

powders to stop the hæmorrhage, and a piece of the fungus called *lupi crepitus*, or puff-ball. However, he desires also that the tourniquet (Morel's) should be in use, with a stick which an assistant held behind the operator, at his desire turning off or on the stream of blood.

It is evident that Heister tied the larger vessels only, and stopped bleeding from the smaller by caustics and compresses. One would imagine that, having a tourniquet to give them time, and ligatures for securing the vessels, surgeons required nothing more; but they still wavered from one remedy to another, as accident, or caprice, or opportunity influenced them. They could not explain why the ligature should be the most efficient means; and, indeed, it had the disadvantage of a foreign body left in the wound. Dessault first remarked that the internal coat of an artery was cut by a ligature tightly applied to it, but he made no practical use of this observation.

We have seen, in the end of the seventeenth century, John Kiel, a Scotchman, endeavouring to elucidate the subject of hæmostatics by careful study of the arterial tube itself. And in later times, a Scotsman, Dr. Thomson of Edinburgh, demonstrated to Dr. Jones the effects of a ligature upon the arterial walls and the process of repair after they are injured. These are now universally known; and ever since surgeons have been given these good reasons for the greater efficiency of the ligature, they have become as constant to it as before they were fickle. It is now the rule, and not the exceptional practice. No real surgeon now dreads bleeding from any vessel, if it be within his reach and he can cast a noose round it; but he no longer, like Ferrius, includes the surrounding flesh, or, like Dessault, the adjacent vein; nor does he limit the practice to the larger arteries, but, isolating any vessel inclined to bleed, he ties it alone, knowing that even the smallest has in itself the real materials for its own repair.

Many devices have appeared from time to time, with the object of avoiding the ligature's only drawback—the foreign body in the wound, and the small slough contained in its noose. Torsion of the vessel, so as to divide the inner and middle coats, and leave the outer lacerated like a hood over the mouth of the vessel till inflammatory changes in the others have taken place, had its turn, and won a share of popular favour. But the amount of twisting to which we must subject an artery of any size, kills the part so twisted, and it is thrown off as the little slough is which we draw out with the ligature. From time to time the material of the latter has been altered.

The ancient practice of using metallic threads, revived by Levret in 1829, and now so generally employed for sutures, has not in this country extended to their use as ligatures; indeed, they would only avoid one drawback of the silk, or hemp, or other ligature; the sloughing part of the vessel would still have to be thrown off.

The most important novelty in the means for arresting bleeding, is Professor Simpson's acupressure—wedging the vessel between its surrounding tissues and a pin introduced from the skin surface of a flap, and removing the pin in from twenty-four to forty-eight hours. The great advantages to the wound of removing any foreign body from within it at such an early period are obvious. And I can bear witness, from cases treated under my own notice by this method, to the ease with which the pins are applied, their efficiency in arresting bleeding, not only from the main vessels, but from oozing surfaces, and the saving of time in the cure from the causes above mentioned.

**SUBSTANCES FOUND IN SNOW.** It would seem, from a paper read before the Academy of Sciences on March 5th by M. Pouchet, that snow is not so pure as is generally supposed. He there stated that he had made a special examination of some snow collected on March 24th at Rouen, and had there found the following substances:—particles of carbon from smoke; starch-granules (of which some were observed to be coloured blue, as by iodine); a green organic matter, sometimes in irregular plates, sometimes in ovoid granules; granules of silica and of calcareous matter; encysted infusoria or ova, bacillaria, etc.; grains of pollen; jointed filament of *quisetum* (?); spores of *lycoperdon* (?); filaments of wool, etc. M. Pouchet, however, did not find, at least in any number, sporules of plants or animal ova. This latter statement has a bearing on some observations which M. Pouchet has been lately making on the subject of the spontaneous or non-spontaneous development of the simpler forms of organised beings.

## Progress of Medical Science : AT HOME AND ABROAD.

### OPHTHALMIC SURGERY.

#### LOCALISED GALVANISM AS A REMEDY FOR THE PHOTOPHOBIA OF STRUMOUS OPHTHALMIA.

WE reprint from the *American Journal of Medical Sciences* for January 1860 an interesting paper by Dr. ADDINELL HEWSON, of Philadelphia:—

Intense photophobia constitutes the most prominent and characteristic symptom of the ophthalmia of strumous children, and is undoubtedly one of the chief causes of the obstinate and troublesome character of the diseases of the eyes in that class. The constant avoidance of the daylight, and, consequently of fresh air, both of which are so essential to overcome the peculiar constitutional taint of such cases, and the incessant fomentation to which they subject their eyes by burying them in their pillows, clothes, or handkerchiefs saturated with their tears and perspiration, for days, weeks and even months together, not only tend to aggravate all the symptoms of the disease, but to protract them indefinitely, and, in many instances, to render the eyes incurable.

