that the secondary infections of the urethra and vagina may also cause arthritis.

The case now to be described was a patient of Dr. Conder, and the only part I had in the case was the preparation of the vaccine employed.

CASE VII.

J. E., a man aged 65, had spent the last forty-five years of his life in India. For the past twenty-five years he had trouble in his right knee in the nature of attacks of acute pain and swelling. These attacks had become more frequent and more severe in the previous six months. He had at times also pains in the left knee, elbow, and wrist, and in the right shoulder, ankle, and great toe, but not recently. On April 29th, 1911, Dr. Conder found the right knee to contain fluid and to be $1\frac{1}{2}$ in. larger in circumference than the other. With a syringe he removed 2 oz. of purulent fluid, the pus cells of which were almost entirely polymorphs. There were also present in the fluid cocci in pairs and short chains. A culture showed a good growth of a Gram-positive diplococcus noncapsulated. On May 4th another ounce of fluid was removed from the same joint and yielded the same organism. On May 2nd the patient's opsonic index to this coccus was 0.89; on the same day he was given 100 million of his autogenous vaccine. After this he felt better, and on May 14th his opsonic index was 1.59; as there had been no visible reaction in the joint he was given the same day 250 million of his vaccine. This proved too large a dose; the day following he felt seedy, his temperature rose to 100° F., and he experienced for the next five days the most acute pain in both shoulders, ankles, wrists, and right great toe. On May 19th his opsonic index was 0.78. On May 26th he was given 150 million of vaccine, and as this dose gave satisfactory results it was adhered to. He had injections about once a week until September. The knee and other joints quite cleared up, and he started touring on the Continent, but took with him some vaccine in order to have an inoculation once a month as a preventive of further attacks, which he has not since had.

Now, in the cases set out above I am quite aware that I am describing no new thing; similar cases of great interest are to be found in Mr. Howard Marsh's book on *Diseases of the Joints and Spine*, but they do not receive the general attention they deserve. I am firmly convinced that every case of "rheumatoid" arthritis is due to a microbic infection; and, though I do not say that at present the infection can always be found, I contend that the more closely early cases of so-called rheumatoid arthritis are investigated the larger will be found the proportion of those in which a definite infection can be traced. If no local site of infection can be detected, the blood ought to be cultured. Mr. Peter Daniel, on page 140 of his instructive book on *Arthritis*, published this year, expresses an opinion in agreement with the above:

Schüller claims that his dumb-bell bacillus is the cause of the affection. The whole of my experience points strongly against a definite cause of this kind, and is in favour of a multiplicity of bacterial processes. Clinical investigation and treatment has led me to attribute most importance to genital infection as a cause of rheumatoid arthritis.

Cases such as described above, if treated with sodium salicylate, guaiacol carbonate, or hydrotherapy in all its branches, degenerate into the forms of joint deformity, which have for years been the subject of treatises on acute rheumatism, chronic rheumatism, rheumatoid arthritis, osteo-arthritis, arthritis deformans, etc. Unfortunately, the complete investigation of these patients demands much time and labour, and on that account the hospital patient is frequently more fortunately circumstanced than his more affluent neighbour. But if fortune is propitious and the labour is successful, the resulting satisfaction to both patient and doctor is by no means small.

DR. ALFRED HOLLIS, of Freshwater, Isle of Wight, was on February 19th presented with a testimonial from the inhabitants of the three neighbouring villages in which his work had lain—Freshwater, Yarmouth, and Totland Bay—accompanied by gifts of a silver coffee and tea set. The testimonial was read by Lord Tennyson, and Lady Tennyson was one of those who presented to Dr. Hollis, on behalf of the bodies they represented, the portions of the service contributed by them. An additional presentation has since been made by a local lodge of the Order of Foresters. Before the presentations were made Lord Tennyson said that no one had been asked to subscribe, the gifts being freewill offerings, and, like the testimonial, the outcome of the true, deep, and genuine affection in which Dr. Hollis was held. Dr. Hollis, who became L.S.A. in 1867, M.R.C.S. in 1868, M.B., C.M. Edin. in 1869, and M.D. Edin. in 1873, was at one time President of the Isle of Wight Branch of the Association.

BORACIC ACID POISONING.*

BY

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I HAVE ventured to bring these notes before you this evening because boric acid is in such general use with the profession that any case where toxic effects are produced must be of interest to us all. I have looked up the literature on this subject, and cannot find much recorded, hence it will, I think, be of additional interest.

In the *BRITISH MEDICAL JOURNAL* of 1901 I find a reference to 4 cases, 2 of which were fatal.

Rinehart records the two following cases of poisoning by boric acid:

(a) A man aged 38 years had posterior urethritis, and he was treated with a weak solution of AgNO_3 locally, and 5 grains of boric acid was given by the mouth every four hours. Two days later there followed extreme weakness, an erythematous rash with papules and vesicles on the backs of the hands, and a very weak pulse. These symptoms subsided on withdrawing the drug, but reappeared on resuming it. Rinehart says he thinks that it would have ended fatally had it not been detected early.

