attitude of flexion, was very cyanosed, and had severe attacks of tetanic spasms affecting the right side of the face and arm. The urine was dribbling away, the pulse was imperceptible, and the temperature was 105° F. At frequent intervals he vomited greenish fluid. The next day he seemed much better and 40 ounces of urine were drawn off, and in a week he was completely well.³

This case in some respects resembles the one I have recorded, and there is something to be said in favour of the same diagnosis. The delayed sickness and its persistent character, the fact that there was some action of the bowels with possibly considerable tenesmus, and to some extent the age of the patient are in favour of the view that the symptoms may have been due to intestinal obstruction—probably intussusception. The delay of some hours in the onset of symptoms of any sort, the moderation of the dose relative to the age of the patient, and the fact that it was in solution are opposed to the view that the action may have been that of an irritant poison. On the other hand, one may attribute at least some of the symptoms to a toxic action, the tetanic spasms affecting the right side of the face and arm being due to a selective action of the salt on the cells in the motor cortex.

CASE 4.—A woman took four ounces of salts at one draught and died an hour later. The case having occurred in Scotland no inquest was held and the death was certified as due to paralysis resulting from an overdose of salts.⁴

The data are insufficient to enable one to form a definite opinion as to the action of the salt in this case. That it was of an irritant nature and gave rise to syncope, as in Case 2, is possible. This irritant effect would be enhanced if the salts were only partially dissolved—a condition of things one may, from the magnitude of the dose, reasonably infer to have actually existed. On the other hand, the "paralysis," if the term is to be accepted as of any value, is suggestive of a toxic influence on absorption into the blood. "Complete paralysis" was observed in Case 6, and "paralytic effects" have been noted when the salt has been experimentally injected into the blood of animals.

CASE 5 (*Luff's case*).—A woman, aged 20 years, was found in the morning dead on her bed, which had apparently not been slept in. Death had taken place some hours before the discovery. At the post-mortem examination no inflammation of the mucous membrane of the stomach was found, but the organ contained about one and a half ounces of a solution of Epsom salts. It was ascertained that she had purchased an ounce of salts on the previous day and had taken it on an empty stomach. Death in this case was said to be due to syncope.⁵

It is very difficult to explain the action of the salts in this case. Bearing in mind the age of the victim the dose was by no means a large one. Idiosyncrasy was probably a factor of importance and the fatal syncope may have resulted from direct poisoning of vital centres on absorption.

CASE 6 (*Sang's case*).—A woman, aged 35 years, took four ounces of salts in warm water to bring on the monthly period. On swallowing the dose she complained of burning pain in the stomach and bowels; had difficulty in breathing and a choking feeling; also a sensation as if the power were leaving the legs. The tongue and mucous membrane were normal. There was no sickness, vomiting, or purging. The pulse was 98; the pupils were dilated. There was at times slight twitching of the face, but complete paralysis rapidly ensued, the patient becoming comatose and dying 75 minutes after taking the dose.⁶

The history of this case points strongly in favour of the toxic theory. The preliminary irritation of the stomach, although very considerable, was apparently not sufficient to cause vomiting. Absorption consequently took place all the more readily. Dr. W. Sang attributes the symptoms to "a direct action on the cerebro-spinal system." This comment raises the question as to whether the action is a central or a peripheral one. Observers who have approached the question from the scientific and experimental point of view have found that the paralyzes produced by the injection of the drug into the blood of animals are due to peripheral disturbances. Clinical data, on the other hand, are more readily satisfied if we assume that the action is a central one.

