

confirmed, but, curiously, no motive whatever would be traced to account for the deceit. His duties were so slight that the malady could scarcely have been feigned to evade the work.

Causes.—It appears certain that over-stimulation of the interior of the eye, probably nervous exhaustion of the retina, accompanied by congestion of the vascular coat, is the cause of the malady in all its forms. It is undoubted that great heat, or intense light, or continued exercise of the eyes on minute and dazzling objects, frequent or lengthened exposure to the glare from sand, or to reflections of the sun from water, all tend to an exhaustion of retina and congestion of vascular textures. When *Hemeralopia* most prevails, there is probably more loss of nervous power, and accompanying general debility of system. The comparatively feeble rays of the moon are not sufficient to illuminate objects to render them visible to the weakened visual powers. In *Nyctalopia* there is more congestion and hyperæsthesia, and the eye is unable to bear the stimulus of bright light. Such cases, Mr. Longmore states, are not unfrequent among soldiers invalided from India for impaired vision.

But the light of the moon does not appear alone sufficient to induce any form of *Amblyopia*. Livingstone, who noticed the disease prevailing in Africa, does not think it caused by the moon. He remarks:—"You may sleep out at night looking up to the moon, till you fall asleep without a thought of moon blindness." And I well recollect instances of the ailment occurring to persons who had not been so exposed. Still lunar light on the eyes during the hours of sleep may act as an additional excitant. The retina and choroid from previous stimulation during the heat, glare, and business of the day, when exposed to the brilliant moonlight of the tropics, are not permitted any season of rest. Hence the malady, often first noticed after exposure, has been altogether attributed to lunar light.

Exactly the same condition often results, especially in the arctic regions, from exposure to the glare from snow. But as in the northern latitudes at particular seasons, there is no rest for the eye, no period of darkness, no coloured objects to relieve the dazzling white; snow blindness, unlike the malady when due to other causes, is frequently attended with considerable irritation and pain, (Hall) often terminating in profuse lachrymations and acute ophthalmia (Cayley.)

The state of the general health has much to do with the occurrence of any form of *Amblyopia*. The naturally weak and feeble, and those debilitated by long journeys, hard work, poor diet; also persons suffering under confirmed or latent scurvy (the latter a condition very frequently present, but unsuspected) are, *ceteris paribus*, most likely to become affected.

The treatment of these cases consists in attention to the general health and prevention of exposure to the exciting causes. Blisters behind the ear, or on the temples, have been recommended, but are rarely beneficial. A similar remark applies to leeches. Tonics are always required. But the most important means of cure is confinement during the day in a darkened room. I have found this plan perfectly successful within a week, and it is highly recommended by others. Exercise should be taken in the dark, and companionship provided for the patient to as great an extent as possible.

As a preventive means, Jeffreys recommended "a flexible horse-hair net, enclosed in a tough gimp wire," when not used to be concealed in the hat. Cayley mentions the inhabitants of East Thibet and Lhassa protect their eyes from the snow, by spectacles made of horse-hair. The wooden spectacles of Greenlanders, presenting only a minute aperture, thus preventing the entrance of much light on the retina, are also well known. For the glare of the Indian sun, I am inclined to think, blue glasses are the most serviceable; but Cayley recommends a neutral tint as the best preventive against snow blindness.

BELLADONNA AN ANTIDOTE TO OPIUM.

By J. B. SCRIVEN,

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THAT belladonna, or its active principle atropine, is antagonistic in its effects to opium has long been believed, and this, as well as the converse proposition, has been exemplified occasionally in practice; yet cases have not been sufficiently numerous for either to have assumed the importance of an established fact.

The idea was first propounded to me, in a paper published by Dr. Thomas Anderson, so long ago as 1854, and I have, from time to time, seen the question touched upon in the medical journals. Amongst those that I am now able to refer to, at Lahore, however, I find only a very few papers bearing upon the point. Two cases of opium-poisoning, treated by belladonna, are related by Dr. Morris of Pennsylvania. (See Braithwaite's Retrospect, Volume XLVII, page 377). In one of these, very large doses of extract of belladonna were given, the whole amounting to fifty grains. The quantity of morphia taken was enormous. The patient recovered.

