and extending into the duodenum for about 10 millimetres and towards the stomach walls, especially along the lesser curvature, was a diffuse thickening, fading imperceptibly towards the stomach walls. The cut edges were free from thickening. On section the cut edge of the diffuse thickening showed a white downgrowth from the mucous to the muscle layer. Sections under the microscope showed a carcinomatous downgrowth from the glands through the muscularis mucosa into the submucous coat, but nowhere directly passing into the muscular coat, which was, however, diffusely infiltrated with cancer cells lying along the lymphatic vessels. In the deeper part of the mucous membrane all glandular structure was lost in a diffuse mass of carcinoma. In the submucosa, on the edge of the cancerous infiltration, were collections of small round cells betokening irritation. There had been a considerable dissemination along the lymphatics, accounting for the general thickening and giving rise to early 'gizzard-like cancer'. Sections taken close to the incision at the lesser curvature were free from growth, with the mucous membrane everywhere clearly defined and the muscle free from infiltration."

Melbourne.

A CASE OF HÆMOPHILIA IN A WOMAN WITH SYMPTOMS OF DEFECTIVE CIRCULATION IN THE LEGS AND THREATENED GANGRENE OF THE TOES; DEATH WITH CEREBRAL SYMPTOMS.

BY JOSEPH A. ARKWRIGHT, M.D. CANTAB.

THE patient was a single woman, aged about 30 years at the time of her death in November, 1901, of fair complexion, tall, large-boned, and well developed. None of her relatives in previous generations were known to have been "bleeders." She had two sisters, both alive, one aged about 26 years who suffered from attacks of dyspepsia and vomiting which lasted for weeks or months, but who had good health between the attacks, though at one time she was very anæmic; the second sister was 13 years old and had very good health. There was one brother, 20 years of age, who had hæmophilia but not very severely; he had had excessive swelling and ecchymosis about one knee from a slight injury and swelling and pain in the hip-joint after a very slight injury. On other occasions he had had troublesome bleeding from a cut on the thumb and great swelling and ecchymosis which continued to increase for some days after a bruise of the upper arm. The present patient had always had a tendency to anæmia and had suffered from dyspepsia. In 1890 a superficial cut on one finger bled for two or three days, but some years ago she had a tooth extracted without excessive hæmorrhage. On Sept. 15th, 1893, a right lower first molar was extracted and the next day the bleeding had not stopped and the patient was very pale and faint; the hæmorrhage was arrested by applying pressure and the strong solution of perchloride of iron. On Nov. 14th, 1893, the right upper second bicuspid was extracted and the bleeding continued till the next day when it was stopped in the same way as before, but on the 16th it recurred till it was finally arrested by the same means, tincture of hamamelis being also taken internally. On Nov. 5th, 1894, she complained of pain in the lower limbs; there were aching pains in the left thigh and hip, chiefly in the anterior part, as though "in the bone," which had been present and had never quite left her for eight weeks; sometimes they were severe, especially at night and they had been worse during the last month; there had also been pain in the right thigh like that on the left side, especially along the anterior aspect, and for the last 24 hours also in the right hip and in the sacrum. There was no tenderness on pressure except over the front of the femur on the right side just above the knee. The patient's temperature was normal in the daytime. About the middle of November the pains began to get better, and by Dec. 25th she was very much better, but there were still some pains in the limbs. In April, 1898, she complained of bad "neuralgic" pains in her right arm which improved after she had taken Bland's pills and arsenic for a short time. On April 25th, 1898, she twisted