In concluding this paper may I briefly refer to two modern uses of this very common drug. Bearing in mind its very irritating effect under certain conditions on sensitive surfaces, such as the mucous membrane of the stomach, it is interesting to observe that sulphate of magnesium is now being used in saturated watery solution as a local application to relieve pain. In cases of orchitis, epididymitis, gonorrhoeal rheumatism much benefit is said to have been derived. After several applications blanching of the parts has been noted, and the subsidence of pain is probably due to the lessened congestion. The "paralytic" effects already referred to may be studied in conjunction with the treatment of tetanus by the administration of this drug. The intradural injection of the salt in 25 per cent. watery solution at intervals of four or five days is said to be followed by "prompt subsidence of spasm, lowering of temperature, and improvement in general condition." It is not claimed that the drug has any specific action on the tetanus toxin. The treatment is considered to be purely symptomatic, the removal of spasm giving the tissues the opportunity of recovering from the exhaustion produced by the former spasms.

Brighton.

A CASE OF ANOMALOUS OEDEMA WITH BRIGHT'S DISEASE.

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THE patient, an unmarried woman, aged 24 years, sought advice owing to a tumour in the right popliteal space with swelling of the leg below it. At the age of eight years she had scarlet fever, and between eight and 16 years several severe influenzal colds. Eight years ago she noticed a swelling of the right ankle; the onset was gradual and she had not suffered to her knowledge from any serious disease for some time prior to this. During the next three years this swelling, which appears to have been of an oedematous nature, spread upwards to the knee; it always became more marked when she had been standing for any length of time, and would sometimes disappear completely during the night. Five years ago she noticed that the space behind the knee began to swell, and from that time a tumour formed which has grown progressively larger. (Fig. 1.) (Edema of the leg below has since been practically constant. Two years ago swelling of the left ankle commenced; this has also spread upwards and has reached the knee. It was only present when she had been walking or standing, as in the early oedema of the right leg, and disappeared with rest. During the eight years described above she enjoyed on the whole very good health, save that she suffered at times from severe headaches and

Shows the swelling behind the knee.

was easily fatigued owing to the weight of her right leg. She stated that she had had no oedema elsewhere save in the positions described above.

When admitted to the hospital on Nov. 12th she had a large pedunculated tumour in the right popliteal space. It was freely moveable and closely simulated a lipoma in outline and consistency, except that on firm pressure it pitted. Below

³ Pharmaceutical Journal, 1896, p. 235.

⁴ Brit. Med. Jour., vol. ii., 1891.

⁵ Ibid.

THE LANCET, Nov. 7th, 1891, p. 1037.

this tumour there was œdema of the leg, while above it the thigh was normal. Whilst resting no œdema of the left leg was present, but it developed after she had been walking about several hours and always rapidly disappeared. No local cause was discovered, neither was there anything in her past history to suggest thrombosis. In general appearance she was a healthy, well-developed woman; anæmia was not present and she was not cachectic. She had no cardio-vascular changes. The heart's apex beat was in the fifth space and was not dislocated outwards, while on auscultation the pulmonary second sound was louder than the aortic second sound. Ophthalmoscopic examination revealed no changes in the discs, and the average blood pressure was between 120-130 mm. of Hg. For the first two days of her stay in hospital no albumin was found in the urine; on the third day it was present in large quantities. Microscopic examination revealed the presence of hyaline and granular casts; while the proteids were found to be albumin and globulin; no albumoses were present. On two other occasions, on Nov. 19th and Jan. 4th, the urine had been free from albumin. Between Nov. 12th and Dec. 9th one specimen of urine was tested daily for albumin by being boiled and acidified with acetic acid. The amount of albumin present was found to vary within very wide limits. On some days the urine boiled solid, on others only a faint cloud would be present, so that from Dec. 9th until her discharge, whenever practicable, the percentages of albumin were tested by Esbach's method. Three specimens daily were usually examined and the fluctuation in the amount of albumin present was noted. (See Chart.)

