

there is generally a central opacity resulting from the ulcer, the iridectomy method of treatment has the additional advantage of securing beforehand an artificial pupil.

IRITIS.

MR. ROBERT BRUDENELL CARTER, F. R. C. S., LONDON.

On the treatment of iritis this author says the first principle to be borne in mind is to *avoid all irritants*, such as astringents, nitrate of silver lotions, etc. The eyes should be given complete functional rest, and, to prevent adhesions, the cardinal point is the use of atropine, which should never be omitted, save in excessively rare cases where it produces local inflammatory action. A four-grain solution should be applied at intervals of an hour till complete dilatation is obtained, and this should be kept up by a single drop of the solution night and morning. When the atropine, from any cause, fails to dilate the pupil fully, *the use of mercury is imperative*, pushed as rapidly as possible to its constitutional action, as shown by the slight mercurial line on the gums. This should be maintained until the resolution of the inflammation is accomplished. But the condition of salivation should never be brought about designedly.

During the whole period of treatment the eye should be closed and protected by a compressive bandage, applied with comfortable tightness over a pad of jeweler's cotton-wool. By this means the patient will be enabled to walk abroad without restraint, so long as he avoids injurious fatigue or hurry. Sometimes, especially when resting at home, a poultice will be a pleasant substitute for the pad and bandage; but neither the one nor the other should be applied until a quarter of an hour after the instillation of the atropia, lest the solution should be absorbed and removed from the eye.

When the inflammatory symptoms are rapidly subsiding, the mercury, and probably the opium, may be entirely laid aside. But the continued use of atropia is necessary in order to prevent relapse; and the pupil should be kept fully dilated until the eye is quite well. As long as the pupil is dilated the eye does not participate in the functional changes of its fellow, to which, therefore, moderate use may be

permitted. An attack of any severity usually leaves behind a temporary proneness to conjunctival irritation, which the atropia may often assist to keep up. For this the cautious use of a mild astringent, such as:

618. R. Zinci sulphatis, gr. iv.
Aquæ destillatæ, f. ℥ iv. M.

This collyrium will usually be found effectual.

It will often be desirable to protect the eye from the glare, wind and dust, after a severe attack, by the use of blue glasses. These are now made of a watch-glass form, for the purpose of excluding side light.

MR. A. R. HALL, SURGEON, R. A.

This surgeon (*Practitioner*, April, 1875,) records the very excellent results he has had with *balsam of copaiva* in iritis and sclerotitis. He gives to adults f. ʒ ij, in mucilage, three times a day. The pain should be diminished in twenty-four or forty-eight hours, and the sight restored.

GEORGE LAWSON, F. R. C. S., SURGEON TO THE ROYAL LONDON OPHTHALMIC HOSPITAL, MANSFIELD.

In the treatment of *syphilitic iritis*, our author regards mercury as imperatively called for. It should be given in doses sufficiently large and frequent to bring the patient quickly under its influence, but as soon as the gums begin to grow tender and spongy the quantity should be diminished, so as to avoid anything like profuse salivation. A piece of the size of a hazel nut, of the *unguentum hydrargyri*, may be rubbed into the axilla night and morning, or a pill with calomel and opium may be administered.

619. R. Hydrargyri chloridi mitis, gr. j-ij.
Pulveris opii, gr. ʒ-ss.
Confectionis rosæ, q. s. M.

For one pill. Thrice daily.

If the patient be feeble, quinine may be prescribed at the same time, and it may be conveniently ordered in the following mixture:

620. R. Quiniæ sulphatis, gr. xij
Acidi sulphurici diluti, f. ʒ ij.
Tincturæ aurantii, f. ʒ vj.
Aquæ destillatæ, q. s. ad f. ʒ vj. M.

Tablespoonful, in water, thrice daily, while the mercurial inunction is used night and morning.

If the patient has already been salivated before he first comes under treatment, the following iodide of potassium mixture should be given:

621. R. Potassii iodidi, gr. xxxvj.
Potassii bicarbonatis, $\frac{5}{3}$ j.
Infusi quassiae, f. $\frac{3}{3}$ vj. M.

A tablespoonful thrice daily.

At the same time a slight mercurial action may be kept up by the use of the following:

UNGUENTUMA HYDRARGYRI CUM BELLADONN.

