CASE X.—E. B., certified as having scarlet fever, was brought in a scarlet fever ambulance on April 8th, 1880, at 3 P.M. He was found to have rubella, and was isolated. On April 10th, towards night, he had slight sore-throat; temperature normal. On the 11th, in the morning, his condition was the same. Towards evening, his temperature was 99°; throat much worse, followed by sickness, rash, etc. Incubation, about seventy-two hours.

CASE XI.—M. F. G., ward-servant, began work on entering hospital at 9 A.M. March 28th, 1881, and remained well till 3 P.M. on April 1st, when she had sudden sore-throat; temperature 103.6°, followed by rash, etc. Incubation, one hundred and two hours, not more.

CASE XII.—S. G., certified as having scarlet fever, was brought in the scarlet fever ambulance on March 29th, 1881, at 3 P.M., and was found to have rubella, and was isolated. No symptoms of scarlatina appeared till April 1st, at 7 A.M., when the patient had headache, sore-throat, fever, and then rash, etc. Incubation, sixty-four hours.

REMARKS.—Cases I, VI, X, and XII are all of known, definite, and short exposure to infection, followed by isolation. They show a variation in the incubation period within the limits of sixty and seventy-two hours; that is to say, that towards the end of the third day (the third period of twenty-four hours' length each) after exposure, the onset of the disease took place. I know of no case of the kind which exceeds three days—seventy-two hours. Case II I think as good as any of the above, and in it also the end of the third day is marked out. III, V, and IX show an incubation not exceeding three days.

In Case VII, four days, or ninety-six hours, were not exceeded.

In VIII and XI, five days was the maximum.

In VII and VIII, if the disease were contracted from the child, though they differ in their maximum limit, they strangely agree in their minimum—seventy-two hours; and this, moreover, dates in each case from the most important point in the history—that is, the trying on of the clothes, which had lain for twenty-four to forty-hours in the supposed infected house.

Case IV shows nothing more than it is possible to live in the midst of the infection of scarlatina for a fortnight without showing signs of the disease. Amongst nurses and servants I have known of several such cases, which have little practical importance. In this connection I may remark that I have known some cases lie in bed in a well ventilated scarlatina ward for two or three weeks and not develop the disease, but to do so towards the end of the third day after getting up and coming to closer quarters with the other patients.

Lastly, in ten out of these dozen cases the important points in exposure preceded the onset by sixty to seventy-two hours.

The shortest periods of incubation that I know of were in cases of surgical scarlatina and its fellow *post partum* scarlatina, in which twenty-four hours was the time.

My belief certainly is that in scarlatina the incubation does not exceed three days, and upon this I have founded the practical rule of quarantine for rather more than seventy-two hours in the case of a person exposed to infection, and I have not yet known the practice to fail. Obviously, beliefs are not arguments, but one cannot help getting impressions, after having in three-and-a-half years observed over two thousand cases of a disease. I have been frequently struck, in reading reports of cases with the names, in which this period of seventy-two hours crops up even when these are quoted to show a longer period of incubation. The use of Dr. Neale's *Digest* would probably unearth a good many such instances. Not to go further back than the period of the 2nd December, I would point out that this period was the case with Mr. Jamieson, and also with the baby reported by Mr. Hamilton. Is it unlikely that such diseases as variola, scarlatina, typhus, morbilli, and rubella (which are generally definite in their onset, and, when not modified, punctual in their stages,) exhibit a like definiteness and punctuality in their incubation period? And would it be too much a stretch of the imagination to look to our (as a rule) insidious, indefinite, and unpunctual friends, diphtheria and enteric fever, to show the greatest variations in the length of their incubation.

AN inquest has been held on Mr. Charles Richard Johnstone, resident surgeon at the Cheltenham dispensary, who, suffering from pains in the head, had been in the habit of taking chloral for relief, occasionally as much as ninety grains. One night he took two doses, and his wife afterwards discovered him taking something else, which he said was ether. Afterwards, deceased asked her to pray for him, and he died in a few minutes. Medical testimony showed that deceased had taken prussic acid. A verdict of suicide while in an unsound state of mind was returned.

THE TREATMENT OF SPINAL CURVATURE BY EXTENSION AND ARTICULAR MOTION.

By EDWARD L. FREER, M.R.C.S. Eng.,

Honorary Assistant-Surgeon, Birmingham Orthopaedic and Spinal Hospital.

