rare indeed to see the bold flat-headed pustule in the hæmorrhagic small-pox. In the case above related, on the eleventh day the eruption was still in the vesicular stage.

The patients emit a peculiar foetid odour, very different indeed from the characteristic smell of ordinary small-pox: it conveys the impression of putridity, and is consequently more disgusting.

T. I. had only slight delirium, which did not come on until within thirty-six hours of his death; and this will be found to be the history of a large proportion of the hæmorrhagic cases. Delirium as a rule does not occur at so early a stage of the disease, and is not so violent in its character, as in ordinary small-pox; and is usually the immediate precursor of a fatal result.

Patients take nourishment freely during the whole course of the disease, if we except those cases where, in the earlier stages, there is much swelling of the fauces and consequently difficulty of swallowing.

The temperature and the pulse, and I may add the respiration, do not seem to bear any fixed ratio to one another, but in almost every case vary to a great extent. As a guide to prognosis, most reliance is to be placed on the indications shown by the last named—namely, the respiration. In this individual, the temperature ranged high for a hæmorrhagic case; but, as usually happens, death was preceded by a decrease. In small-pox, 105.6 deg. may be taken as the limit of safety; but we have had many cases of fatal hæmorrhagic small-pox where the temperature at any stage after the appearance of the eruption has never exceeded 102 deg. As we never get any patients in the hospital till after the appearance of the eruption, I can only speak as to the subsequent stages. The range of temperature in hæmorrhagic cases is decidedly lower than in regular unmodified small-pox. In this form of the disease, the use of the thermometer as a help towards prognosis becomes of secondary importance, as we have other and visible symptoms which are to be relied upon. As mentioned above, the respiration is a safer guide to prognosis than either the temperature or the pulse; and this, in my opinion, applies to every form of small-pox. A steady increase from day to day in the number of the respirations is a most unfavourable sign.

The *post mortem* appearances found are those characteristic of the hæmorrhagic form of variola, if we except the old standing pleurisy. We have the ecchymosis extending to the serous surfaces; we have the engorgement of the lungs—in most instances, the immediate cause of death. The kidneys merely showed venous congestion; but, in other autopsies of similar cases, clots have been found in the pelvis of one or both kidneys. In this case, the bowels were examined; but, owing to the quantity of iron taken, were so discoloured that no opinion could be given on their state.

And now, lastly—and I am afraid with truth it may be said leastly—comes the treatment, which with T. I. was what for some time has been usual in this hospital—namely, small doses of tincture of sesquichloride of iron, and a free administration of ice and bland nutritive fluids. The iron seems in some degree to control the hæmorrhage, and acts as a general tonic. Whether it permanently affects the issue, is more difficult to say. But one thing to be learnt is, if we can do no good, let us avoid doing harm; and I believe that the administration of stimulants in variola hæmorrhagica does positive injury. The capillaries are evidently in such a state that the slightest pressure, either from external or internal sources, causes their disruption. If the heart's action be stimulated, the weakened capillaries of the lung give way, reducing that organ to a pulpy mass, rendering it totally unfit to perform its function, and hurrying on the fatal result, which in any case, perhaps, is inevitable. Although not believing stimulants to be so injurious in other forms as in the hæmorrhagic, I take this opportunity of entering a protest against their indiscriminate use in small-pox. In this disease, the dermatitis plays a more important part than that with which it is sometimes credited. The most common and fatal complications are those which occur with any extensive inflammation of the skin, such as scalds and burns; and I cannot but believe that stimulation will hasten the advent of congestion of internal and vital organs—a result much to be dreaded.

EXPERIMENTS ON SANTONIN.

By ROBERT FARQUHARSON, M.D. Edin.,
Late Medical Officer to Rugby School, etc.

THE subject of santonin is both interesting and obscure, and I should be glad of permission to add my experience to the interesting remarks published by Dr. David Page in the BRITISH MEDICAL JOURNAL for September 16th.