In the poor children brought to the dispensaries connected with the ophthalmic hospitals, the early relief of this symptom is of the utmost importance. Amongst them, the worst cases are those who have intemperate parents, and who are, consequently, neglected and exposed to the worst hygienic influences. For such it is worse than useless to prescribe iron, bark, cod-liver oil, and other eutrophics, to be administered at home, for much valuable time will be lost waiting for the benefits expected to be derived from such remedies, as they will scarcely ever be given. Even the injunction to keep the child's face uncovered, and to give it fresh air to breathe, will not be attended to. Indeed, I am firmly convinced, from no little observation in the matter, that whatever benefit is to be derived from attempts to treat these cases at their homes, must be by remedies applied or administered by the medical attendant himself. I have, therefore, always tried by means of local applications, to afford them as early relief as possible from this photophobia, so that they would, of their own accord, seek the *light and air*, the best remedies within their reach at home for their recovery, and I have always found improvement in all the other symptoms to follow the relief of this one. Even in private practice, and amongst the best classes, where every comfort, luxury, and attention that wealth can command are brought into requisition, we often meet with cases which seem to receive no benefit for weeks or months, but, on the contrary, grow worse notwithstanding the most faithful and skilful use of a great variety of constitutional remedies, until the photophobia is relieved by remedies applied especially for that purpose, when the child will begin to run about, and its convalescence become rapidly confirmed. The question might be asked here, Is not the abatement of the photophobia in the latter cases rather the first sign of the yielding of the disease to constitutional remedies, or in the former the result of improved health? In many instances of strumous ophthalmia, such may be the case, but not so in the instances to which I have reference; for I refer to those in which the health was steadily failing in spite of constitutional remedies, or in consequence of the administration of such remedies being neglected, and in which the relief of the photophobia followed so rapidly the use of special remedies directed for that purpose, as to leave no doubt of the cause of such relief or of the *modus operandi* of the remedies. My impressions of the good effects of these remedies have been so strong as to induce me to test them very critically for several years. I have thus tried blisters and tincture of iodine to the forehead and temples, vapours of various kinds (especially that of muriate of ammonia) directly to the eye, local and general anæsthesia, belladonna, and a variety of other articles. The benefits to be derived from the most, at least, of these remedies, have long been known to the profession. I shall, therefore, not comment upon them at present, but on the contrary, confine myself to a brief exposition of the results which I have obtained from another remedy, the application of which I believe to be altogether novel. I refer to galvanism localised to the supra-orbital branch of the fifth pair of nerves, which has thus far proved to be the most efficient remedy I

have ever used for this distressing symptom. I discovered this effect of galvanism during the early part of the last summer, whilst initiating some investigations on its usefulness in the treatment of ulcers, opacities, and other manifestations of impaired nutrition of the cornea, which investigations I was led to make on purely theoretical grounds of the well known influence of the fifth pair of nerves over the nutrition of the cornea, so admirably demonstrated by Magendie many years since.

I am not aware that this peculiar effect of galvanism in the photophobia of strumous ophthalmia has ever been noticed before, nor do I know that galvanism has ever been employed as I have employed it, in the treatment of opacities and ulcers of the cornea; I therefore propose making known the results of my trials of it for both these purposes, and shall do so in two separate communications, for these two sets of symptoms of strumous ophthalmia are not necessarily dependent on each other for their intensity, and I have obtained decided benefit from galvanism in removing the physical effects of disease in the cornea where there was no photophobia present. I will, therefore, make the consideration of the latter influence of galvanism the subject of a future communication, and shall reserve for this future communication the details of the cases, even, which furnish the material of the present paper; for in all these there were lesions of the cornea which were treated after the relief of the photophobia by this same agent, and their details will be of more interest in that connection.