622. R. Extacti belladonnæ $\frac{5}{3}$ j. M.
Unguenti hydrargyri, $\frac{3}{3}$ vij.

To be rubbed into the brow and temple, and allowed to remain on during the day.

When all the effused lymph has been absorbed, and the iritis has nearly subsided, the mercurial medicines should be omitted, but the iodide of potassium should be continued for two or three months, combined with a bitter tonic, or, if the patient is anæmic, with some preparation of iron, as the

MISTURA POTASSII IODIDI CUM FERRO.

623. R. Potassii iodidi, gr. xxxvi.
Potassii bicarbonatis, $\frac{5}{3}$ j. M.
Ferri et ammonii citratis, āā f. $\frac{3}{3}$ vj.
Aquæ destillatæ, f. $\frac{3}{3}$ vj.

A tablespoonful, in water, thrice daily.

If the iritis recurs after some months, or if it assumes a chronic form, the following mixture will be found of great service:

624. R. Hydrargyri chloridi corrosivi, gr. j.
Potassii iodidi, $\frac{5}{3}$ j.
Tincturæ calumbæ, f. $\frac{3}{3}$ ij.
Aquæ destillatæ, q. s. ad f. $\frac{3}{3}$ vj. M.

Two teaspoonfuls, in a glass of water, two or three times a day.

Atropia is essential in the treatment of every form of iritis, and should be ordered at the very commencement of the attack, and persevered in during its continuance. A solution, of the strength of gr. ij to aquæ f. $\frac{3}{3}$ j, should be dropped into the eye two or three times a day. When the atropia fails to give ease, or acts, as is sometimes the case, as an irritant, the following belladonna lotion may be employed:

LOTIO BELLADONNÆ.

625. R. Extracti belladonnæ aquosæ, $\frac{5}{3}$ ij. M.
Aquæ destillatæ, f. $\frac{3}{3}$ vij.

Rheumatic Iritis also requires a moderately active mercurial treatment. F. 624 may be given during the day, and at night the following pill:

626. R. Hydrargyri chloridi mitis, gr. j. M.
Pulveris ipecacuanhæ compositi, gr. v.

For one pill.

Or the mercurial and belladonna ointment (F. 622) may be rubbed daily into the temple.

In some cases the treatment may fail to give relief. Then quinine, in two-grain doses, may be ordered with benefit. Or the quinine may be combined as follows:

627. R. Quiniæ sulphatis, gr. xij.
Tincturæ ferri chloridi, āā f. $\frac{3}{3}$ j. M.
Acidi nitrici diluti, f. $\frac{3}{3}$ vj.
Aquæ destillatæ, f. $\frac{3}{3}$ vj.

A tablespoonful, in water, to be taken through a tube thrice daily.

When there is great photophobia and pain in the eye, the quinine or quinine and iron treatment, together with a mild mercurial inunction into the temple, will be found most useful. To relieve the pain, a fourth or a third of a grain of the *acetate of morphia* may be injected subcutaneously into the arm. Our author directs the following formula for the

INJECTIO MORPHIÆ.

628. R. Morphie acetatis, $\frac{5}{3}$ ij. M.
Aquæ destillatæ, f. $\frac{3}{3}$ j.

Rub the morphia gradually with the water, and add a few drops of dilute acetic acid, if necessary, for a perfect solution. Of this preparation, six minims contain one grain of morphia.

Turpentine has been prescribed with advantage in obstinate cases of *non-syphilitic iritis*. It may be ordered as follows:

629. R. Olei terebinthinæ, f. $\frac{5}{3}$ ij. M.
Syrupi acaciæ, f. $\frac{3}{3}$ iss.
Aquæ pimentæ, f. $\frac{5}{3}$ iv.

A tablespoonful four or five times a day.

During the whole time the pupil should be kept well dilated by means of atropia or the belladonna lotion. (F. 625.)

N. C. MACNAMARA, PROFESSOR OF OPHTHALMIC MEDICINE,
CALCUTTA.

630. R. Atropiæ, gr. iv. M.
Aquæ, f. ʒj.
To be dropped into the eye, three times a day, in cases of syphilitic iritis in children.