In the second case, one ounce of laudanum had been swallowed. The pupils did not dilate till $17\frac{1}{2}$ grains of belladonna had been administered. This was the only obvious effect; and the patient died. In both of these cases, emetics were used before the belladonna. Of belladonna poisoning treated by opium, I find in the *Medical Times and Gazette* of 8th October, 1864, page 386, a case related, under the care of Dr. Frazer, at the London Hospital, in which $m20$ of tincture of opium twice administered, was sufficient to counteract the influence of about half an ounce of belladonna liniment that had been swallowed by mistake. Part of this, however, had been previously evacuated by an emetic.

In the *Lancet* of 8th May, 1869, page 657, another successful case is related by Mr. Borlase Childs. In this, $m30$ of tincture of opium, twice administered, completely counteracted the poisonous effects of six grains of extract of belladonna. Neither emetic nor stomach pump was used in this case. I am sorry that I cannot lay my hand on Dr. Anderson's paper. From Mr. Child's case, in which none of the original poison was removed from the stomach, it appears that one drachm of the tincture of opium, equal to four grains of opium, proved an effective antidote to six grains of belladonna.

In determining how much belladonna is necessary in opium-poisoning, the cases alluded to do not assist us much; but, that it may be given in doses that would otherwise prove rapidly fatal is, I think, obvious.

Though I had borne Dr. Anderson's suggestion in mind ever since I read his paper, no case had come before me in which I felt justified in adopting a new and as yet uncertain remedy, until a few days ago. The following is the history of the case: A boy $\text{æt. } 7$, suffering from ascites due to liver disease, had been given some tincture of opium to quiet restlessness. The quantity was said to have been very small, but the precise amount could not be ascertained. The laudanum was administered at 4 a.m. on 7th July; at 7 he was seen by the house-surgeon of the Medical School Hospital at Lahore, who found him deeply comatose, the pupils contracted, the face livid, the pulse almost imperceptible, the breathing difficult and stertorous. He could not be roused, could not be made to swallow, and no reflex effect could be produced in any way. The house-surgeon dashed cold water in his face, and placed some students at the bed-side, to strike continually the palms of the hands and soles of the feet. In this way the circulation improved, and the lividity was somewhat diminished; but the breathing appeared as diffi-

cult as ever, and was accompanied by a great deal of rattling in the throat, due to accumulation of mucus, which excited no coughing, and could not be displaced. In this condition I saw the boy at 8. It appeared to me that the house-surgeon had rightly judged, that to introduce the stomach pump would be dangerous in a case that had gone so far, and, indeed, as to removing the poison by its means, this, of course, was impossible, as the opium had been given at 4 a.m. in form of tincture. I therefore ordered the boy an injection of eight ounces of infusion of tea and a little rum; but, finding no improvement, I determined to try atropine. At 9 o'clock, therefore, I injected 15 minims of solution of atropine (grs. iv and $\frac{3}{4}$) into the rectum, in half an ounce of tea. This contained, of course, $\frac{1}{8}$ of a grain of the alkaloid. I also dropped a little of the same solution into the left eye, and one drop into the mouth, and this was repeated into the eye and mouth once during the next hour. The right eye was reserved for watching the constitutional effect of the remedy. The clapping of the soles of the feet and palms of the hands was continued for sometime; but as neither this, nor pinching, pricking, nor any other kind of stimulus was in the least degree noticed by the patient, it was discontinued about half past nine. The left pupil dilated rapidly and fully, under the influence of the drop of atropine, and at 10 it became obvious that the right one was slightly larger than before. It was now observed that, on putting the finger into the mouth, a very feeble effort was made to close the teeth upon it, but, to every thing else, the boy continued as completely insensible as before. The pulse was very small and rapid, but distinctly felt; the extremities were warm. At 11 a.m. the right pupil was more dilated, the pulse had improved, but the breathing was the same. At half past twelve the injection, containing $\frac{1}{8}$ grain of atropine, was repeated, and at 2 p.m. the right pupil was fully dilated, the pulse had still further improved, but the breathing was the same. At 3 p.m. a nutritive enema was administered, consisting of eight ounces of milk and half an ounce of rum. I saw him again shortly afterwards. His pulse was now tolerably good, though rapid, and a slight reflex effect was noticeable on touching the eye ball, or tickling the sole of the foot. At 6 p.m. he was decidedly better. He occasionally moved his limbs a little; and though there was no very distinct evidence of sensation, on pricking, pinching, &c., yet he certainly felt and resisted the passing of the catheter, which was now used to draw off the urine, as he had not passed any the whole day. There was slight pyrexia.