As it is also my desire to occupy the attention of the profession with only what has proved to be a remedy of very positive value for photophobia in my hands, I shall merely give here the results of my trials with the direct current of galvanism or chemical electricity, for I have tried the induced current of the magneto-electrical apparatus for the same purpose, but not with as satisfactory results. Had the results with the induced current been the same, the intensity of the pain attending its application in the feeblest form to the supra-orbital nerve would render its use decidedly objectionable. To the direct current of galvanism there is no such objection, as the only sensation attending its application when properly localised, is that of a faint quivering or flashing of light resembling more than anything else the feeble sheet lightning of a hot summer's evening, and which proved rather a diversion than otherwise to many of my little patients.

The form of apparatus employed by me in all the experiments referred to in this paper, was the Pulvermacher's chain battery of sixty links, with ordinary vinegar as the chemical agent. The electricity from this I applied by moist conductors, which consisted of brass rods six inches long, slightly curved and surmounted at one end with a wooden handle, and at the other with a small brass cup, filled with wet sponge. These conductors were hooked to the ends of the chain, which constitute the poles of the battery, and I applied the sponge of the one attached to the negative pole to the skin over the supra-orbital foramen, whilst I made frequent contacts with the sponge of the other to the skin of the forehead at various points. These applications were generally made at intervals of three or four days, and only for a minute or two each time; and I would caution all who may resort to galvanism for these purposes not to attempt its too frequent or protracted use, or to use it in too great strength, for there is danger of permanent injury to the retina from such uses of it, as has been pointed out by Dr. Duchenne. It may, however, be used with safety more frequently than above stated. I have myself used it in private practice every day, and my sole reason for only using it at the intervals above stated, was one of convenience, as those were the intervals between my clinic days (Mondays and Fridays) at the hospital.

My reasons for employing Pulvermacher's battery were that (notwithstanding its well known want of constancy of action), the facility of its application, and its comparative cleanliness made it far preferable for my clinical purposes to any other apparatus known to me.

In order that I might give this agent a fair trial, I suspended all previous treatment (for most had been under treatment), both local and constitutional, before beginning with it, and I avoided all cases which had been improving under such treatment.

I have thus tested it in thirty-two cases at the clinic of Wills Hospital, in which photophobia was a prominent symptom. In all these the strumous diathesis was well marked, and the part essentially diseased was the cornea. The ages of these patients ranged from one to sixteen years. Nineteen of them were females, and thirteen males. In nine, the photophobia was

intense, in twenty-one it was *considerable*, and in only two was it *slight*.

In all but three of these thirty-two cases, there was decided and immediate benefit following the very first application of the galvanism. These three exceptional cases were all of intense photophobia. In one of them the child (two years of age) was of German parents who could not understand English, and, owing to my ignorance of German, I could not satisfy myself on their return that there had been any improvement in the case. In the second, I discovered, after the child had been taken away, that my battery was not acting, and I was, therefore, prepared for the unfavourable report I got. In the third, I have no note of any circumstance by which I can explain the failure of the first application, and must, therefore, admit it as a negative result, although I believe the fault to have been in the battery. In all these three exceptional cases, there were, however, unmistakable signs of improvement on the second application.

In all the instances where benefit followed the application, it was immediate, and was generally noticeable before the child left the institution, or was observed by its parents on the way home. The benefit was also more or less permanent. I say more or less permanent, for I have notes of the fact that in two instances the children's parents did not think they bore the light as well on their way to the hospital for a second application as they did immediately on going home after the first, although there was evidently still some improvement in both the cases.

In not one single instance of strumous ophthalmia, have I noticed any bad effects, or heard any complaints of its producing any injury to the eye.

The following is an abstract of the results I have obtained in these thirty-two cases.

Of the nine cases in which the photophobia is specified as having been intense, two (both cases of pustular corneitis) were so very much relieved by the first application, that they were out of doors the next day, playing about in the strong sunlight; three were relieved, and only one improved by the first application (this single case was relieved by the second application), three (explained before) were not apparently affected by the first application, but improved by the second, and decidedly relieved by the third.

Of the twenty-one where the photophobia was *considerable*, ten were relieved by the first application, and eleven only improved, but relieved by the second. Of the two in which this symptom was but *slight*, both were cured, one by the first, the other by the second application.

As the subsequent improvement of the photophobia in all these cases might be thought to be dependent on the abatement of the physical effects of the disease which occurred rapidly after the second application, I shall not trace this effect of the galvanism any further in these cases for the present, especially as I think I have already furnished ample proof of the good it is capable of doing for photophobia, which was the sole object of the present communication.