Mercurial ointment should also be rubbed into the thighs every other night, for twenty minutes; and thirty drops of cod-liver oil, with one-half grain of iodide of iron, should be administered twice a day to an infant six months old. For syphilitic iritis, mercury, judiciously employed, is the sheet-anchor to be relied upon. The best mode of employing it in these cases is by inunction. Our author never prescribes mercury internally for children, nor does he find it necessary to push the treatment so far as to affect the gum.

According to MACKENZIE, and, indeed, all the best authorities, atropia ought to be employed as a collyrium in every case of iritis, and in all stages of the disease.

KERATITIS.

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

The form of inflammation of the eyes known as "phlyctenular keratitis" occurs in children from the commencement of teething up to the eighth year. It is attended by excessive intolerance of light. The following collyrium will be found of value:

631. R. Hydrargyri chloridi corrosivi, gr. j.
Ammonie muriatis, gr. vj.
Tincturæ belladonnæ, f. ʒij.
Aquæ destillatæ, f. ʒ viij. M.
A teaspoonful of this, in a wineglassful of tepid water, to be applied frequently, with a pledget of lint on the closed lids.

The pupil should be maintained well dilated by the use of a solution of atropine. The eyes should be well protected from the glare of the light, and the constitution supported by bark and ferruginous tonics.

STYES (HORDEOLUM.)

DR. LAURENCE TURNBULL, OF PHILADELPHIA.

A stye generally arises from an obstruction of the follicles of the lid in an enfeebled constitution. The swollen follicle should be freely opened, the part allowed to bleed, and a hot fomentation applied. A general tonic and alterative course is also demanded. A combination of iron and quinine may be used, including *tinctura arnicæ*, gtt. xx, thrice daily. Locally, if seen early, touch the swelling with ointment of nitrate of mercury, a drachm to the ounce, or double that strength.

MR. R. B. CARTER, F. R. C. S., LONDON.

For the early dispersion of styes, this surgeon recommends that as soon as the pimple is perceived, the eyelash passing through it be extracted with a fine forceps, and a sharpened point of dilute *nitrate of silver* stick be immediately placed upon the mouth of the open follicle and held there steadily for a few seconds.

Other surgeons recommend touching the part with dilute *tincture of iodine*.

Mr. JOHN MARSHALL has spoken very highly of a solution of *oleate of mercury*:

632. R. Hydrargyri oleati, gr. v.
Acidi oleici, gr. c. M.
Apply to the follicles with a camel's-hair pencil.

Whatever local treatment is used, it is essential that if the styes have a tendency to recur in successive crops, constitutional treatment be invariably resorted to, as this recurrence generally signifies diminished vitality of the organism. *Quinine* is probably the most effective of all the agents which may be called in service. The *citrate of iron and quinine* is a valuable preparation in children, who are more subject than adults to this complaint. When, as is not infrequently the case, scrofulous symptoms are present, these must be combated as will be described hereafter. (Chapter XV.)

servation, then the best plan is to enucleate at once, and thus avoid the possibility of any future trouble.

Somewhat different advice is given by

DR. JULIAN J. CHISHOLM, OF BALTIMORE.

This surgeon states (*Virginia Medical Monthly*, August, 1875,) that the axiom "that every lost eye from injury should be taken out," has no qualification, and is absolute. No surgeon will ever do wrong who removes an eye lost through injury, whether, at the time of operation, the eye gives trouble or not. Whenever it is taken out, a dangerous enemy is surely gotten rid of.

A lost eye from accident is a deformed one, marred in its proportions or made conspicuous by the whiteness of its opaque lens, or exhibits a scarred surface and discolored iris, indicating the character of the injury which had destroyed the sight. Such unsightly eyes, from which the perception of light has forever departed, often flush up under the slightest exposure, and remain both a deformity and an ever-threatening source of trouble.

It is always best to remove the lost eye before the good one has become in any way affected. Should an active, sympathetic irritation be excited before this precaution has been taken, there is no surety that the good eye will not be more or less permanently injured by the inflammatory process. Sometimes the attack in the good eye does not yield at the moment the injured eye is removed, and in some cases the destructive process, once commenced, will go on in the good eye, notwithstanding the extirpation of the lost one.

One often sees patients with dangerous wounds of the eye experience such protracted suffering as to incapacitate them from all work for many months after the accident. In such cases, if the eyeball be extirpated, relief comes so promptly and decidedly that the patient is ready to resume his regular employment in a few days.