About two years ago I was consulted in the case of a little boy on

whom a great variety of treatment had been unsuccessfully applied for the removal of thread-worms. Five grains of santonin were ordered at bedtime; and on my next visit I found the whole establishment in consternation at the effect of the remedy, which had caused a very copious and involuntary discharge of urine towards early morning. Such an accident was naturally most distressing to a boy of twelve, and pupil in a large private school; and more particularly so, as no consolation was afforded by any beneficial action on the disease for which the drug was prescribed.

Shortly afterwards I instituted a series of experiments on myself, and briefly append the results under the following heads.

1. *Effect on Vision.*—Twenty minutes after swallowing five grains, I observed flames to assume a decidedly yellow colour, as though spirits were being burnt. Ordinary white gas globes became deeply tinted with yellowish green, and writing-paper presented the same phenomena in somewhat less marked degree. During three hours the tints gradually increased, after which they faded by slow stages, until vision was restored to its normal standard.

The precise conditions under which these singular results take place, and the exact alterations of colour observed, have been submitted to most exhaustive study by a German physiologist, whose name I cannot now recall. *Post mortem* examination proves that a true staining of the retina is rapidly produced, but it is not probable that this can be detected during life by the ophthalmoscope. This opinion I base on the authority of an eminent oculist, and on the fact that, in the somewhat parallel group of cases where yellow vision attends jaundice, I have been unable to discover any unnatural appearance on careful inspection of the fundus of the eye.

2. *Effects on the Urinary Organs.*—Five grains were taken at bedtime, and next morning an irresistible and almost uncontrollable desire to micturate was felt, the act being attended with some irritation and smarting. The urine was of a deep saffron yellow, staining the pot and linen precisely as bile. It was of specific gravity 1.028. The quantity was decidedly increased, and the urea was somewhat in excess. The diuretic action continued during the day; and it was not until 8 o'clock P.M. that the secretion was quite free from foreign pigment.

3. *Effects on the Digestive Organs, and General Symptoms.*—Nausea and dryness of tongue were generally present; and on one occasion, after a ten-grain dose, well-marked tenesmus was experienced both by myself and by a friend who shared the experiment. After five grains, sleep was generally disturbed, and I usually woke unrefreshed, with sickness, frontal headache, and deficient appetite. But the best marked symptom, and one which I have not hitherto seen described, was a feeling of profound and most unusual depression, accompanied by so much irresolution and want of confidence in my own powers, as to render me quite unfit for work of any kind. This invariably followed even a single five-grain dose; and, beginning with dulness and heaviness, ran on into very much that sort of melancholia which I imagine jaundice sometimes produces. This denotes an effect on the nervous system which ought not to be overlooked; and, should further investigation prove its occurrence to be constant, and not to depend on any peculiar idiosyncrasy of my own, we may yet find in santonin an agent of some value in the almost unexplored regions of mental therapeutics.

SULPHATE OF IRON AS A LOCAL APPLICATION IN PHLEGMASIA DOLENS.*

By R. W. CRIGHTON, M.D.,
Physician to the Tavistock Dispensary.

I WAS first induced many years ago to employ this remedy in phlegmasia dolens, chiefly on the recommendation of Velpeau, who reported great success from its use in cases of erysipelas. Every one who has seen much of phlegmasia dolens, especially that form of it in which the pain and swelling commence at the calf of the leg and extend upwards to the groin, knows the tedious and painful course of such cases, and their not rarely fatal termination. Believing that the treatment which I now recommend is much more effectual than that usually employed—viz., leeching and ordinary hot fomentations—I venture to ask those who may not have previously used it in these circumstances to give it a fair trial.

In recent cases, it is best employed in the form of lotion (twenty to thirty grains to an ounce of water), applied as hot as the patient can comfortably bear it. Much trouble is avoided, and the constant

* Read in the Midwifery Section at the Annual Meeting of the British Medical Association in Plymouth, August 1871.

saturation of the skin with the lotion secured, by using spongio-piline, fastened loosely by tapes round the limb.

