same. At 6 p.m. his temperature had gone up to 101°; the abdomen was more distended and tender, and rigid over the lower part. Turpentine stupes were ordered, and at 8 p.m. he seemed much relieved.

The next morning (February 8th) the temperature was 99°, and the abdominal symptoms less marked, but by now a hard substance could be felt in the left iliac fossa, and also a similar mass but not so large in the right iliac fossa. The stools were nothing unusual, tongue slightly furred. At 6 p.m. his temperature was 100°, pulse 132, respirations 20, and the abdomen was again distended, and rigid over the lower part and very tender. Turpentine stupes were ordered every four hours.

February 9th. The patient's temperature this morning is normal, but his pulse is 120, the abdomen is much less distended but still rigid over the lower part, bowels open twice during the night, but nothing unusual detected. A hard mass can still be felt on the left side of the lower part of the abdomen.

February 10th. The patient is much the same, bowels open, a hard mass can still be felt in the left iliac fossa. Calomel gr. vi ordered.

February 13th. The patient is much the same, no change.

February 15th. The patient still remains about the same. The stools are now offensive, liquid, and of a dirty brownish colour, and very acid in reaction. The abdomen is a little distended and rigid, and somewhat tender. Mass still felt on left side.

February 18th. The patient is worse, very weak. He has now incontinence of urine and faeces.

February 21st. The patient is sinking, pulse is extremely weak. Incontinence, very emaciated. Sordes on lips and teeth. He has a peculiar brownish mottling of the abdomen, and a very curious but not unpleasant odour emanates from the surface of the body. The hard mass (? foreign body) can still be felt in the right iliac fossa.

February 22nd. The patient is rapidly sinking; the temperature is subnormal. He passed a shirt-button with a small piece of shirt attached late last night. The button was quite black, and had evidently been in the intestines some time. Still has incontinence, and the mottling is now general over the body and limbs. He died at 2.30 p.m.

At the *post-mortem* examination (February 24th) there was marked chronic pelvic peritonitis. The lower portions of the intestines were absolutely matted together. There was marked congestion of the jejunum and ileum, and also of the large intestines; but there was no ulceration and, moreover, no perforation.

On opening the intestines, the following is a list of some of the articles removed:

20 pieces of linen, ranging in size from 11 in. by 3½ in. to 1 in. by 1½ in.

14 pieces of blanket, ranging in size from 4½ in. by 2½ in. to 2 in. by 1 in.

6 pieces of wood, ranging in size from 3½ in. by 1½ in. to 1½ in. by ½ in.

6 pieces of neckties, ranging in size from 5 in. by 4 in. to 3 in. by 3½ in.

To the above must be added 50 shirt and trouser buttons, 7 match stalks, 3 large pieces of cinder, 1 long boot-lace, 1 overcoat button, and 1 piece of handkerchief 4 in. square, besides a quantity of rolled-up paper.

The majority of the articles were found in the jejunum and ileum, and several of the pieces of blanket were firmly wound round pieces of wood and covered with faecal accumulation. From the first to the last there was never complete obstruction; there was no vomiting and no haemorrhage.

A laparotomy was discussed, but for many reasons was not considered advisable. The cause of death was toxæmia following upon acute enteritis, and also from peritonitis due to the invasion of the *Bacillus coli* through the weakened intestinal wall.

THE report of the Board of Management of the Perth Public Hospital, Western Australia, for the year ending June 30th, 1911, shows that 2,247 casualties and accidents, 2,418 in-patients, and 3,781 out-patients were treated at the hospital, while at the infectious diseases branch at Subean there were 463 in-patients, making a total of 8,909, compared with 8,869 in the previous year. The deaths numbered 248, being 8.6 per cent. of the in-patients treated. The principal causes of death were: Typhoid fever, 26 out of 163 treated; diphtheria, 5 out of 155 treated; and 60 from consumption, out of 117 treated. In the electrical and x-ray departments a large number of cases were treated. The weekly cost for each in-patient, after making allowance for out-patients, was £1 15s. in the general hospital, and in the infectious diseases branch £1 6s. 7d.; the cost per bed occupied in hospital £91 4s. 10d., and in the fever wards £60 3s. 6d.

OBSERVATIONS ON AN INFANT FED WITH BARLEY WATER AND COW'S MILK.

BY

R. C. VERLEY, M.B., M.R.C.S., B.Sc. EDIN.

THE notes of this case are short, but in no way biased or unconfirmed, as the infant was at the time staying in my house.

A healthy infant, 9½ lb. at birth in the autumn in excellent hygienic surroundings, and breast-fed, showed signs of intestinal derangement one week after birth, crying, chiefly at night; loose motions, sometimes greenish. It was in evident pain. Treatment with castor oil, hydrarg. c. cret., pulv. ipecac. co., sodium bicarb., alone and in combinations, gave only temporary relief. The mother was a highly strung individual, easily excited, and worried a great deal, but otherwise healthy, and apparently had a sufficiency of milk, for the infant gained 1 lb. in weight in three weeks.

