ERYTHEMATOUS RASH DUE TO BORIC ACID.

By HENRY HANDFORD, M.D., F.R.C.P.,
Physician to the General Hospital, Nottingham.

MUCH attention is being devoted at the present time to the effects of boric or boracic acid, and the opinions expressed by capable observers vary exceedingly. The following case, therefore, may be of some value, although the fact that the ingestion of boric acid is liable to produce a skin rash is already well known.

On April 18th, G. B., aged 47, a coal miner, of Clay Cross, was admitted into the Nottingham General Hospital under my care with dilatation of the stomach. He had suffered from dyspeptic symptoms for three years, but vomiting only began fourteen months before admission. He had lost flesh and strength considerably, and been unable to work for some time. For three months and a half before admission the stomach had been washed out frequently, but without much benefit.

A non-malignant stricture of the pylorus was diagnosed; but before advising surgical treatment it was determined to give a further trial to washing out the stomach with some suitable antiseptic, as the previous washing out had been mainly carried out by the patient himself, although under medical advice. There are not a great number of efficient antiseptics which can safely be used in large amount for this purpose; and boric acid lotion 1 in 60 was selected as the most suitable. The stomach would hold $4\frac{1}{2}$ pints of fluid before the patient felt uncomfortably distended; but much less than this quantity was used for each washing out. The stomach was first emptied of its contents by a tube as far as possible. Then about $2\frac{1}{2}$ pints of warm boric acid solution were introduced, allowed to remain two or three minutes, and returned by the siphon action of the tube. This was repeated two or three times until the fluid returned nearly clear, and the stomach was left as nearly empty as is possible under these conditions.

The washing out was continued from April 19th to April 25th, on which day an erythematous rash appeared upon the face and back. The skin was reddened, swollen, and thickened in broad patches, and there was much itching. Plain water was substituted for boric acid solution for washing out the stomach, and the rash disappeared in two days. From April 27th to April 30th boric acid solution of a strength of 1 in 200 was used. On the morning of April 29th there was a little redness on the elbows, and by April 30th the erythema had spread to the back of the neck, eyelids, lower part of the back, and thighs. The use of boric acid was stopped, and the rash entirely disappeared by the morning of May 3rd.

The patient stated that he had not before suffered from a similar, or indeed any, rash, although the stomach had been washed out frequently for three months and a half previously, but without the employment of boric acid. He was kept under observation for another week without the recurrence of the erythema, and then transferred to the surgical wards on May 10th.

On the following day the abdomen was opened by my surgical colleague, Mr. Anderson. The pylorus was found to be greatly thickened and somewhat fixed by adhesions, but there was no definite tumour. The operation of pyloroplasty was performed and the stricture completely relieved. The patient made an uninterrupted recovery and rapidly regained weight. He is now (November 15th, 1900) in good health and working regularly as a miner.

A CASE OF ACUTE (TRAUMATIC) TETANUS SUCCESSFULLY TREATED WITH ANTITETANUS SERUM.

By SYDNEY H. LONG, M.B.CANTAB.,
Physician to the Norfolk and Norwich Hospital.

IN the investigation of the treatment of disease the evidence of the clinician must ever receive weighty consideration at the hands of the pathologist, whether the results of the former are in accord or are at variance with those of the

latter. The experimental investigator in the laboratory of the present day is continually pointing a fresh finger of direction to the physician, but as often as not leaves it to the latter to determine whether the road is a direct one, whether there may not possibly be an alternative route, and what obstacles retarding progress are likely to be met with on the journey.

Empiricism with drugs in the treatment of many acute diseases is slowly but surely being replaced by the more rational and scientific method based upon the study of serum-therapeutics, and no better example of this can be found than in the modern method of treating tetanus. According to the more or less generally accepted view as regards the pathology of this disease, the poison, manufactured at the seat of inoculation, has a selective affinity for the cells of the nervous system, this affinity being greater for the spinal cord than for the brain; that the poison becomes "fixed" in the nerve cells; that the cells of the nervous system have, according to laboratory experiments, a much greater affinity for the tetanic toxin than they have for the antitoxin; and that, although the latter will confer a certain immunity if injected hypodermically before the disease has developed, yet it has of late been held that, if given in this manner, it has little or no power of neutralising the effects of the toxin when once symptoms have appeared. This, I take it, is the *rationale* of the intracerebral treatment of the disease.

If such is the correct view of the action of the poison and its antidote in tetanus, then, for obvious reasons, the limits of the application of the remedy must be restricted, and the value of the discovery of the latter diminished. Having carefully watched the records of cases of acute tetanus treated with antitoxin published during the last few years, I have been struck by the comparative smallness of the dose that has been given in nearly all cases; and I have, rightly or wrongly, concluded that herein in part lay the cause of the continued high mortality in this disease. The price of the serum, hitherto high, has probably been a factor in determining the dose up to the present time. Having never seen any really serious ill effects to follow the administration of the other serums, though I have occasionally given them in considerably larger doses than are usually prescribed—I speak more especially with reference to the antidiphtherial and antistreptococcic serums—I determined, when opportunity next offered, to give the antitetanus serum what I considered a fair trial, before resorting to the intracerebral method of administering it. Such an opportunity presented itself to me this year, and the following is an account of the case:

History of Injury.—On January 25th, 1900, W. Q., a lad aged 13, was admitted into the Norfolk and Norwich Hospital under my care with the following history: Five days previously (January 20th), when putting on his boots, the big toe of the right foot unexpectedly came into contact with three sharp protruding nails at the end of the boot. In his wrathful endeavour to extricate the foot, the plantar surface of the big toe received three punctured wounds from the nails, and he immediately threw the boot away, so that I never had a chance of examining it. On the following day the toe was "red, inflamed, and painful," so that he could not walk; it was poulticed, and in three days was healed. On the next day he felt seedy, had slight headache, and disinclination for food. On January 23rd, that is, the fourth day after the injury, he first felt pain in his limbs. This was brought to his notice very suddenly when out walking, for on starting to run he suddenly "felt his legs go stiff," and he fell to the ground. From this time until admission (two days later) the pains in the legs continued and increased in severity, and spread up to the lower part of the back, making walking almost impossible. During these two days also he had involuntarily bitten his tongue on several occasions.

Previous History.—He had enjoyed very good health up to the onset of the present illness. No history of any other injury could be elicited. He had never suffered from fits.

Condition on Admission.—He was a well-nourished, healthy-looking boy. He preferred to lie in bed on his side. The head was retracted, the back arched, and legs semiflexed. The expression was one of pain and immobility; risus sardonicus was well marked. The jaws were fixed in close position, but the mouth could be opened about half an inch. There was no difficulty in protruding the tongue, which had been recently bitten in several places. The fingers of both hands were kept flexed, but could be extended on volitional effort. The abdominal muscles were contracted, very hard, and tender to the slightest pressure. He could rise to the sitting posture only with great difficulty, and the effort caused him great pain in the back. With assistance, he could manage to stand, and it was then seen that the back and neck muscles were firmly contracted, the head being retracted and the back arched. On attempting to walk the legs were moved as a whole, the soles of the feet being dragged along the ground. There was no "play" in any of the joints. On the plantar surface of the right big toe were three dry punctured wounds. There was no sign of pus in or around these. The superficial and deep reflexes were exaggerated; ankle clonus and rectus clonus were obtained on both sides. The temper-