All the cases which I have so treated—five or six in number—have made good and rapid recoveries; and in one only, which was not seen for several days after the disease commenced, was there any great amount of hardness left in the superficial venous trunks at the end of ten or twelve days. In this case, the application of equal parts of belladonna and iodide of potassium ointments was effectual in dispersing it. In all the cases, after the bowels had been freely acted on, the muriated tincture of iron, either alone or combined with quinine, was given internally.

The rapid introduction of waste material into the blood during the puerperal state affords, I believe, some explanation of the action of sulphate of iron externally, and of the muriated tincture internally, in cases of phlegmasia dolens.

Arnott (*Med.-Chir. Trans.*, vol. xv, "On the Effects of Inflammation on Veins") has shown that, in inflammation of veins, the changes begin in the connective tissue towards the *outer part* of the vessel; and this even when irritant bodies are introduced into the cavity of the vein itself. The application, therefore, to the immediate proximity of the coats of an inflamed vein, which it cannot fail to reach either by absorption or imbibition, of an agent which is known to control vascular dilatation in erysipelas and other allied forms of inflammation, seems a rational method of treatment; while the antiseptic effects of the remedies, both external and internal, are doubtless of great importance.

Whatever the true explanation may be, I venture to hope that the use of sulphate of iron locally in phlegmasia dolens, and possibly in other cases of phlebitis, may prove a valuable addition to the means of treatment at present employed in these affections.*

SHOULD EVISCERATION EVER BE PERFORMED IN ARM-PRESENTATIONS?

By F. W. WRIGHT, Esq., Derby,
Late Surgeon to the Birmingham Lying-in Hospital.

DECAPITATION *versus* evisceration in arm-presentations is a subject not without either interest or importance. Churchill says that, should ordinary measures fail "and version be impracticable, we must open the chest of the child and eviscerate;" and Dr. Collins condemns decapitation. Dr. Barnes, it would appear, gives the preference to evisceration; for he says that—"Sometimes perforation and evisceration are insufficient in themselves, and another step will be necessary in order to complete delivery. This ultimate step is decapitation." On the other hand, Dr. Davis makes this important statement: "It ought to be an established rule in practice, to decapitate in arm-presentations not admitting of the safer performance of turning." Perforation and picking out the viscera of the foetus is an operation so complicated and prolonged, and so abominable in detail, that it is matter of surprise how it comes to be advocated as preferable to the much more simple, much less disgusting, and much speedier operation of decapitation.

I propose the following as a simple and ready method of bisecting the foetus *in utero* in an arm-presentation, in which, from early evacuation of the liquor amnii, version is impracticable. The presenting member is to be seized with the right hand, and, while considerable traction is employed, the left hand is to be passed into the vagina as far as the shoulder-joint of the presenting arm, and thence to the neck of the foetus. The exact position of the neck having been determined, the left hand must be kept firmly upon it. A blunt hook, with a curve sufficiently large to embrace the neck, and having a perforation at the extremity of the curve, is armed with a piece of tape, and taken in the right hand; and the left hand being still in the vagina as a guide, the hook is passed over the neck and made thoroughly to embrace it, the tape which it carries being seized on the opposite side. The neck being now secured, to the end of the tape should be tied a leash of about a dozen very thin wires a yard long, twisted together at the ends. By pulling at the tape it will be drawn out of the vagina, and the wires attached to it will be drawn over the child's neck. By pulling these wires backwards and forwards with a saw-like motion, the head may be cut off in five seconds. The body may now be extracted by the

protruding arm; or if, as has happened to myself, it have been necessary to amputate the arm at the shoulder-joint to give room, the body may be readily removed by the crotchet hooked over the clavicle or one of the ribs. The head has now to be removed, and obstetricians are eloquent upon the difficulties which this part of the operation presents. But what can be more simple if the rule be observed, *decapitate close to the shoulders*? The head should then be firmly fixed on the pelvic brim by pressure on the abdomen from the hands of an assistant. A pair of strong forceps, somewhat resembling craniotomy-forceps, but with horrent teeth on the inner aspect of both blades, should then be made to seize the whole length of the neck which remains attached to the head, and traction made upon it until the head escape. I am confident that those who adopt this method will never again have recourse to evisceration.