her right ankle slightly in getting over a stile. On the next day the ankle was swollen, and on the 28th the ankle had become much more swollen, in spite of rest, and the skin was tense and hot; there was also much ecchymosis. On Sept. 1st tense ecchymosed swelling of the calf and ankle followed a slight injury. In November the bleeding from a slight cut on the finger lasted for two or three days and was then only arrested with some difficulty by very hot water and tight bandaging. In the summer of 1900 the left leg was noticed to be colder than the right and a variable purple mottling was almost constantly present on the skin of the left leg below the knee. These two symptoms persisted from this time onwards. In the very cold frosty weather of the winter 1900-1901 the ends of the toes on the left foot became black and purple and gangrene threatened. This condition passed off with rest and elevation but returned several times after walking a short distance; at one time there was some ulceration. The purpuric mottling about this time spread from the leg on to the left thigh, hip, buttocks, and the opposite (right) hip and outer side of the right thigh. For four months in the summer of 1901 she was in the General Hospital, Birmingham, and whilst there the toes were at one time very bad but later regained their natural appearance. A relapse again occurred after a journey and walking a little and the toes became painful and discoloured. While in hospital she also had an attack of general rheumatic (?) pains in the legs and arms, especially in the left elbow, with raised temperature. On August 28th, 1901, the toes were less well after sitting out of doors in rather cold and damp weather. On Oct. 1st a sharp attack of bleeding from the gums occurred without any known exciting cause; the gums were not at all spongy or sore. On Oct. 7th the patient was found to be better with regard to the pain and the circulation in the legs, but lately the hands had been colder and sometimes the fingers blue and the hands mottled with a purplish colour; both the radial arteries felt small; the general nutrition and appearance were good and the appetite was fair. Both the legs were mottled and purplish; there was no raised erythema. The left leg was much more mottled than the right and the mottling was most over the malleoli and on the dorsum of the foot. The right great toe was dusky in colour; the left middle toe was black at the end and a little dried serum was to be seen on the surface but no moist discharge was ever noticed. There was no pain and both feet were warm but they were kept well wrapped up and raised; the feet easily became cold and if on the floor for long became painful but not hot. The left dorsalis pedis artery was felt beating but the left posterior tibial artery could not be felt; the right dorsalis pedis artery was not felt but the right posterior tibial was felt beating. On Oct. 15th the left little and middle toes were seen to be almost black. On the 17th these toes were slightly better in colour and the right foot had only some mottling on the dorsum, no duskiess of the toes. The left foot and leg were noticed to tremble and twitch (this was seen to affect especially the tendons of the tibiales muscles) when the limb was held up unsupported, but the right foot and leg did not tremble. The left knee-jerk was exaggerated; the left plantar reflex was absent; the right knee-jerk was very much exaggerated; a tap set up clonus; the right plantar reflex was very feebly obtained. Ankle clonus could not be obtained on either side. On Nov. 1st, after the legs had been lightly massaged daily for a fortnight, the feet were thought to have kept warmer and the toes a better colour on the whole. On the morning of the 4th the patient felt better but had complained of a headache for the last two days and the feet were rather colder, but this was usual just before the menstrual period, which was due that day. In the evening, at 7.30, while talking to a friend, the mouth "began to be drawn to one side, then the head to one side, and then she said she was choking and put her hands to her throat. Soon after convulsions on one side of the body and twitching of the left arm and leg began and she sweated profusely; she spoke and complained of pain over her eyes." At 8.30 P.M. there was conjugate deviation of the eyes to the right; the pupils were small and equal and reacted to light; one eyeball was slightly bulging. She was dull mentally but spoke sensibly once; occasionally she became restless and excited, throwing her limbs about, and passed urine under her. After this she went to sleep but woke again and was "convulsed" several times in the night, "struggling" much latterly. Her breathing became noisy at 4 A.M. on Nov. 5th and she died at 5.15 A.M.

This case presented an unusual combination of symptoms. The tendency to bleeding was shared by a brother, and though not extreme and not traced to a former generation it resembled hæmophilia. The coldness and deficient blood-supply to the lower limbs had some resemblance to Raynaud's disease, but the symptoms were too persistent and progressive and did not intermit with sufficient completeness to agree with the classical description of that disease; moreover, the symmetry was very imperfect. Exacerbations were generally excited by the use or dependent position of the legs and were not truly paroxysmal. The mottling of the skin affected the lower limbs high up and even the buttocks and consequently the circulation must have been defective in these parts. This suggests some obstruction to the main arteries of the limbs, but the arteries supplying the feet were also not all felt beating in the usual situations. An arteritis, or constriction of the smaller arteries, possibly due to nervous influence, seems to be the most likely explanation of the symptoms, but this leaves the ultimate cause and the connexion with the tendency to hæmorrhages unaccounted for. Perhaps the neuralgic pains in the limbs were due to deficient blood-supply or deep hæmorrhages. The final cerebral symptoms preceding death are best explained by meningeal hæmorrhage determined by the increased blood-pressure preceding the menstrual period, but intracranial hæmorrhage does not appear to be a recognised cause of death in hæmophilia.

Halesowen.

THE ULTIMATE RESULTS IN A SERIES OF 76 CASES OF FRACTURE OF THE TIBIA AND FIBULA.

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DURING the last few years several articles have appeared in the medical journals drawing attention to the treatment and prognosis in the case of simple fractures of the bones of the lower limbs. Fractures of the tibia and fibula have perhaps received the chief attention, and although most of the surgeons who have recently written upon this subject express themselves as being dissatisfied with the ultimate results obtained after the so-called ordinary methods of treatment, yet it would be difficult to find any two surgeons who entirely agree as to some of the important details in the remedies suggested. For example, one surgeon, believing that the impaired utility of the limb after a fracture of the bones is largely due to hæmorrhage into, and inflammatory thickening of, the soft parts at the seat of the fracture, advocates the early employment of massage. Another surgeon, believing that spasmodic muscular contraction is a very important factor in preventing the correct apposition of the broken fragments, practises tenotomy, while a third surgeon, being convinced that the subsequent utility of the injured limb will be directly proportionate to the accuracy of the reduction of the fracture, does not hesitate to cut down upon the fractured ends and to fix them together with wire or a screw. All are, however, agreed that the age of the individual is one of the most important factors as regards prognosis. It is a well-established fact that if a child sustains a fracture of the femur or of the tibia and fibula the probabilities are that the ultimate utility of the limb will be in no way impaired.

