but, through the puncture over the ascending colon, no gas escaped—to be accounted for, I think, by the fact that the colon was emptied, and, not offering sufficient resistance to the trocar, was pushed in front of it. The abdomen was very considerably diminished in size; the patient expressed herself as being much relieved, and appeared grateful for this diminution of her sufferings. The immediate object—viz., relief—was obtained; and I think that, had this simple and painless operation been performed earlier, it would certainly not, to say the least, have had any prejudicial influence on the case. The patient became more exhausted, and sank next morning. No *post mortem* examination could be obtained.

As far as I can ascertain, abdominal puncture for the relief of tympanites has been performed in five other cases, to which I would briefly draw your attention. The first case is the one already referred to, which occurred in the Leeds Infirmary. Mr. Teale punctured the colon in the transverse and descending portions with the best results as regards the intestinal mischief; the obstruction being completely overcome, and the patient, who had not passed either flatus or motion for many days, freely voided both. Unfortunately, the patient was also suffering from secondary double pneumonia, to which he eventually succumbed. At the autopsy, "no traces of the punctures could be detected, except upon the outside of the body; no air had escaped into the peritoneal cavity". The second case is one recorded by Dr. Davey of North-woods, Bristol, in the *JOURNAL* for August 21st, 1870. The patient was a little girl aged nine years, whose abdomen was punctured by Mr. Salmon of Thornbury, for an intense tympanites, accompanying tubercular peritonitis. The patient lived twelve days after the puncture, which, Mr. Salmon states, "gave great relief, and tended much to mitigate her sufferings, previously to which the difficulty of breathing had been most distressing." The *post mortem* examination showed that the puncture had in no way hastened the end.

Dr. Davey refers to two cases of intestinal puncture performed under the advice of Dr. Fossagrives of Toulouse. In the first case, the patient "was perfectly cyanosed and suffocating; an exploring trocar was inserted into the most distended part of the lower umbilical region. Two fresh punctures were made next day, and gave so much relief that the patient's life was prolonged four days". In the second case, six punctures were successively made and the patient cured.

The last case to which I have to refer is one that occurred in the practice of my friend, Staff-Surgeon J. R. Thomas, while on the West Coast of Africa. The patient, an American, was suffering from chronic dysentery, accompanied with gradually increasing tympanites, until he became so much distended as to implore for relief by any means possible. Puncture of the transverse and ascending colon was practised with the best result; but, unfortunately, a few days afterwards the patient, who had been up and about, went in for a heavy debauch, had a relapse, and eventually succumbed.

You are all no doubt well aware that puncture of the intestine has long been practised on the lower animals. The manner in which the operation is usually demanded is thus. A herd of cattle is turned into rich clover or grass; some of them, unless great care be taken, become gorged on the luscious vegetation; rapid fermentation takes place, which results in great distension by gas; the animal drops, and, unless relief be promptly afforded, soon dies.

The treatment is simple, and well known to most graziers. A puncture is made into the most prominent point in the flank with any sharp instrument at hand—generally a pocket-penknife. I have just been informed by a most intelligent farmer that he has repeatedly performed the operation, always with the best results, never having lost a case. In the case of one calf he has punctured as many as twelve or fourteen times, and has occasionally done it with an ordinary butcher's-knife.

I must confess that the results obtained in the lower animals are more favourable than those in the six cases I have quoted as happening in the human subject; but one must recollect that puncture has only been resorted to after all other means have failed, thereby losing much valuable time, and generally in those cases having a fatal tendency. On reviewing the evidence afforded by *post mortem* examination, I cannot conceive any real objection that can be urged against the operation, as not a trace even of the punctures could be detected in some of the cases, and in none had there been anything found which would contraindicate it. When I picture to myself the immense distress and suffering present in an intensely tympanitic patient, whatever may be its cause, and then recall to mind the ease and quiet, if not anything more, which we are enabled to afford our patient by what I am bound to describe as a simple, harmless, and painless operation, I feel drawn to the conclusion that it is a proceeding not only justifiable, but urgently demanded at our hands.

If this paper be the means of obtaining a more extended trial of the operation, my object in reading it will be entirely gained.

CASE OF HÆMORRHAGIC SMALL-POX: WITH CLINICAL REMARKS.