As no treatment of mother or child seemed to make much difference, it was decided to stop the mother's milk, and the infant was weaned on barley water and cow's milk, 3 oz. of the former to 1 oz. of the latter being given every two hours.

There was some slight improvement at first, but within a few days the condition was as before, with the addition of the passing of much flatus, both eructations and by the anus. The abdomen was always soft and not painful to pressure. There was no vomiting and no rise of temperature. The motions varied in frequency from four to eight in twenty-four hours. There was no appreciable straining. Undigested curds showed only occasionally, and mucus was marked only when the stools were more numerous. Drugs were again tried with no better effect than before.

The milk was the best procurable in sealed bottles and carefully sterilized before each feed by heating in a water-jacket saucepan. The barley water was made daily from Robinson's patent barley according to directions on the tin. The proportion of milk was increased, and the addition of sodium citrate, 1 grain to the ounce, and also dill water, but still the infant cried and suffered from pain and flatus. The time between the feeds was lengthened to two and a half hours, but had no effect.

After about ten days of this, plain water was substituted for the barley water, when it was noted that the flatus rapidly diminished and the loose motions equally rapidly became constipated. The crying also diminished, or rather changed its character from one of pain to one of fretfulness. To try to correct the constipation, a small proportion of barley water was added to the mixture of milk and water. This immediately again produced flatulence and painful crying, although it corrected the constipation. A teaspoonful of sugar was used in each feed from the beginning, sometimes cane sugar, and at another time milk sugar. The sugar appeared to make no difference to the flatulence, nor to the constipation.

The addition of fat to the milk and water was now tried in the shape of an emulsion of pure linseed oil. It seemed to answer its purpose very well, as I have often found, particularly in older children. Still the infant was restless and cried too much.

The food was now changed to pure sterilized cow's milk, the time between the feeds increased to every three hours, and 4 oz. to 5 oz. taken at each feed. The result has been perfectly satisfactory.

Of course it is not my intention to draw any general conclusions from observations on one case, particularly as infants are proverbial for their "trickiness" in feeding. I have, however, noticed other cases that appear similar, and by drawing the attention of others to the subject we may yet hope to narrow down the difficulties attendant on infant feeding.

The points I would emphasize in the above case are:

1. Barley water caused "wind" and a tendency to diarrhoea. It probably underwent a fermentative action.

2. Whole ordinary cow's milk may suit an infant where diluted cow's milk fails.

I understand that physiologists say there is no starch-converting ferment in the stomach of an infant under 5 months, hence physiologically barley water should be contraindicated. It is also well known how easily barley water will ferment and become acid under cleanly conditions outside the body. Is it not more likely to do so in the stomach and intestines?

Finkelstein's "albumen-milk" for infants, particularly those infants suffering from diarrhoea, is well known, and has been highly successful on the Continent though not much used in this country. It is, therefore, interesting to note that he founds the treatment on the idea that these cases are due to fermentation as distinguished from putrescence. Hence his food contains a maximum of putrescible substance in the shape of albumen, and

a minimum of fermentable material in the shape of carbohydrates. He adds a very small amount of malt sugar, but no other kind of sugar.

Stolte, in his researches,¹ comes to the same conclusion, pointing out that the thriving of an infant is correlated with increased solidity of the motions, and that the latter is due to saponification and absence of fermentation.

If, therefore, fermentation is producing fatty acids, and thus preventing saponification, the continued use of aperients and antiseptics will not cure the condition without a radical alteration of the diet; and what a saving of suffering, time, trouble, and money if we can lay our hands on the main principle of the diet required!

It must be a great saving in money to poor people who are unable to breast-feed their infants if they can rely on cow's milk, either pure or manipulated in some simple manner, instead of experimenting with this, that, or the other proprietary food, at the least excuse, and to the probable detriment of the infant.

REFERENCE.

¹ *Jahrb. f. Kinderh.*, 1911, No. 4.

BORACIC ACID POISONING.

BY

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IN the *BRITISH MEDICAL JOURNAL* of March 16th, 1912, Dr. J. Herbert Sanders describes an interesting case of dysentery, in which a repeated rectal wash of boracic acid caused symptoms of poisoning. This case is all the more interesting as the symptoms only came on after the irrigation of the bowel had been continued for some three weeks.

Professor Cushny, in his *Textbook of Pharmacology*, says that symptoms of poisoning with boracic acid, when absorbed from the alimentary canal, are:

Uneasiness in the abdomen, vomiting, diarrhoea, dryness of the throat, and difficulty in swallowing; sleeplessness, great muscular weakness and depression, dimness of sight and headache were also complained of, and in some cases collapse and death followed.

