aseptic in the short time at our disposal after the removal of the lens.

Panas is of opinion that the nearest approach to sterility of the lid-edges that we can make is effected by the application (with a probe) to them of an oily solution of

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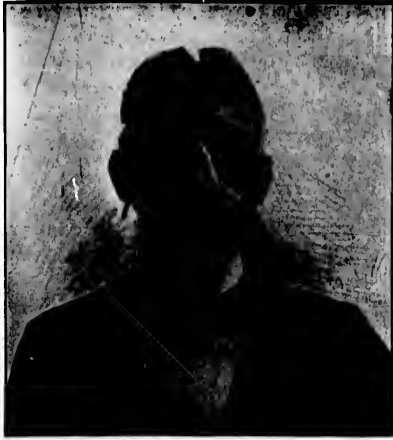


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FIG. 5.



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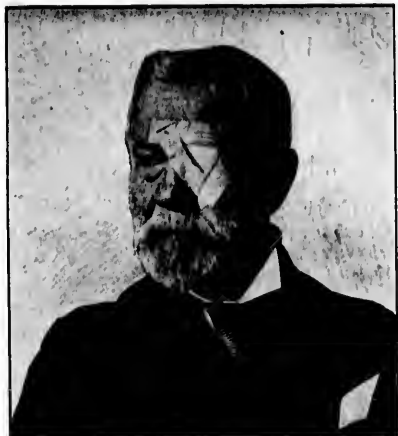


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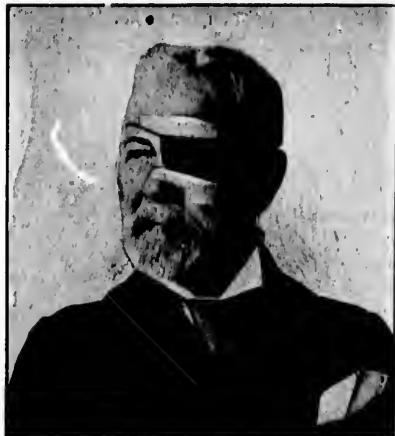


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mercuric iodide. He advises its employment (and the use of occlusive bandages) for from twelve to twenty-four hours previous to the operation. If used *after* the extraction it is to be applied to the free borders and palpebral skin. The formula is as follows:

Mercuric iodide, 0.01 Gm.;  
Sterilized almond or olive oil, 40 Gm.

Then the dressing. I have never seen any good result from the use of remedies applied directly to the eye in the form of powder. I have used finely pulverized boric acid dusted upon the lids and lid-edges, and believe its action, when it had any at all, to have been entirely harmful. Still more am I opposed to "packing" the eye with that most objectionable of all applications used in ophthalmic surgery—iodoform.

Both these powders are likely to find their way between the lids to the eyeball, and, however finely divided, are almost certain to act as foreign bodies and to irritate the eye. They are at best but feeble antiseptics, while, in my opinion, iodoform should only be used when the patient is affected with a kindly anosmia.

If it be desired to affect the eye with drugs of any sort, now is the time to use them. It was once almost the universal custom to instill a one-per-cent. solution of eserine, when the simple operation was chosen, for the obvious purpose of contracting the pupil and so preventing prolapse of the iris. But as neither mydriatics nor myotics have any appreciable effect upon the muscular fibres of the iris so long as the anterior chamber is empty, this procedure has been pretty generally abandoned. This objection also holds true in respect to atropine, a useful agent in preventing adhesion of the iris to floating debris in the anterior chamber, and in incipient iritis. A decided mydriasis may, however, result from an instillation of atropine, even two or three days before the anterior chamber has re-formed, just as soon as it is again refilled. If applied at all, I am much in favor of employing these remedies in the form of ointment, smeared on the lids or on the dressing. Not only is a drug applied in this shape more uniform in its action, but it is decidedly more persistent than when exhibited in solution. Moreover, one also obtains the soothing effects of the greasy application to the lid-edges, preventing their adhesion if much mucus is formed beneath the dressing, and allowing a ready escape for tears and other discharges.

We now come to the question of the dress-

ings themselves. And first of all, shall we apply them to one or both eyes? Personally, I have never been able to see any reason for covering the sound eye after a normal cataract extraction. It has a very depressing effect upon most patients, it does not prevent them from moving the eye underneath the bandage, and it does not in any way assist the healing process in the eye operated upon.

As to the form of the dressing, there is about the same difference of opinion to-day that existed in the time of Von Graefe and Beer; one school cries out for heavy bandages and absolute rest, the other for liberty and no dressing. One extremist applies to both ocular regions a thick flannel or gauze bandage over pads of borated or even iodoform cotton (Fig. 5), while the enthusiast of the protestant creed advocates a narrow strip of isinglass or other plaster (Fig. 6), just large enough to keep the lids together. Doubtless each one of us considers his method to be the best, but even a superficial study of the course pursued by the healing process after cataract-extraction will show that the great majority of cases do well with any kind of bandages or with none at all, and I am therefore inclined to the one that gives most comfort to the patient. I do not think we should arbitrarily use any form of dressing in *all* cases. I usually prefer the following (Fig. 7): A layer of borated or sterilized cotton, two or three millimeters in thickness, is applied to the surface of two single layers of sterilized gauze. These are together cut out (so that they adhere and form one piece) with a pair of scissors, in oval form and of a size to cover the orbital openings, reaching from the eyebrows to below the inferior orbital margin. Three pieces of adhesive plaster, each three or four inches long, keep this dressing in place and are so arranged that no portion of them presses upon the eyeball. This is accomplished by placing the first over the upper border of the pad, and firmly attaching both to the skin above the *superciliary ridge*; the second is carried along parallel with the nose; the third completes the triangle. Such a bandage is not too thick and heavy, permits ventilation, does not (while filtering the air passing through it) press upon the eyeball, readily absorbs mucus, and cannot without discomfort to the patient be removed by his friends, or, as the Germans would say, "*respective enemies*."