(b) A man aged 50 years had a suprapubic lithotomy performed, and the bladder was washed out with a saturated solution of boric acid; also 5 grains of boric acid was given by the mouth every four hours. Ten days later an erythematous rash appeared, which later scaled, and crusts formed on the rash. The skin thickened and became infiltrated as in eczema; weakness and albuminuria were prominent symptoms; feeble pulse.

Wood of Philadelphia reports two fatal cases. In these nausea, vomiting, an erythematous skin eruption and fatal collapse occurred. The details of these cases are not given (*vide BRITISH MEDICAL JOURNAL*, 1901, vol. ii, EPTOM, page 91).

These cases suffice to show us that it is very advisable to be on our guard when ordering a drug we have been accustomed to use so freely until we almost think it innocuous.

The following is a report of the case I have observed:

A. G., aged 23 years, was sent to me from Canton on July 5th, 1911. He had been ill with dysentery on and off for ten months past, and the present attack commenced three weeks before admission. He stated that he had been passing a large quantity of blood in his stools, but there was not much at the time he came in. There was much blood-stained mucus; I frequently searched it for amoebae, but I could not find any.

On admission he was put on a mixture of magnesium and sodium sulphate, $\frac{1}{2}$ oz. every four hours. After two days he had a single rectal wash of boric acid and warm water to ease the straining. At this time he was passing 10 to 13 stools daily, consisting of almost pure blood-stained mucus.

On July 8th he was put on tinct. opii m xxx, pulv. ipecac. gr. xxx, diminishing the dose each day. On July 16th (the tenth day) as he had not improved he was put back to the magnesium and sodium sulphate solution, and in addition a rectal wash of boric acid (saturated solution) and water, $\frac{1}{2}$ pint each, was given night and morning. This immediately lessened the number of stools, and the wash was continued as long as I found mucus. I saw the wash each day, and apparently all was returned or each occasion.

This treatment was continued for over three weeks, and the patient was rapidly improving, taking his food well, and up and about; on the day before the onset of the symptoms of poisoning he only passed two stools in addition to the rectal washes.

On August 9th the patient was up and about, was taking his food well, and there was no elevation of temperature.

On the morning of August 10th I found him in bed with a rash covering the whole body, very like a bromide rash, generally scattered, but on the extensor surfaces the papules were gathered more thickly, erythematous in character, disappearing on pressure, not at first hard, although each papule could be distinguished. I at once recognized it as a drug rash, and ordered the rectal injections to be discontinued and only plain water to be used. In the afternoon of the same day he became very restless and inclined to be noisy, so much so that later in the day he was put into a separate ward. On the next day he was more thickly covered, especially on the extensor surfaces and the face, and the spots were more shotty and hard, with a tendency to become purpuric. He was quite delirious, and the pulse very feeble; he could not sleep, and a dose of paraldehyde had no effect. On the morning of August 12th the rash was quite purpuric with hard shotty papules; he was quieter, through weakness. He slept after a dose of chloral, and later took some food. Next day the spots were becoming clearer, but still hard and shotty. His mind was quite clear and he was taking food well. He continued to improve, but on the morning

* Read at the Annual Meeting of the Hong Kong and China Branch of the British Medical Association.

of August 14th the eyelids were very puffy. There was no albumen in the urine. On August 18th the spots were scaling, but still hard generally; in a few places a little serum escaped, and in others pus, evidently due to infection by scratching with his nails.

By August 20th the colour of the rash had faded considerably, but the papules were still hard and shotty. The general health of the patient was better; he was anxious to get back to his home as his wife had been confined whilst he was in hospital; he left for Canton this day.

I heard from his doctor that after a few days' rest at home he was able to return to his work, and as he has not seen him since he presumes all is well.

This case illustrates the sudden onset of symptoms without any warning. It shows also the long duration of the rash after all drugs had been stopped, the delirium that accompanied the poisoning, the weakness of the pulse and danger to life if not recognized at once and stopped, as illustrated in Dr. Wood's cases in Philadelphia. The case shows also the possibility of mistaking the hard shotty papules for variola in its later stage, and also shows the inadvisability of anyone out of reach of skilled medical advice using boric acid rectal injections for dysentery. In this case no boric acid was given by the mouth, and it illustrates the rapidity and ease with which boric acid solution is absorbed by the bowel.

A CASE OF VEGETABLE GASTROLITH.

BY

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THE patient, a young woman of 24, made her appearance at the out-patient department of the Northampton General Hospital in May, 1911, complaining of pain and a sinking feeling in the stomach and vomiting for the past month. No blood had been vomited. She gave no history of any peculiar habits in her eating.

On examination she was found to have a large tumour running across the epigastrium. It was of a peculiar character, being smooth, hard, and rounded, both above and below. The lower edge reached to the umbilicus. The tumour filled up the whole space between the angle of the ribs. It was freely movable on respiration, and on deep inspiration the examining hand could be slipped above the rounded upper limit of the tumour and hold it down.