The average quantity of urine voided daily was between 25 and 26 ounces; the maximum quantity observed during her residence in hospital was 40 ounces. With rest in bed the œdema of the right leg and the œdematous mass in the popliteal space would almost disappear, but whenever she was allowed to walk about the swelling would speedily regain its original proportions. On Dec. 30th the patient was placed on a rigidly salt-free diet and it was then found that the œdema rapidly subsided, though she was allowed to take exercise as before. Since then to the date of her discharge on Feb. 4th she has been confined to food containing no salt or to a diet containing household bread instead of salt-free bread, and no return of the œdema was observed, though, as would be expected, the amount of albumin present in the urine varied widely as before.

Several interesting features were presented by this case. The most prominent was the localisation of the œdema, the main position of which was in the right popliteal space, and the fact that for six years it was unilateral. In addition the entire absence of cardio-vascular changes secondary to the lesion in the kidneys is noteworthy, together with the fact that on four separate occasions albumin was completely absent from the urine. In spite of the large amount of albumin lost daily her general health was very good and she exhibited none of the anæmia and cachexia so frequently present in patients suffering from chronic Bright's disease.

In conclusion, I have to thank Dr. J. Rose Bradford for his courtesy in permitting me to publish in more detail the features of this case, a short account of which has appeared in the Proceedings of the Royal Society of Medicine.

The figures on the vertical column indicate the number of grammes of albumin excreted per litre of urine.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

THE TREATMENT OF BRONCHIECTASIS BY THE CONTINUOUS INHALATION OF OXYGEN (STOKER'S METHOD).

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A YOUTH, aged 20 years, was admitted into St. Bartholomew's Hospital, under my care, on Oct. 20th, 1908. He was a small, ill-developed, thin fellow. He had had no illness until 18 months ago, when, while ship's cook on board a trawler, he had been seized with an illness the leading symptoms of which were cough and pain in the side. He had never been well since, and had for a long time been spitting a copious and offensive discharge. The left side of the chest was shrunken and the heart was drawn outwards. The lower part of it was very dull, and resonance in the upper part was impaired. There were signs of a cavity near the apex and râles all over the rest of the lung. The temperature was normal; the sputum was repeatedly examined for tubercle bacilli without result, and tuberculin injections of 1-400th and of 1-200th cubic centimetre (O. T.) produced no rise of temperature. An injection of 1-80, which was given three days later, was followed by a fever lasting three days, the temperature reaching 104° F., which I believed to be due

to some other infection. Calmette's reaction was negative. The sputum was full of staphylococci and streptococci, and at first amounted to from 8 to 12 ounces a day. It was extremely offensive. On Nov. 9th he began to inhale oxygen in a small stream continuously for six hours a day out of one of the bags invented by Dr. George Stoker for the purpose, which I borrowed to make trial of the method. He continued to do so until Dec. 2nd, when I stopped this treatment, and for purposes of comparison began the inhalation of creosote vapour in the chamber which we have built for the purpose at the hospital. On the 16th I began the oxygen again and continued it until Feb. 2nd, when he was discharged.

The points to which I wish to draw attention are: (1) the amount; (2) the odour of the sputum; and (3) the general feeling of the patient under the treatment. From Oct. 20th to Nov. 8th the sputum was from 8 to 12 ounces in amount and extremely foetid. The oxygen was begun on Nov. 9th. The following are my notes: "Nov. 13th. Sputum for the last three days has averaged only 4 ounces. It is much less foetid. Cough is less and he has much better nights. 17th. Sputum averages 3 ounces. 24th. Sputum now 2½ ounces. Dec. 1st. Sputum averages 2 ounces, has only a mawkish smell, no foetor. Oxygen discontinued. 2nd. Creosote inhalations begun. 8th. Sputum averages 4 ounces. 15th. Sputum averages 5 ounces; is more offensive than when he was taking oxygen. Coughs more. 16th. Oxygen begun again. 21st. Sputum averages 1½ ounces, less offensive. 28th. Sputum averages 1 ounce, hardly smells at all," and so it remained. There was no question about his own opinion or that of the sister of the ward. He liked the oxygen far better than the creosote; he felt better, and ate better while under its influence. I may