By ROBERT GRIEVE, M.D., Medical Superintendent of the Hampstead Hospital.

THE following notes of the case were made by Mr. Bland, Assistant Medical Officer.

T. I., aged 27, a cabman, was admitted to the Hospital late on the evening of the 9th of October. He had two vaccination-marks. He had been ill for six days. The eruption was copious and in the papular stage, and of a dark purple hue.

October 10th. In the morning, he had severe epistaxis and hæmoptysis. His tongue was dry and brown; his bowels were confined. He had passed a good night. He took very little food. Pulse 120; temp. 105 deg. He was ordered to have ten minims of tincture of sesquichloride of iron in half-an-ounce of water every four hours; with ice, beef-tea, and milk *ad libitum*.

October 11th. He had now epistaxis, hæmoptysis, melæna, and hæmaturia. There was great ecchymosis of the eyelids and effusion of dark-coloured blood beneath the ocular conjunctiva. He took food more freely. His breathing was laboured. Pulse 130; temp. 105 deg.; respirations 28.

October 12th. The hæmorrhages continued. There was ecchymosis of the whole of the skin. The patient was much worse. Pulse 128; temp. 105 degs.; respirations 28.

October 13th. He had had slight delirium all night. He took large quantities of milk and beef-tea. Pulse 104; temp. 104 degs.; respiration feeble. At 3 P.M. he became quite unconscious, and continued in this state until his death, which took place at 9.20 A.M. on the 14th.

Post mortem examination thirty hours after death. The body was well developed and nourished. Rigor mortis was well marked. The eruption was confluent on the face, copious on the trunk and extremities. It was in the vesicular stage; the contents of the vesicles on the abdomen and lower extremities were purple, the areola not fading on pressure. The left pleura was adherent throughout with old adhesions; the right was much injected and ecchymosed, but there was no lymph or effusion. The right lung was dark and heavy, breaking down easily. Much black blood could be squeezed out, but there was no consolidation. Through the substance of the left lung were scattered masses varying in size from a bean to a walnut, which were red, solid, and granular, and sank in water. This lung was otherwise in the same state as the right. The left ventricle was moderately firmly contracted. The valves and orifices were healthy. The pericardium had a few spots of ecchymosis. The liver was softer and paler than natural. The spleen was dark and moderately firm. The kidneys had slight venous congestion.

One of the most noteworthy features in connection with the small-pox epidemic of 1870 and 1871 has been the large proportion of cases of the hæmorrhagic type which have occurred. In the Hampstead Hospital alone, over 400 instances of this form of the disease have been under notice since the 1st of December, 1870. Unfortunately, recovery from variola hæmorrhagica when well marked is rare indeed, and a specific for this terrible disorder has still to be found. Vaccination does not prove a preventive; the majority of the cases here had marks of some kind of previous vaccination. Certain occupations predispose to this type of the disease; thus, amongst males, engine-drivers and stokers, and in females, cooks and kitchenmaids, and others exposed to great heats, suffer severely. Above all these causes is to be placed a dissipated or irregular mode of life. Hæmorrhagic small-pox is very rare in childhood; but occasional instances are to be met with.

There is great variety both in the extent of the subcuticular effusions and also in the amount or seat of the active hæmorrhages. Sometimes the effusions are limited to small purpuric spots situated principally on the trunk and lower extremities; sometimes there are huge patches of ecchymosis here and there over the entire surface, as in the case of T. I.; but one symptom, which is almost constant enough to be called invariable, is the effusion under the conjunctiva, which is sometimes so great as to cause the membranes to bulge out, making the cornea seem a depression instead of an elevation, and giving a peculiar and characteristic look to the patient. Among the hæmorrhages, bleeding from the buccal mucous membrane is the most constant, except in women, when vaginal hæmorrhage is invariable. Then comes epistaxis; much more rarely hæmaturia; and, most rare of all, bleeding from the bowels. The case narrated above presents the peculiarity of having concurrently all these forms of hæmorrhage. The eruption appears and goes through the different stages more slowly than in ordinary small-pox. It rarely reaches the pustular form, and the vesicles are filled with bloody serum in place of the usual secretion. It is very

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.