The patient should be carefully carried or wheeled from the operating-table and placed in or upon his bed. Complete rest for the

next twenty-four hours is now in order. He should be warned not to talk more than is absolutely necessary, not to make any sudden movement of his body, and to refrain absolutely from blowing his nose, squeezing his lids together, turning over or getting up suddenly, and above all to abstain from sneezing or coughing. The last two acts are of course largely involuntary, but the patient should be encouraged to suppress them as much as possible.

The room should be made as comfortable as possible for the patient, especially in the matters of warmth, light, and ventilation. Either before the operation or immediately after it he ought to have a full dose of potassic bromide or be given a small quantity of morphia and atropia hypodermatically. I exhibit the former if the patient is of a costive habit, and my formula is usually this:

Potassic bromide, 2 Gm.;  
Chloral hydrate, 1 Gm.;  
Syrup of lactucaria, 10 Gm.;  
Water, 20 Gm.

This relieves the smarting and burning that almost always follow the operation, and enables the patient to rest quietly and contentedly. It also induces sleep the first night, and puts the bowels in a quiescent condition for forty-eight hours. The diet should be semi-fluid and easy of digestion.

What can be more provoking to the surgeon than to find, after obtaining a good operative result, that a careless nurse or a restless patient has added a newly opened corneal wound, a hernia of the iris, or loss of vitreous, to his other anxieties? A finger-thrust, a pillow-end jammed into the eye, a slight blow upon the globe, or any other of the dozen little accidents that happen to a person with imperfect vision moving about in darkened rooms, may nullify the most brilliant and correct efforts of the operator.

Especially when night comes on, or when the patient begins to move about, the eye

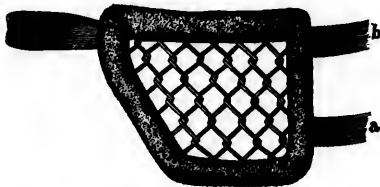


FIG. 11.

should be protected from injury by some sort of a shield or mask. Fuchs uses the wire-woven protector pictured in Fig. 11, and in-

roduced as long ago as 1883. There are many modifications of this mask in the market, one of the best of which has been suggested by Würdemann. (See Fig. 4.)

Certain operators who make use of the roller bandage gain protection by starching the dressing. When this has dried, the eye will receive a considerable blow without injury.

Snellen has lately used a turtle-shaped aluminium shield (Fig. 9), about ten centimeters long and five wide, placed over the eye and held in position with strips of adhesive plaster; it forms an admirable protector. One of the best shields I am acquainted with is the *papier maché* half-mask (Fig. 10), which when carefully adjusted to the nose and surrounding parts makes a light, comfortable and effective protector.

A small proportion of patients object to wearing any sort of mask, claiming that it prevents them from sleeping and makes them nervous. In such cases I find that one may very well get along with a large, stiff and very concave eye-shade placed over the dressing and held in place with a piece of rubber plaster (Fig. 8).

*I am in favor of always removing the bandage and looking at the eye twenty-four hours after the extraction.* The corneal wound is now either altogether healed over, especially if a conjunctival flap has been made, or if not the danger of prolapse of the iris has generally passed. That is to say, if no iridic hernia has occurred at the end of twenty-four hours, it is not likely to occur at all from any cause, except from violent sneezing, coughing, direct traumatism, etc. In cases of uncomplicated cataract-removal the lids at the end of twenty-four hours are not discolored or edematous. From a glance at them, one can generally predict the condition of the eye beneath. The discharge on the bandage should be watery only (or contain little mucus) and ought not to be copious. The main object, however, of the inspection is to determine the position of the iris. If prolapse has occurred, *now* is the best time to deal with it.

The eye should be gently bathed with boric acid solution, and any mucus, vaselin or ointment washed off the lids and cilia. This should be daily repeated. Solutions instilled into the eye must be neutral or slightly alkaline to test-paper, and always warmed.

When the corneal wound is healed and the anterior chamber re-established, the ordinary bandage may be dispensed with. I am in the habit of substituting for it a *concave mon-*

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ocular eye-shade which, while touching the brow, cheek, and nose, is clear of the eye-lashes. This is worn loosely over the eye during the day, and at night is kept in place by a small strip of adhesive plaster, as in Fig. 8. In a week or ten days one may usually dispense with any dressing or protection whatever, particularly where the patient remains indoors.

On what day should the patient be allowed out of bed? In all ordinary cases twenty-four hours is long enough for him to maintain absolute rest. Still avoiding sudden movements he may then be allowed to sit up in an arm-chair and even to move about in the room, and so gradually regain his wonted liberty. After forty-eight hours the bowels

should be moved by an enema, and more solid food is to be added to the diet list.

Common sense will dictate when and under what circumstances the subject of cataract-extraction should be allowed to venture out of doors. If exercise be taken in a close carriage, he may, with the eye wearing an ordinary shade, be allowed out, even in severe weather, as early as the end of the second week; when the day is comfortably warm and there is no wind blowing, walks may be taken with impunity.

There should be absolutely no use of the eyes for a month, when glasses should be allowed for distance; when the patient is accustomed to these, lenses for near work may be prescribed.