I formerly used boracic acid solutions for lavage of the bowel in cases of colitis, but, after having seen symptoms arise in at least three patients, decided it might not be such a harmless method as one would be inclined to believe. Although when used as an intestinal douche I have not found it to cause any serious symptoms, it has, apparently, frequently caused marked symptoms of toxæmia. It would appear probable that this poisoning, if in reality caused by boracic acid, is due to some idiosyncrasy, as one frequently sees cases in which lavage of the bowel with boracic wash has been carried out over a considerable period without any toxæmia, and I have never come across a case like that of Dr. Sanders, when the symptoms have developed later during the treatment.

CASE I.

The first case I saw some fifteen years ago, in which a lady, with marked constipation, had colitis, passing large quantities of mucus, and sometimes membranes. The bowel was washed out with one-half saturated solution of boracic acid in the morning. A few hours later she became excitable, and complained of irritation of the skin, which in the afternoon became erythematous with some tendency to papules. The erythema was most marked over the chest and abdomen, and only slight on the limbs, but on the thighs there was some troublesome urticaria. This erythematous condition of the skin was accompanied by a considerable amount of mental irritability, the patient being fretful and seeming to exaggerate the amount of cutaneous irritation. The symptoms passed off in two days, the rectal washing having been discontinued. The symptoms, however, all recurred the following week when the boracic douche was again employed.

CASE II.

The second case was also a lady who had simple colitis. In this case the erythema was even more marked, for it appeared over the whole body, and was accompanied by most marked urticaria. The mental excitement was so great that the patient insisted on walking about the room naked, declaring that even the nightdress increased the skin irritation, and for a time she behaved like a mad person. The urticarial wheals rapidly passed off, but the erythema lasted nearly four days, and the mental excitement continued more or less during the first two or three days, and was accompanied by insomnia.

CASE III.

The third case was that of an elderly gentleman, suffering from dilated colon. The boracic acid rectal wash was here again followed in a few hours by considerable erythema, also accompanied with urticaria and mental excitement, which lasted nearly two days. This patient, some three weeks later, had copious melaena, followed by collapse. At the necropsy the hæmorrhage was found to come from a pedunculated polypus in the descending colon just above the sigmoid. There was no evidence of colitis, but an enormously dilated atonic colon.

It is of interest that in all these three cases the erythema was accompanied by urticaria and mental excitement, which rapidly passed off after the boracic lavage was stopped. The quantity of boracic acid absorbed from one or two lavages could not be very great, and consequently these patients must have had some special susceptibility, if these symptoms are to be considered due to the boracic acid poisoning.

In the first two cases I did not like to lay any special stress on the condition of mental excitement, as both patients suffered from neurasthenia and exaggerated everything, so that the fact of having an erythema which they could actually see and talk about was certainly made the most of.

The third case had not nearly as marked mental excitement. Although the patient was very restless and anxious about his condition, one certainly could not call him neurasthenic, so that it was possible that this condition of mind was due to the boracic acid.

The fact that the erythema occurred with boracic wash has now to be explained, and before one can definitely accept it as a true symptom of boracic acid poisoning I think more evidence ought to be obtained. It has to be remembered that in cases of chronic constipation, when there has been retention of fæces in the colon, it is not at all uncommon to see erythema accompanied by urticaria suddenly come on when these accumulations are disturbed and, so to say, stirred up. I have seen them occur when lavage of the bowel has been given, and when no boracic acid or possible poison was contained in the solution employed as the wash water—even in a case after a simple purgative was given by the mouth, and, as it did not act, was followed by a dose of castor oil.

In a case of this kind not only did erythema occur with considerable skin irritation, although unaccompanied by urticaria, but there was considerable mental excitement. I have always considered such cases as due to toxæmia arising from a sudden absorption of the products of putrefaction from the colon contents, which had been quiescent and hence unabsorbed. The simple douche or purgative causing a loosening of the mass, together with a solution of the poisons, which were then rapidly absorbed, caused the toxic symptoms.

It still is not clear to my mind that we are justified in considering these symptoms as really due to boracic acid poisoning, and they certainly do not correspond with the symptoms described by Professor Cushny. The article published by Dr. Sanders made me think it might be advisable to record these cases which had come under my observation.

**ACUTE EPIDIDYMITIS PRODUCED BY
MUSCULAR STRAIN.**

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UNTIL quite recently I had always been strongly of the opinion that an acute inflammation of the epididymis without concomitant orchitis must in every instance emanate from disease of the posterior urethra. From an anatomical point of view it is easy to understand how, by direct continuity, inflammation of the mucosa of the prostatic urethra may travel along to the epididymis, and the pathological changes evidenced by *post-mortem* examinations and the experimental investigations by Melassez and Terrillon (quoted by Finger¹) show that the testicle proper is not involved in such cases. Consequently, one has been disposed to receive with absolute incredulity a patient's statement that the condition has been brought about by a strain. Lately, however, two