#### FORMATION OF ARTIFICIAL PUPIL BY IRIDDESIS.

In the BRITISH MEDICAL JOURNAL for April 2nd, 1859, p. 275, we noticed an operation which had been proposed by Mr. CRITCHETT for the formation of artificial pupil. It consisted in drawing a portion of the iris through a small wound in the cornea, and tying it with a fine loop of silk. The advantages of the operation were, as stated by Mr. Critchett, that the fibres of the iris were not torn or divided; that the pupil was merely altered in shape and position, retaining a definite size and boundary, and contracting under the influence of light; and that it was possible by this method to regulate very exactly the size and position of the pupils.

In the *Ophthalmic Hospital Reports* for October 1859, Mr. Critchett returns to the subject, with the view of pointing out some modifications, and of describing cases in which he has employed the proceeding beneficially. The following description, which we extract from Mr. Critchett's paper, shows the modifications which he has found it advisable to adopt:—

In order to perform this operation with the requisite amount of minuteness and precision, a perfectly quiet state on the part of the patient is important. Except in rare cases this is best accomplished by the use of chloroform. The eye having been exposed by means of the wire speculum, and fixed in a convenient position, a broad needle must be entered close to the junction of the cornea and sclerotic, and an opening made just

of sufficient size to admit the cannula forceps. A small loop of fine floss silk, moistened, must then be laid on the eye over the opening in the cornea. The cannula forceps is then introduced through the loop and the opening in the cornea into the anterior chamber. The iris is then seized about midway between the ciliary and pupillary margin, or sometimes, if possible, rather nearer to the ciliary margin, and drawn out to the requisite extent. An assistant seizes the two ends of the loop with small broad-ended forceps, and carefully ties it upon the eye, so as to include and strangulate the portion of iris that has been drawn out. The ends are then cut off, and the operation is completed.

Usually about the second day all trace of the ligatured portion of the iris is gone, and the bit of silk, if it has not been washed off, may be taken away. It occasionally happens that the ligatured portion of iris, with the piece of silk attached to it, is drawn somewhat within the wound; when this is the case an end of the silk must be seized with forceps and drawn away. The possibility of such an occurrence proves the necessity of leaving the ends of the knot rather long. It is very rarely indeed that any irritation of consequence follows this operation; the iris becomes permanently adherent at the spot where it has been tied, so as to fix the pupil in its altered form and position.

Mr. Critchett has employed this method with success in the following classes of cases:—1. Central leucoma, corresponding in size and position to the natural pupil; 2. Where there has been a penetrating ulcer of the cornea, with some surrounding opacity, and the pupil is altered in shape, diminished in size, and drawn towards or behind the opacity; 3. In cases of opaque capsule, with adherent pupil, in which it is desirable to enlarge the pupil slightly in one direction, so as to expose a clear part of the lens.

In the first group, the most favourable condition is a clearly defined dense opacity in the centre of an otherwise transparent and healthy cornea. If a pupil, rather less than the normal size, and of natural boundary and mobility, be brought opposite to the clear part of the cornea, very good sight is obtained. In the second class of cases, the degree of sight that can be obtained depends in a great measure on the size and shape of the mammary pupil, the extent of the opacity, and the condition of the transparent part of the cornea; in all which circumstances there is great variety. In the third group, there is more difficulty in successfully carrying out the operation; one obstacle being the firmness of the adhesion, and another the softness of the previously diseased iris.

The results of Mr. Critchett's experience are such as to encourage him in continuing to perform the operation. In the two years preceding the date of his paper, he and his colleagues at the Royal London Ophthalmic Hospital had adopted it in sixty-six cases, in a large majority with very satisfactory results. He had also performed it in four private cases, with good result.

#### ARTIFICIAL PUPIL IN CONICAL CORNEA.

WITH the view of remedying the defect of vision consequent on the malformation known as conical cornea, various operations have been proposed; but none have come into general use. It has long been known, however, that in such cases vision is often assisted greatly by placing a small hole or a narrow slit in a diaphragm immediately before the eye. Acting on this suggestion, Mr. Bowman has adopted the plan of operating on the iris so as to give the pupil a slit-like shape, fastening the iris to the cornea in such a position as to conduce to the formation of the most correct image compatible with the altered curve of the cornea in each case. The proceeding which he employs is that of iridectomy, as devised by Mr. Critchett. His plan is, first to tie the iris at one point; and then, some days afterwards, to repeat the operation at the opposite point, so as to form a longitudinal pupil. In one case, he made the pupil horizontal; but in six others (in five of which he operated on both eyes) he has made it vertical. He leaves it, however, to be ascertained whether a balloon-shaped pupil, as left after a single operation, is equally useful; or whether the transverse or the vertical pupil is really the best. The vertical slit, however, he holds to be much more slightly than the horizontal, and equally good for vision. The improvement of sight has always been great after the first iridectomy; sometimes the second has not seemed to increase it, while in other cases it has certainly done so. A very remarkable result of the operation is the diminution of the conicity of the cornea; which Mr. Bowman thinks may be attributable to the moderation of the