RÉSUMÉ OF REMEDIES

IN EYE DISEASES.

Alumen is one of the most esteemed ingredients in ophthalmic pharmacy. As an element in astringent collyria, it is, in many affections, unsurpassed. The usual formula at the Royal London Ophthalmic Hospital is:

636. R. Aluminis, gr. vj.
 Aquæ destillatæ, i. ℥j. M.
 For a collyrium. To be applied every quarter or half hour.

Or the following:

637. R. Aluminis, ℥ ij.
 Extracti belladonnæ, ℥ ss.
 Aquæ destillatæ, i. ℥ viij. M.

For a collyrium.

"Alum curd" may be made by adding ℥ ij of alum to a pint of milk and straining; or, by mixing ℥ ss of alum with the white of one egg. It is a soothing, popular application.

Amyl Nitrite has been used successfully in cases of amblyopia, by Dr. H. R. SWANZY. The inhalations were ten drops at a time. (*Medical Press and Circular*, Jan., 1877.)

Argenti Nitras. This powerful agent appears not to be so much used as formerly by ophthalmologists, as its place can often be supplied by less dangerous remedies. Its incautious use, when there are corneal ulcers, will result in unsightly deposits and opacities. In ophthalmia, its employment is very severely condemned as always needless, and often most hurtful, by various eminent surgeons. In acute conjunctivitis, a weak solution, gr. j-iiij to aquæ f. ℥ j, is used; in granular lids, a stronger solution, gr. xx to aquæ f. ℥ j; or the eyelids may be everted and lightly touched with the caustic stick, either of full strength or mitigated. In tinea tarsi, the solid nitrate may be passed over the edges of the eyelids, first removing the eyelashes and the scabs.

Arnica is recommended by Dr. TURNBULL in styes. (Page 431.) Dr. JACOB employs it in conjunctival ecchymosis. (F. 634.)

Arsenicum. In strumous ophthalmia, Mr. T. A. ROBERT says he has never failed of success since he has adopted the treatment by liq. potassæ arsenitis, ℥ij-viij thrice daily in infusion of cinchona, and locally gtt. j of a solution of nitrate of silver, gr. ij to aquæ f. ℥ j, dropped into the eye every three or four days. (*Lancet*, Feb., 1877.) Mr. CARTER strongly advises it in the same disease, especially where there is much irritability.

Atropia. This indispensable agent is supplied in the British Pharmacopœia in an officinal solution, gr. iv to f. ℥ j. If a minim of this be dropped into the eye, it will in most cases produce in half an hour complete dilatation of the pupil. It is then that the power of accommodation becomes impaired, and near objects cannot be distinctly seen. In about an hour later, *i. e.*, an hour and a half from the instillation, there is more or less complete paralysis of accommodation, and no objects within twenty feet can be distinctly seen. When complete paralysis of accommodation is once produced, it often happens that normal accommodation does not return for a week or a fortnight. By using a weak solution of atropine, it is very easy to cause mydriasis without paralyzing the accommodation; hence, for purposes of ophthalmic examinations, it is wise to use a minimum quantity of atropine; though, for therapeutic purposes, it is usually of extreme importance that the accommodation should be paralyzed. According to Mr. R. B. CARTER, the use of atropia is best accomplished by a solution in distilled water of the neutral sulphate, of the strength of two grains to the ounce. This solution, if the drug be pure and neutral, is absolutely unirritating to most eyes; and a

drop may be placed in the lower conjunctival fold, near the outer canthus, two or three times a day. For the purpose of making the application, there is nothing better than a goose-quill, cut to a blunt scoop. Should it cause pain, the atropia is either adulterated or the individual suffers from an idiosyncrasy. Atropine discs are also sold, which are convenient. Mr. WM. HARDMAN (*Lancet*, Nov., 1876,) gives the method he prefers as follows: "I wet the point of an ordinary mounted needle by touching the tongue with it, and then dip it into coarsely-powdered atropia; a small quantity adheres, and this is gently put inside the lower lid, and left there. The quantity I used is a small portion, about the size of a small pin-hole in paper; a little more or less is of no moment. No unpleasant effects have followed in any of the twenty-one cases in which I have used this method, although in several of them it was applied to both eyes. The form of atropia I use is the sulphate."