At 8 p.m. another nutritive enema of milk was administered, half of which came away again immediately, thus affording further evidence of restored reflex action. All the other enemata had been retained. At this time the boy could speak a little, partly answered some questions, and opened and shut his eyes. At 10 p.m. he was able to swallow, and was freely fed with tea during the night. At 11 he appeared to be well, and answered questions plainly. He was a little feverish however, but even this had ceased by 2 a.m., on the 8th. At 3 a.m. he said he was hungry, and took some milk. At 6 a.m. he seemed to be quite well, but the tongue was dry, and both pupils were dilated; there was no other obvious effect of the atropine. The boy was restless and peevish, but the father said this was habitual to him, and it must be remembered he was suffering from ascites. On the 9th the right pupil was no longer dilated, though the left was so. The following day he was taken away by his friends.

In this case, $\frac{1}{8}$ of a grain of atropine was administered, without any symptoms, except dilatation of the pupils, and recovery from an extreme condition of opium-poisoning. We can scarcely

believe that so powerful a medicine had no influence, and are almost driven to the admission that its poisonous effect was counteracted by the opium; in fact, that the two poisons were mutually antagonistic, and neutralised each other. This point, however, can only be satisfactorily proved by an accumulation of evidence, though it is very strongly supported by the crucial test of Mr. Child's and Dr. Frazer's cases. Thus, much, however, I think, must be admitted from the evidence of my case, of Dr. Morris' of Pennsylvania, and, I believe, also of Dr. Anderson's, though I have not his cases here to cite, *viz.*, that the system, under the influence of opium, has a great tolerance for belladonna, and, therefore, that it may be carefully administered without danger; so that the road is at once open for further investigation.

An antidote that acts powerfully in a concentrated form is surely a great desideratum, for at best the ordinary antidotes to opium, such as tea and coffee, are bulky, difficult to administer, and, withal, not very satisfactory; while cases like mine must occasionally occur, in which the stomach pump cannot be used, and swallowing is impossible. From this case it would appear that, if the circulation continue, even though feebly, the atropine acts very well given by the rectum. With equal propriety, of course, it might have been sub-cutaneously injected in smaller quantity; and, had the circulation been still feebler, doubtless, this would have answered best.

HINTS IN PRACTICE.

By DR. BAILLIE,

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I.—ICE IN CHLOROFORM ACCIDENTS.

IN cases of syncope from inhalation of too large a quantity of chloroform, there is no means upon which I should more rely to restore the movements of respiration, than the introduction of a *good-sized lump* of ice into the rectum. This is much more easily effected than one would suppose: a little pressure with the ice being made over the sphincter causes it to relax, and the ice slips in, followed almost instantaneously by a prolonged inspiration, the precursor of natural breathing, and restoration of the heart's action. This measure, but with a *small* bit of ice, would, doubtless, answer equally well with still-born children.

II.—BURNT ALUM IN FUNGUS TESTIS.

INSTANCES not unfrequently occur in this complaint where either the patient objects to submit to Syme's operation, or where it and pressure have failed; in such circumstances, I have seen the happiest results follow the treatment below indicated.

If the testicle be much constricted by the surrounding tissue, this should be first divided by a few stellar incisions; then the testicle and parts divided are to be thickly covered with burnt or desiccated alum, which may be retained over the parts by strips of soap plaister, and over this a carefully applied bandage. Daily dressing is required; the loose alum should be removed and fresh applied, and well pressed down, and that which adheres and cakes must be allowed to remain till it falls off, when it may be renewed; in addition to this, it is well now and then to pour tincture of iodine over the salt; nor should constitutional treatment be omitted, such as generous diet and the preparations of iodine with iron, &c. The cure is generally complete in three weeks or a month; but where the protrusion is very great, double that period may be required.

III.—AT WHAT POINT IS IT BEST TO OPEN THE KNEE-JOINT FOR THE REMOVAL OF PUS?

THIS question, although seemingly a trifling one, is, I believe, of some importance, both as regards the result of the operation and the future movements of the joint. Of course every surgeon would avoid, if possible, incision or perforation of tendinous or ligamentous structures; but it is, as regards the opening in the *synovial membrane*, that I would wish to direct attention; if the aperture be made in the middle or that portion of the cavity, where