ocular tension. Besides the six patients operated on by Mr. Bowman, four others have been operated on by Mr. Critchett and Mr. Poland, with good results; in two, extraction of the lens was performed. Mr. Lawson has also had a satisfactory case. (*Ophthalmic Hospital Reports*, October 1859.)

#### TREATMENT OF ENTROPIUM AND TRICHIASIS BY LIGATURE.

DR. E. WILLIAMS of Cincinnati, in the treatment of entropion, applies a ligature composed of several threads, which is introduced by means of a curved needle. The point of the needle is introduced in the cutaneous aspect of the eyelid, very near its edge, and passes behind the orbicularis palpebrarum to a distance varying with the extent of the affection. In severe cases, Dr. Williams passes the needle from the free edge of the eyelid, quite to the lower border of the eyelashes. The thread is then tied sufficiently tight to completely strangulate the parts included; if it be tied loosely, much more pain is produced, the operation often fails, and is difficult of repetition. The number of ligatures varies according to the severity and extent of the affection. When the entropion extends entirely along the lid, four are generally sufficient; but eight have been found necessary. Chloroform may be used in very sensitive patients; but generally it may be dispensed with if the operation is performed rapidly enough. The pain soon disappears.

In partial and slight cases only of trichiasis, Dr. Williams excises an elliptic portion of the skin, perpendicularly to the direction of the eyelid. In other cases, he operates as has been described above for entropion, with, according to his account, most happy results. In one case only was there a small abscess in the course of one of the ligatures; which, however, did not interfere with the success of the operation.

When the ligatures include a considerable extent of the lid, and especially when both lids have been operated on at the same time, the patient has for a time some difficulty in closing the eye; but the power is soon regained. Some swelling may follow the operation; but it is never severe. (*Cincinnati Lancet and Observer*, October 1859; and *Gazette Hebdomadaire de Médecine*, 6 Janvier 1860.)

#### SYPHILITIC PARALYSIS OF THE SIXTH NERVE.

DR. BEYRAN of Constantinople, in a paper read before the Academy of Medicine in Paris, alleges paralysis of the sixth nerve as one of the results of syphilis. It is, he says, extremely rare; but still he refers to three instances. The syphilitic paralysis of the sixth nerve differs from that which is produced by intracranial tumours, or aneurism, or varix of the ophthalmic vein, or by any cerebral lesion giving rise to pressure. In such cases, the third nerve is generally affected at the same time, and there are signs of intracranial disease. In the three cases, however, which are specially referred to by Dr. Beyran, there had been unmistakable syphilitic symptoms, both local and constitutional. The paralysis set in with the appearance of nodes; in one case, the right eye was affected; and in two, the left. The signs of the paralysis were, obstinate inversion of the eye, so that it was impossible to direct it outwards, although it could be moved upwards and downwards; together with indistinctness of sight, and double vision in the affected eye. The paralysis was preceded by pain in the temple, on the affected side; and the attack was confined to one eye. In one case, it lasted seventy-eight days; in a second, seventy-one days; and in a third, ninety-eight days. M. Beyran attributes the disorder to interference with the function of the nerve by syphilitic affection of the parts of the skull in proximity to it. The success of the specific treatment in removing the affection so far bears out this interpretation. (*L'Union Médicale*, 23 Février, 1860.)

#### TREATMENT OF LACRYMAL TUMOUR AND FISTULA BY ELECTRIC CAUTERY.

M. TAVIGNOT proposes a method for the radical cure of lacrymal tumour and fistula by producing occlusion of the canals. He introduces into the latter platinum wires, which are then to be heated to whiteness by means of a Bunsen's pile. They thus act as actual cauteries; and, when the eschar which they have formed is thrown off, the lacrymal canals are found to have become obliterated. (*Journal de Médecine et de Chirurgie pratiques*.)