Dr. M. J. ROBERTS of New York has contributed an article to the October number of the *New York Medical Journal* on the treatment of spondylitis by "elastic tension and articular motion," which is of great interest to all surgeons engaged in orthopaedic practice, inasmuch as a large proportion of their patients are the subjects of Pott's disease. He speaks of the non-uniformity in the principles of treatment as taught by Professor Lewis A. Sayre, who, as is well known, claims for the plaster-jacket that "it affords the means by which absolute rest is secured, motion of the parts diseased not being permitted to the slightest degree, so long as the apparatus is properly adjusted;" but, at the same time, advocates, in cases of cervical or upper dorsal curvature, the addition of the jury-mast, which cannot, by any possibility, afford this absolute rest. Dr. Roberts gives his experience of patients with cervical spondylitis, treated by him, first of all, with the ordinary jury-mast, and more recently, with modifications of it, with elastic webbing, instead of the leather straps for the head-sling, on the principle laid down by him of elastic tension and articular motion, and which treatment, he alleges, is followed by far better results than that of Dr. Sayre. He also describes an instrument by which, in cervical cases, the extension is carried out by a support from below, the occiput resting upon a sheet of iron shaped to the part and padded, the extension being made by a spiral spring and elastic bands on either side underneath, which are attached below to a fork-shaped bar of steel passing on either side of the neck, and fixed to a cuirass in a somewhat different way to Sayre's jury-mast. It allows of extension and free mobility, the support, however, being from below, instead of from above, as in Dr. Sayre's method.

This instrument must commend itself to surgeons for many reasons, not the least being that it renders the patient less an object of curiosity and ridicule. He concludes by saying that, "if speedy recovery without deformity and without ankylosis is a possible, nay, a probable result, of the early treatment of cervical spondylitis by elastic tension and articular motion, are not similar results to be obtained in all other parts of the spinal column by the application of the same mechanical principles?" During the last six years I have applied about 600 plaster-jackets, and my experience leads me to fully endorse Dr. Roberts's views. I would ask—Do we ever obtain that "perfect immobility," on which Dr. Sayre lays such stress? No surgeon can have failed to notice the ample space that is left between the cuirass and the body after the plaster has thoroughly dried, allowing free rotary movement. From this, I consider that the

only real advantage derivable from the plaster-jacket, is the fact that it supports the cone of the thorax, and having been applied during extension, separates the diseased surfaces, so allowing nature to pursue her curative efforts, the sources of irritation having been removed. With this idea in view, and having had many complaints, especially from private patients, of the irksomeness of the plaster-jacket, principally on the ground of cleanliness, I have devised the subjoined instrument, which consists of a pelvic band, similar to that of the

ordinary spinal instruments, with two lateral, and (in cases of Pott's disease) two posterior upright bars of steel, to allow space between them for the spinous processes, and jointed for extension; to these are rivetted above two thin pieces of truss-spring about three inches apart, encircling the body, hinged anteriorly six inches from the centre, and fastening in front with a small spring button at intervals of a quarter of an inch. To these lateral hoops is attached, by rivets, a band of India-rubber, graduating from half a line in thickness above to three-quarters of an inch below, as seen in the engraving, the whole being padded with washleather or other soft material, and perforated for lightness (in upper dorsal disease, a large perforation can be made corresponding to the prominent vertebra). This instrument has been made, under my direction, by Messrs. Mappin and Co., of New Street, Birmingham: and in the one case for which I have applied it I have been perfectly satisfied with the result obtained. It allows fairly free movement of the body below the point at which it grasps the thorax, and in no way interferes with the respiration. I may add that, since reading Dr. Roberts's paper, I have directed Messrs. Mappin to make a similar instrument, with a spiral spring placed in a socket in each of the uprights for the reception of the upper part of the instrument in lieu of the screw-joints, and which I have reason to hope will still further carry out the principle of "elastic tension and articular motion." The instrument engraved will be seen to have only one posterior upright, having been just completed for a case of lateral curvature (for which the principle is equally applicable); and, as it is for an adult, I considered, on account of its larger size, it would better explain the principles of mechanism; with this exception, it is the same as the one used for angular curvature.

ON TWO CASES OF SEVERE INJURY TO THE EYE.*

By W. J. CANT, L.R.C.P., M.R.C.S.

THE first case is where a man, sixteen years ago, when chipping brass, felt a piece strike his right eye. One of the fellow workmen examined it and thought he could see the piece deeply situated, but would not attempt its removal; he went home and applied cold water; his mother advising him to have nothing done to it, as if he did he would be sure to lose the other. He says the eye became intensely painful, followed by redness and swelling. He remained at home for about a month, at the end of which the pain and redness had diminished, but never completely left it; if he took the slightest cold all the old symptoms returned, and with each attack the sight became more impaired, and at last it became quite blind. On one occasion the left eye also became affected, but recovered. About a month ago I saw him for the first time, suffering, as he said, from one of his old attacks of inflammation of the eye; on examination, there were marked ciliary congestion, commencing iritis, cataract and great tenderness on the slightest touch. By focal illumination I imagined I could see a minute foreign body entangled in the iris at the upper part, and a slight scar just above the centre of the corneas tended to make it more probable. After keeping him in a dark room for four days, and the application of leeches and cold lotion, it was thought safe to attempt the removal of the foreign body. I made an iridectomy in the upper segment and put in the forceps to remove the piece of brass, but found it impossible to do so, without force. Having taken hold of it crossways, then removing the forceps and applying them in a different direction, a large piece of brass three-sixteenths of an inch long was drawn out; the lens and its capsule were then extracted, when the anterior chamber became filled with floating glistening particles of cholesterol. Slight iritis followed, but gradually all inflammatory symptoms cleared up, and he is now with the injured eye able to see his way about easily. There is no pain on touching the eye at any part.