The value of atropia in almost all diseases of the eye is incalculable. It diminishes photophobia and blepharospasm; it lessens inflammation by contracting the ciliary vessels; it weakens intraocular pressure; and it causes sufficient local anæsthesia.

Belladonna, in extract or tincture, is still occasionally employed, although atropia has generally the preference.

Bismuth is occasionally chosen as a local application in chronic conjunctivitis and granular lids.

Boracium Acidum has been strongly advocated in both acute and chronic inflammatory conditions, by Dr. S. THEOBALD, of Baltimore. (*Pamphlet*, 1830.) He uses a solution of gr. iv to aquæ dest. f. ʒj. It should not be stronger, nor should it be applied more than twice a day, as some irritation may follow. He has succeeded remarkably well in many cases of conjunctivitis, keratitis, pannus, etc., with this. Its influence is sedative or anodyne.

Carbolicum Acidum. Dr. J. J. CHISHOLM, of Baltimore, (*Virginia Medical Monthly*, Dec., 1877,) has used this agent extensively in eye surgery. It is his sovereign remedy for all warty formations about the eyelids. He also employs it in granular lids and in episcleritis, or subconjunctival deposits. He uses the pure liquid acid. The pain of the application, though severe, lasts but for a few minutes.

Carbonicum Acidum has been used as a local anæsthetic in painful diseases of the eye.

Chloral Hydras, as a neurotic and a simple hypnotic, is invaluable. In many ocular affections, where we find wakefulness or restlessness, unassociated with pain, and due perhaps to mental worry or anxiety, chloral hydrate acts like a charm; and in such cases we should not fail to make use of this most valuable drug.

Chloroformum. According to Sir J. Y. SIMPSON, a few drops of chloroform evaporated on the palm of the hand, close to a photophobic eye, will enable it to bear the light without pain.

Copaiva. Mr. A. R. HALL has extolled the value of this substance in diseases of the conjunctiva and iris. (See page 427.)

Cosmoline, or *unguentum petrolei*, has been very successfully employed as an excipient in ointment for the eye. It is perfectly homogeneous, bland, and unalterable by heat and exposure.

Croton Chloral has been highly praised for its power in relieving ophthalmic neuralgia and irritability of the eyeball. Severe photophobia may be promptly relieved by the administration of gr. v-xv, thrice daily. Mr. BADER, of Guy's Hospital, thinks these good effects, however, are limited to young people, and particularly to cases of syphilitic corneo-iritis. The disagreeable taste of the medicine is a bar to its exhibition.

Cupri Sulphas is an indispensable local stimulant in chronic conjunctivitis, etc. The pain its application causes may be greatly lessened by sprinkling a little calomel over the parts touched, a few minutes after the application, or even immediately. (Dr. CARL PICK.)

Daturia. In 1861, Dr. JOBERT (de Lamballe) proposed the substitution of the alkaloid of the *Datura Stramonium* (daturia) as a mydriatic instead of atropia. He concluded that daturia was three times as strong as atropia; that its instillation into the eye caused no pain or confusion to vision, and that its effects were more constant than those of atropia, and its action more persistent. Dr. FANO has published (*Journal d'Oculistique et de Chir.*, August and September, 1875,) numerous observations illustrating the employment of daturia as a mydriatic. The instillation of a solution of daturia (1 part in 600) causes, he says, dilatation of the pupil in twenty-five minutes, and this, too, in some cases of keratitis, in which atropia has failed to produce any effect.

Duboisin, the alkaloid of the Australian plant, *Duboisia myosporoides*, has been found to be a potent mydriatic, and has come into free use in Europe. It is as yet undetermined that it possesses qualities superior to atropia.

Ergotina. In conjunctival inflammation, Dr. PLANAT, of Nice, recommends from one to one and a half grammes of ergotine in twenty of glycerine or rose-water, of which from eight to ten drops are to be inserted in the eye every two hours. Where there is violent inflammation of the eyelids or distention of the conjunctiva, a rag wetted in this mixture should be left on the parts for some hours. In general, two or three days suffice for the subduing of the most intense blepharo-conjunctivitis. Dr. PLANAT has employed the ergotine in this way, with invariable success, for several years past. (*Bull. de Therapeutique*, 1878.) Dr. A. S. CAMPBELL uses ʒj of the fluid extract to ʒvij of water as a collyrium. (*Trans. Med. Assoc. Georgia*, 1880.)