CASE OF RUPTURE OF THE UTERUS.

By GEORGE CLEMENTS, Esq.,
Senior Surgeon to the Chorlton Union Hospital, Manchester.

E. E., aged 38, married, was admitted on August 25th, 1870. The patient, who was much emaciated, was in a state of extreme exhaustion, almost approaching collapse; the surface of the body being cold and clammy. The tongue was dry and parched; the lips and teeth densely covered with black sordes. The countenance was pale and haggard; while the expression revealed the fact that she was suffering intense pain. The pulse was small, rapid, and feeble; the respiration being hurried, difficult, and almost entirely thoracic. She complained of constant unceasing pain all over her belly; and, on inspection, the abdomen was found extremely distended. The tenderness, on the least pressure being applied to any part of the abdominal wall, was excruciating; and so great was the suffering thereby caused, that the patient refused to allow further examination to be made. It was ascertained, however, that the greatest pain existed in the left iliac fossa. There were tympanitis, and constant vomiting of dark greenish fluid. She was only comparatively easy when on her back, with her knees well drawn up.

On a vaginal examination being made, a very copious discharge of a thick, grumous, offensive character, was found freely escaping from the vagina. The os uteri was firmly contracted and closed, so that no presentation could be detected. The stethoscope was applied over the region of the womb, but neither foetal heart nor placental *bruit* could be heard. The patient could not pass urine without the aid of the catheter, and her stools came involuntarily under her.

She was the mother of four children, and stated that her confinements had been in every way natural, and unattended by difficulties. The circumstances connected with her domestic life had necessitated her working very hard to maintain her family, and this she did by taking in washing. But, after all, she had been living on in a wretched state of poverty and dirt, half starved and over-worked.

A day or two previously to her admission, and within a short period of the time when she expected to be confined, when lifting a heavy bucket of water, she felt of a sudden intense pain in the left side of her abdomen; it was much increased by her standing on a chair, and attempting to hang up the garments to dry. From this time, she took to her bed.

There is no evidence to prove that labour had commenced, for she stated, on admission, she had experienced "no pains" previously to her sudden illness; and the condition of the os uteri testified to the same fact. The rupture must therefore, in all probability, have taken place while she was lifting the heavy bucket, when she first complained of the intense pain. She remained at home three days; when, finding herself worse in every way, she came to Hospital.

Her condition, on admission, I have attempted to describe above; and it only remains for me to add that, during the seven days she survived, all the symptoms before enumerated became more and more exaggerated. The vomiting was relieved from time to time by the administration of bismuth and similar remedies, but opium was the chief agent employed to deaden, to some extent at least, the frightful agony she was suffering. She took it in various forms, but I think the subcutaneous injection of morphia gave her the most relief. The fact that labour had never commenced, and the knowledge that the child had been three days in the peritoneal cavity before her admission, together with the existence of active general peritonitis in a feeble exhausted subject, rendered all obstetric interference quite out of the question.

The necropsy was performed the day after the death of the patient, and the following are extracts from the notes taken on that occasion. The body was much emaciated and ill-nourished. The abdomen was extremely distended and tympanitic. There were scattered tubercles in

* As an illustration of the efficacy of a remedy applied externally, may be mentioned that of a strong infusion of digitalis in ascites. Dr. Christison (*Monthly Journal of Medicine*, October 1850) gives several cases where the drug so applied to the abdomen completely removed the dropsy, after the same remedy with many others had failed when given internally. He also found it useful when applied to the limbs in cases of dropsy in Bright's disease. I have frequently used a strong infusion of digitalis (one ounce of powdered leaves to twenty ounces of boiling water) in similar cases, externally, with remarkably good results.