The points of interest in the case are:—

1. The length of time a large piece of irritating substance like brass can remain in the lens and iris without destroying the eye or producing sympathetic ophthalmia:

2. The fair amount of vision that is maintained, although the eye was more or less inflamed for over sixteen years.

The second case was where a man, between sixteen and seventeen months ago, received a splash of molten metal in his eye, passing principally under the upper lid, and causing severe damage to the cornea and conjunctiva. When first seen, it was a question whether the eye could be saved; however, under prolonged antiphlogistic treatment, the inflammation subsided, leaving nearly the whole

cornea covered with a dense leucoma, and the upper lid, for about the middle third, closely united to the eyeball.

The eye in that condition being useless, it became necessary to do something to relieve the symblepharon. Some months after the injury, all irritation having subsided, the eyelid was freely separated from the eyeball, and the conjunctiva dissected up for some distance on either side, and brought together by means of fine black silk sutures, as high under the lid as possible. A cold-water pad was applied for three days, when the conjunctiva was found to have united, and the stitches were removed.

A small piece of skin was taken from the upper lid to counteract the drooping that had been caused by the constant dragging. Afterwards, an iridectomy was performed downwards and inwards, so as to utilise the small amount of transparent cornea that remained. The patient has now perfectly free movement of the upper lid, and can see to read with the injured eye.

ILLUMINATION OF INTERNAL CAVITIES BY MEANS OF THE ELECTRIC LIGHT.

By THOMAS OLIVER, M.D., M.R.C.P.,
Physician to the Infirmary, Newcastle-upon-Tyne, and
J. B. PAYNE, F.R.M.S.,
Newcastle-upon-Tyne.

AT the last meeting of the Northumberland and Durham Medical Society I exhibited Mr. Payne's improved electric light appliances, and showed how some of them might be utilised for microscopical and clinical purposes. For the past few months I have been engaged with Mr. Payne in suggesting adaptations of these instruments to the purposes just alluded to. Remembering that Sir Henry Thompson, more than a year ago, explored the bladder by means of the electric light, and that Leitz, of Vienna, is devising instruments for illuminating the throat, posterior nares, bladder, uterus, etc., Mr. Payne made an instrument by means of which the throat could be examined. Having at the present time a patient in the infirmary who is suffering from hydatid disease of the liver—on whom the operation of abdominal section with incision of the liver had been performed—giving exit to about seven pints and a half of pus, I took advantage of the opportunity, and succeeded in lighting up the interior of the cyst by means of the electric light. For this purpose Mr. Payne devised and constructed a brass tube, electro-plated, nine and a half inches in length, and eleven-sixteenths of an inch in diameter externally. One end of this tube was funnel-shaped, and the other was closed by a piece of glass; down this tube was inserted a narrow cylinder, which carried a Swan's lamp and the electric wires. This tube, with its glazed extremity, was smeared with carbollised-oil, although, in future, I shall use carbollised glycerine for the window of the tube, and, with gentle pressure, I succeeded in passing it through the abdominal incision into the interior of the liver. The lamp was at once lit, and I had the pleasure of observing a greyish red condition of the wall of the cyst, studded across which were numerous yellow-white spots, evidently pus; a slight oozing, or sweating, was also noticed on the wall of the cavity. The illumination of the interior of the liver by means of the electric light was in every way satisfactory and successful; and, although it is of little aid in the treatment of the case in question, it has shown us that the lighting up of internal cavities is not only a possibility, but a matter of comparative ease. With the extremely small size of the Swan's lamp required (it is not much larger than an ordinary bean), and which gives a light equivalent to that from three candles, and with the improved instruments which Mr. Payne is devising, I see how the electric light might become useful in operations for vesico-vaginal, or recto-vaginal, fistula, and in certain diseases of the bladder. Before making use of this illuminating endoscope on the human subject, I tried its effects in a dark chamber; I read, with ease, a piece of print placed therein.

MR. PAYNE'S REPORT.—Leiter's arrangement contains an electric lamp in which platinum wire is heated by means of battery power, and rendered incandescent. The arrangement I made is of much simpler construction, gives a perfectly pure light, and develops less heat. It consists of an electro-plated outer tube nine inches and a half long, by eleven-sixteenths inch external diameter; glazed at one end with a stout piece of plate glass made perfectly secure and tight.

A Swan's electric lamp is used—the filament of which is carbon, and rendered incandescent by means of battery power. It is hermetically sealed in a glass shade; and water, conveyed to and fro through very small brass tubes, is made to circulate round the lamp. The light from this lamp is perfectly pure, and exhibits the conditions of things in their true and natural colour. For prolonged

* Read before the Midland Branch.