Eserine. The attention of ophthalmologists has been called to the value of the extract of the Calabar bean, and its alkaloid, eserine, by various writers. Dr. A. WEBER (*Graef's Archiv.*, Bd. XXII.,) states that the sulphate of eserine is ten to fifteen times more powerful than the extract. One drop of a one per cent. solution of eserine begins, after five minutes, to develop its effect upon the ciliary nerves, and produces, within twenty minutes, an extreme contraction of the pupil, which lasts ten hours. He believes that Calabar ought to be substituted for atropia in all those affections of the cornea which call for a diminution of the pressure upon the posterior surface of the cornea. These include keratocele, conical cornea, old maculæ corneæ, and especially in deep and progressive ulcerations, either in the centre or at the margin of the cornea, as they occur in old and debilitated persons, or in children in

connection with blennorrhœal conjunctivitis. In these cases the Calabar achieved its most brilliant triumphs; it prevented the perforation of the ulcer; it guarded against hernia of the iris and the subsequent staphyломatous expansion of the cornea; it checked the destructive progress of the ulceration, and caused the ulcer to rapidly fill up and cicatrize; and it accomplished all this without the aid of bandages or any other means, except the cauterization of the blennorrhœal conjunctiva. While highly lauding the Calabar for its excellent effect upon deep ulcers in the cornea, WEBER states that he could not recommend its use in superficial and vascular ulcerations of the cornea. Here the good effect of atropia with a proper bandage remains unquestionable. Prof. GUBLER states that the disturbances of vision which succeed acute and sometimes chronic diseases, and which are due to consecutive paralysis, characterized by asthenopia and debility of the muscles of the eye, may be treated successfully by Calabar bean. In asthenopia, a few drops of solution of sulphate of eserine ($\frac{5}{100}$ to $\frac{1}{100}$) put into the eye, will render the vision quite distinct in an hour or two. In presbyopia also, Prof. GUBLER has applied eserine with advantage. He has found eserine to be of extreme value in retarding the advance of presbyopia. (*Gaz. Hâbd.*, February 4th, 1876.) Dr. WECKER has spoken of its value in suppuration of the cornea following the extraction of cataract. As soon as the edges of the wound grow hazy, the aqueous humor turbid, and the secretion of the conjunctiva is increased, the wound to its entire extent is reopened with a fine spatula, in order to draw off all the aqueous humor. Eserine is instilled every hour or thirty minutes, and the eye washed frequently with a warm solution of carbolic acid (one part to one thousand parts of water.)

Gelsemin has been recognized as a valuable addition to the drugs which have a specific effect on the eye.

Glycerina is used as an ingredient in ophthalmic plasmata.

Grindelia Robusta. This plant has been lauded as a specific in iritis, no matter from what cause. It is given internally, f. ʒj of the fluid extract four times a day; and locally, cloths wet with a solution of one part of the fluid extract to four of water. (HENRY M. FISKE, *Pacific Medical and Surgical Journal*, August, 1875.)

Hydrargyrum. The various preparations of mercury are extensively employed in ophthalmic therapeutics. The *chloridum corrosivum* is used in solution in purulent ophthalmia by Professor BEDFORD (F. 612), and by Dr. TURNBULL in keratitis (F. 631). The *chloridum mite* may be insufflated as a dry powder in corneal ulcer (page 425); internally it is constantly employed to produce the constitutional effect of the drug in syphilitic and general iritis. The *oleate* is highly extolled in blepharitis, tinea tarsi and similar affections. The *oxydum rubrum* and *sulphas flava* are invaluable in numerous combinations for various forms of ophthalmia. (See formulæ above.) In fine, as has been lately remarked by a specialist in this department, Mr. TALFOURD JONES, "mercury, by many, is supposed to have gone out of fashion, but ophthalmologists know better than to discard so valuable a medicinal agent. The late Dr. ANSTIE believed mercury to have some special elective affinity or special action upon the parts which are supplied by the fifth nerve. It probably does exert a more marked influence upon the ocular tissues than

upon any others. It must ever be one of our most potent and useful remedies.

