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.,
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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.,
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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.