My personal experience of fractures of this kind in children has been somewhat extensive, for in the 10 years during which I was connected with the Liverpool Infirmary for Children I forcibly straightened—or, in other words, broke—more than 1400 crooked legs. In all these cases the fracture produced was a simple fracture either of the lower end of the femur or of the tibia and fibula, according as the deformity corrected was a knock-knee or a bowed leg. The after-results were in every way satisfactory in respect to the union of the fracture and the position and utility of the limb. When, on the other hand, a fracture occurs in an adult the prognosis for obvious reasons is much more grave and the object of this communication is to try to arrive at a fair estimate of the after-results from these injuries. My original intention was to include fractures of the femur, patella, tibia, and fibula, but for the

present I propose to limit my remarks to the treatment and prognosis after simple uncomplicated fractures of the tibia and fibula. For this purpose I wrote to every patient who had been treated for a fractured tibia or fibula at the David Lewis Northern Hospital during the last five years, and I regret to say that the number of patients who responded to my request to attend at the hospital bore a very small proportion to the number of post-cards sent. However, I succeeded in finding at their own homes many of those who did not come, and although the numbers thus obtained are comparatively small the results are interesting and, I think, well worth consideration. As the majority of these patients were not under my own care I have to thank my colleagues, Mr. Chauncy Puzey and Mr. Damer Harrison, for kindly allowing me to make use of their cases and I am pleased to have this opportunity of expressing my great obligation to Mr. Arthur N. Walker and Mr. C. Thurstan Holland for the time and trouble which they have taken in furnishing me with the x-ray photographs.

In the hospital where these cases were treated, situated as it is close to the Liverpool Docks, we have to deal with a large number of fractures (about 350 annually) and as we therefore have a somewhat exceptional experience in the treatment of broken legs I hope that I am justified in assuming that the results obtained are at least equal to the average results obtained elsewhere.

What, then, do these results amount to? I have succeeded in learning the after-results of 76 cases and a brief account of each case is given in the appended table. In almost every instance the patient was an adult male and the fracture was a so-called simple fracture and not complicated by a wound of the big blood-vessels, by a dislocation, or by a joint being involved, except, of course, in some of the cases of Pott's fracture. I have only included a few fractures in females because I wished to ascertain how far a man's wage-earning capacity was interfered with after a simple fracture of the tibia and fibula; in other words, how long he would be off work and how far he would be able to resume his former employment. This will, of course, depend very largely upon the man's trade. The after-result might be entirely satisfactory if he is a tailor or a dock labourer and works on the flat, but the same result may be by no means satisfactory if the man is a sailor, an Everton forward, or a steeplejack. Whether we do or whether we do not, my belief is that we should be able in the majority of cases so to mend a broken leg that whatever a man's trade is he will subsequently be able to follow it.

The depreciation in the wage-earning capacity of a labouring man after he has sustained an oblique fracture of the lower third of the tibia is said to be considerable and has been estimated at being somewhere between 40 and 60 per cent. I am pleased to find that the results obtained at the David Lewis Northern Hospital, judged by these standards, have been very creditable. But however creditable these results may be I sincerely hope that in the future they may be infinitely better, as I firmly believe they should be.

Why is it that at the beginning of the twentieth century we are not able to mend broken legs better than we do? I believe that it is in a great measure owing to the fact that in hospitals fractures, as a rule, do not excite much interest, at all events not to be compared to the interest excited in treating a cancer of the pylorus or a cerebral tumour. But surely it is better completely and permanently to restore the utility of a broken limb of a healthy man than to prolong the life of a cancerous patient for a few years. Owing chiefly to the introduction of anti-septics the advances in abdominal and cerebral surgery have, even in my own time, been little short of marvellous, but the treatment of simple fractures at the beginning of this century is very much the same as it was at the beginning of the last. So far as I have been able to ascertain, if a man with a simple fracture of the tibia and fibula, whether the fracture is oblique or not, be admitted into any hospital in England, the great probability is that after the fracture has been "set," with or without an anæsthetic as the case may be, the limb is fixed in a back splint with a vertical foot-piece and side splints. I am perfectly well aware that other methods of splinting are employed, but the one which I have mentioned is, I believe, the most usual one.

I do not know whether any practising surgeons have ever had the curiosity to try the ordinary back splint with the vertical foot-piece on themselves, but I have and have found the