Hyoscyamin has been used successfully as a mydriatic by Dr. PFLUEGER, of Lucerne.

Iodinium, as a stimulant and counter-irritant, has frequent applications in the therapeutics of the eye.

Iodoformum is often useful in granular lids, phlyctenular and pustular ophthalmia, corneal ulcer, keratitis, blepharitis, etc. It should be reduced to very fine powder and dusted freely over the affected surface, or mixed with three parts of *unguentum petrolei*. It should not be used in acute inflammatory conditions.

Morphia is indispensable, and may be used in any of the usual manners. Mr. R. BRUNDENELL CARTER very truly says that "no eye will get better whilst it is acutely painful, so that acute pain must always be subdued as a condition antecedent to recovery." For the relief of acute pain, we have no remedy comparable to morphia, and it should be freely used.

Oleum Ricini. Dr. RINGER observes that a drop of castor oil introduced into the eye will often allay pain and intolerance of light produced by a fine irritant, such as sand.

Opium. Tincture of opium and solutions of morphia dropped into the eye cause smarting, redness, and slight inflammation of the conjunctiva. Such stimulation sometimes improves the condition of the membrane. Their uses are, however, chiefly internal, to relieve pain, or by hypodermic medication. There are certain forms of iritis in which the acuteness of pain is a very prominent symptom; and it was chiefly in cases of this class that the late Mr. ZACHARIAH LAURENCE succeeded, some years ago, in bringing about a cure by the use of large doses of opium or morphia alone. He kept his patients in a state of semi-narcotism for several days, or until all symptoms of acute inflammation had subsided.

Phosphorus has been suggested for the dispersion of corneal spots. (Page 425.)

Physostigma and *Physostigmine*. The uses of the Calabar bean have been discussed under *Eserine*.

Pilocarpin has been used as a myotic by various oculists. Its results differ from those produced by eserine sulphate, in the facts that less conjunctival irritation, less supra-orbital pain and less spasm of the accommodative power seem to be induced, while the contraction of the pupil and the temporary myopia correspond in degree with those following the use of eserine. In these respects pilocarpine offers advantages over eserine.

Plumbum. Various preparations of lead are valued in affections of the eye. Of the *carbonate*, ʒij to ʒj of simple cerate is an excellent unguent in persistent swelling and redness of the lids (blepharitis.) In weakness and irritability of the eyes, painting the exterior of the lids many times daily with a weak solution of the *subacetate*, gr. j to aquæ f. ʒj, followed by anointing with cold cream at night, is often successful. (HARTSHORNE.) As a collyrium, the *acetate*, gr. ij-iv to aquæ f. ʒj, is very extensively employed.

Quinia, in weak solution, gr. ij to aquæ f. ʒj, is an excellent wash for slight conjunctivitis. When required internally, Mr. R. B. CARTER recommends:

638. R. Quinæ sulphatis, gr. j.
 Ferri et potassii tartratis, gr. ij.
 Morphæ sulphatis, gr. ʒ. M.

For one pill.

Of this combination he says: "I have also found this formula to be of the greatest possible value in many cases of eye-disease in which local changes were progressing too rapidly to be overtaken by the use of a grain or two of quinine twice or thrice a day as a 'tonic,' but in which they were promptly arrested when the patient was brought under the influence of the specified combination."

Salicylicum Acidum. DR. LEONARD WHEELER has urged the value of this remedy in iritis. (*Boston Medical and Surgical Journal*, Feb., 1877.) He uses it internally in the following formula:

639. R. Acidi salicylici, ʒ v.
 Sodii biboratis, ʒ iv.
 Aquæ, f. ʒ vj. M.

One to two teaspoonfuls hourly for several hours at the onset of the attack.

Sassafras Medulla, steeped in water, gives a soothing, glutinous liquid much employed as a local emollient in inflammation of the eyes.

Sodii Benzoas. It is said, in the *Lyon Médicale*, March 7th, 1880, that Dr. Don has used the benzoate of sodium with great success in the purulent ophthalmia of infants, and also in gonorrhœal ophthalmia, recovery taking place in a few days, without any opacity being left. He kept iced compresses constantly to the eye. The benzoate of sodium was employed in a twenty per cent. solution, and tannin in a ten per cent. solution, ten drops being instilled every three minutes. All secretion which issued from the eye was removed by means of a wash consisting of a hundred per cent. solution of the benzoate.