Many speculations were made as to what the mass could be. Amongst them an anomalous floating kidney was suggested, but, on the whole, the most likely diagnosis seemed to be a floating liver, causing gastric symptoms from the displacement

Fig. 1.—Mass of coconut fibre removed from stomach.

of the stomach. Against this diagnosis was the fact that there was apparently a fingerbreadth of liver dullness at the fifth right rib, with resonance above and below it.

An exploratory operation was considered, but it was postponed, and the patient recovered entirely from her symptoms with rest in bed in the hospital and a light diet, the tumour, however, remaining as before.

Acting on the supposition of the tumour being a floating liver, she was given a suitable abdominal belt before leaving the hospital on June 24th.

Nothing more was heard of the patient till early in August, when Dr. A. W. Moore, her medical attendant at Stony Stratford,

wrote to tell us that the most startling developments had taken place. She had been seized again with very acute pain in the abdomen, with rigidity, distension, a rapid pulse, and constant vomiting. An enema was given, and two masses, like pieces of a doormat, came away, one the size of a turkey's egg and one the size of a pigeon's egg. It then transpired, on a cross-examination of the patient, that she had been in the habit of eating wood and the fibre on the outside of cocoanuts.

Four months ago she went to a fair and secured a coconut at a cocoanut-shy, and ate, not only the interior, but the fibre from the outside. Dr. Moore considered that the acute attack of pain was due to the passage of the two masses of fibre through the pylorus and along the small intestine, accompanied by the formation of a temporary intestinal obstruction. Before the passage of the fibre, he and Dr. Bull, who had also seen her, had come to the conclusion that the tumour was connected with the stomach.

The patient was readmitted into the hospital, and was operated on by Mr. Odgers. The stomach was opened by a longitudinal incision, and a large tumour, consisting entirely, apparently, of matted cocoanut fibre, was removed from it. The tumour completely filled the stomach, and formed an exact cast of it. It is shown in the accompanying illustration. The weight of the tumour was 1 lb. 2½ oz. Mixed with the tumour was a good deal of fat and gastric juice. It is interesting to note that the walls of the stomach seemed quite healthy and uninfamed, and not at all irritated by their embarrassing inmate. The patient made an uninterrupted recovery after the operation, and has so far remained well since.

On thinking over this curious case, the most extraordinary thing about it was the power that the stomach retained of digesting food quite well while it was entirely filled with this great tumour of cocoanut fibre. When the patient made her first stay in the hospital she was up and about, and digesting perfectly well an ordinary mixed diet for three weeks before she left. This fact, combined with the absence of all history of her peculiar dietetic habits, seemed to conclusively negative the diagnosis of a stomach tumour which was entertained, only to be set aside.

A reference, however, to the subjoined literature shows that the same anomaly has been observed before. While masses of hair in the stomach have been found not infrequently—Dr. Butterworth¹ collected 42 cases from the literature in 1909—vegetable "gastroliths" appear to be very rare.

In 1854 Dr. Quain² reported a case very similar to ours for Dr. Bucknill to the Pathological Society:

This patient was a young man, aged 22, an epileptic. For some time he had been in the habit of eating gravel, rags, and dirt, and had slight attacks of diarrhoea from time to time, "by which he got rid of them easily." No epigastric tumour was ever observed, the patient dying of acute peritonitis. At a post-mortem examination there was a perforation of the lesser curvature of the stomach the size of a shilling, and within the stomach a mass, 4 lb. in weight, composed almost entirely of cocoanut fibre and bits of string. "It is very remarkable that he appeared to be in his normal good health, took and digested all his meals, and was well nourished, with all this stuff in his paunch."

In 1861 Dr. Capelle³ reported the case of a woman in whom a diagnosis of gastric carcinoma had been made. This she discredited by vomiting a large foreign body composed of vegetable debris. In 1881 Dr. Langenbach⁴ removed by operation a gastrolith consisting of starch, fat, and amorphous material. This is figured in his paper, and is a cast of the stomach like our own specimen. This patient has been in the habit of taking "Nuss blätter-thee." In 1888 Dr. Kookver⁵ described a similar specimen found post mortem, and in 1896 Dr. Schreiber⁶ removed by operation a "phytobezoar" composed of Schwarzwürzel roots. The plant is said to be a popular remedy in Germany.

In the ruminants concretions are commonly found in the first or second stomachs. These are either so-called "fodder balls" composed of vegetable fibre, or hair balls. Similarly in the antelope and camel occur "bezoar stones," which are supposed to be famous antidotes.

Dr. Butterworth, in his paper on "hair-balls," finds, from the cases he has collected, that epigastric pain is the only constant symptom; vomiting occurs at some time in most cases; hæmatemesis is rare. Dyspepsia and an abdominal tumour are the two earliest symptoms as a rule. With regard to diagnosis, out of 33 cases, in 5 only was the condition correctly determined. In others the following were thought of: Cancer of the stomach, displaced spleen, floating kidney, faecal impaction in the transverse colon, and omental tumour. In Dr. Still's case⁷ the conditions discussed were enlarged spleen and lymphosarcoma or a tuberculous infiltration. Of Dr. Butterworth's 33 cases,