Sodii Biboras. Borax is esteemed a useful addition to moderating astringent collyria; gr. x to aquæ camphoræ f. ʒ j.

Sodii Chloridum. Washing the eyes daily with a solution of common salt, ʒ j to Oij, is of service when weak and irritable.

Stramonium is principally employed through its alkaloid, datura, which see.

Strychnia, by hypodermic injection, has been used very successfully in amaurosis and amblyopia (above); also in ptosis and blepharospasm, and entropion.

Tannicum Acidum is one of the most valuable astringent, non-irritating topical applications.

Terebinthinæ Oleum is used as a rubefacient.

Zincum, in various forms, is in frequent use. The *oxide* is an ingredient in numerous soothing unguents. A solution of the *sulphate*, gr. ij-iv to aquæ f. ʒ j, is the usual strength. It may be advantageously combined, as:

640. R. Zinci sulphatis, gr. iv.
 Morphæ sulphatis, gr. ij.
 Atropiæ sulphatis, gr. j.
 Aquæ rosæ, f. ʒ j. M.

For a collyrium.

Bandaging. In many diseased conditions of the eye, it becomes necessary that the movement of the lids be restrained. For this purpose, oculists employ the "compressive bandage." This is composed of a small piece of fine linen to cover the lids, some carded cotton-wool for padding, and a roller, about an inch and a half wide and nearly two yards long, formed of any fine elastic material, but preferably either of what is called "water-dressing bandage" or of flannel gauze. The free end of the roller should be placed on the forehead, over the affected eye, and the first turn should be made across the forehead and round the head horizontally, so as to secure the end. When the roller reaches the forehead over the sound eye for the second time, it should be inclined downwards, carried under the lobe of the ear, round the occiput, under the lobe of the second ear, and then upwards across the face, over the affected eye, to the forehead. Before the roller is brought over the affected eye, the small piece of linen should be placed upon the closed lids, and all the hollows of the orbit should be filled and padded with the cotton-wool, in sufficient quantity to allow the roller to exert distinct but gentle and uniform pressure on the parts beneath. When the roller reaches the forehead it should be secured to the horizontal turn with a pin, and then a second horizontal turn all over will complete the application. By varying the quantity of wool and the degree of tightness of the roller, any desired amount of pressure may be exerted by this bandage, which, if carefully applied, is very little liable to be displaced. Too much care cannot be taken in filling the orbital hollows, and in so distributing the wool that its pressure may be uniform; because if a bunch of wool were simply applied to the lids over the convexity of the globe, and then bound tightly on, the effects of such a proceeding might often be disastrous. (CARTER.)

Blisters applied to the temple, behind the ear or to the nape of the neck are useful derivatives in inflammatory and painful affections of the eye.

Cold, in the form of ice and iced water, is much used in Europe for inflammations of the eye. Pounded ice may be suspended from a frontal band in a rubber bag over the organ.

Collyria. The following general remarks may be made on eye-washes and their employment: *Cautions.* 1. The stronger collyria are often unnecessarily employed, and are capable of doing mischief. 2. Collyria so strong as to produce pain tend, in the opinion of oculists, to induce subsequent chronic inflammation. 3. Those containing *lead* or *nitrate of silver* are never to be used when ulceration of the cornea exists, as they are apt to leave a permanent opaque cicatrix. 4. Those containing *nitrate of silver* sometimes give a blackish or bluish discoloration to the conjunctiva. Collyria are astringent, (alum, borax, tannin, acetate of lead, etc.,) emollient, (sassafras pith, flaxseed, slippery elm,) stimulant, (weak solutions of sulphate of zinc or copper, nitrate of silver, vinum opii, etc.,) sedative, (weak solutions of atropia, extract of belladonna, hyoscyamus or stramonium, solution of subacetate of lead, etc.,) or escharotic, (saturated solutions of nitrate of silver, sulphate of copper, alum, etc.) The proper use of ordinary collyria, especially in children, is not sufficiently attended to. A simple and efficient way is to place the child, with its arms straight by its sides, upon a shawl or on a long towel, and then swathe it around a few times in this, leaving only its