Re-amputation May 5th, 1916. The fibula was excised and flaps were dissected from the anterior and posterior aspects of the amputation stump; the anterior and posterior tibial nerves were cut short and the flaps brought together with as little tension as possible. Four months later the stump was soundly healed. He was fitted with an artificial limb in December, 1916, and the following May he was able to walk and stand with ease and comfort and could play a round of golf over a course of eighteen holes. In this case without removal of the fibula it would have been impossible to cover the ends of the stump with a satisfactory skin flap. Removal of the fibula enabled a satisfactory stump to be obtained below the knee-joint, and a limb could be fitted which gave the patient full use of the knee.

CASE II.—Gunshot Wound of Right Leg: Amputation below the Knee with Excision of the Fibula. Result, Serviceable Stump.

A. G., a fish curer, aged 25, was wounded in the right leg in May, 1916. The leg was amputated by the guillotine method, and he was transferred to England. The stump below the knee measured 2½ inches, and its extremity was covered by a layer of healthy granulation. Three months after the primary amputation a second amputation was done: the fibula was excised, the external and posterior popliteal nerve dissected out and cut as short as possible, and skin flaps were freed and brought over the stump with as little tension as possible. In six months' time the stump was completely healed and ready for fitting with an artificial limb. The patient was given his first limb in January, 1917, and his second limb in September, 1919. He has returned to his previous occupation as fish curer, and can walk two miles to his work, stand all day, and has no pain or discomfort in the stump.

CASE III.—Gunshot Wound of Left Leg: Amputation below the Knee: Painful Stump, Unable to Bear an Artificial Limb: Re-amputation with Excision of Fibula. Recovery with a Serviceable Stump.

H. M., aged 38, was first seen in March, 1922, when he gave the following account of himself. He joined the army in 1915, and served in France until he was wounded in the left leg in November, 1916. He passed through the various hospitals in France and was finally transferred to England and was admitted to a hospital in Sheffield, where his leg was amputated; the amputation was followed by two re-amputations to prepare the stump for the fitting of an artificial limb. He was fitted with his first artificial limb in March, 1917, and with his second in 1920. He states that neither limb has ever been satisfactory. He could at the best only wear the limb for three or four hours a day, and could only walk about half a mile with difficulty. At various times, owing to the pain and swelling, he has been compelled to leave off the artificial limb and take to crutches for two or three weeks at a time.

Examination.—A healthy-looking man; the left leg has been amputated and he walks with difficulty on an artificial limb. Local condition: The left leg has been amputated below the knee. The stump measures 4 inches in length. The soft tissues covering the stump are redundant. The fibula is prominent and pressure over the head of the bone causes much pain.

Removal of the remaining part of the fibula with the redundant soft tissues was advised. The operation was performed under chloroform on March 14th, 1922. A vertical incision was made over the outer aspect of the stump, the incision being a quarter of an inch behind the fibula and carried downwards over the lower end of the stump. The external popliteal nerve was exposed, dissected free, and after crushing as high as possible with strong lever compression clamps divided through the crushed area and allowed to retract. The fibula was then removed subperiosteally and the redundant tissues at the extremity of the flaps removed. A few bleeding points were ligatured, the skin sutured, and a firm gauze bandage applied. The stitches were removed on the seventh day, and the patient allowed to get up at the end of two weeks. In order to prevent the swelling of the stump which so often happens in cases of amputation and re-amputation a light plaster-of-Paris bandage was applied to the stump over a small dressing. It has been found that this procedure effectively prevents swelling of the stump, lessens pain, and allows the early application of an artificial limb.

This patient was fitted with an artificial limb early in May; he rapidly got used to the limb, and he has had no pain or difficulty in wearing it since the operation of removal of the fibula, and now, four months after the operation, he can wear the limb all day and walk four or five miles without difficulty or pain.

CASE IV.—Gunshot Wound of Right Leg: Amputation below Knee: Painful Stump, Unable to Wear Artificial Limb: Re-amputation with Excision of the Fibula. Serviceable Stump.

J. S., aged 42, was first seen in April, 1922, when he complained of a painful stump and inability to wear his artificial limb. He gave the following account of himself. The left leg was amputated below the knee in April, 1918; an attempt was made to fit him with an artificial limb in December, 1918, and he was supplied with a second limb in 1919. He has never been able to get about with any comfort and many attempts have been made to try and fit him with an artificial limb, without any permanent success. He has never been able to walk more than half a mile, and the stump was always painful.

Examination.—General condition good. Local condition: The right leg has been amputated below the knee; the stump measures 3½ inches. The tissues covering the extremity of the stump are adherent to the bones. The fibula is prominent, especially at its lower end, where it is thickened and projects and appears to be tilted away from the tibia. Pressure over the fibula is painful.

Removal of the fibula was advised. The operation was done in May, 1922; the fibula was removed and the adherent scar freed

from the bone. The patient was refitted with an artificial limb in June, and since then he has had little or no pain, and has been able to wear an artificial limb with much more comfort.

CASE V.—Gunshot Wound of Right Leg: Amputation below Knee: Painful Stump, Unable to Wear Artificial Limb with Comfort: Excision of Remaining Part of Fibula. Result, Serviceable Stump.

F. E., aged 26, was wounded in the right leg in 1917. The leg was amputated below the knee, leaving a stump 3 inches in length. An artificial limb was fitted in 1918, and he was supplied with a second limb in 1919. He states that he has made good use of the artificial limbs, wearing them all day and walking with comfort until about six months ago, when he began to have pain in the stump and experienced difficulty in wearing the limb.

Examination (July, 1922).—Local condition: The right leg has been amputated below the knee-joint; the stump measures 3 inches in length. There is some wasting of the tissues covering the stump, but the tibia is well covered. The fibula, which has been divided on a higher level than the tibia, projects on the outer aspect of the stump; the scar is adherent to it, and there is a small bursa over the bone. Pressure over the fibula causes pain.

Excision of the remaining part of the fibula was advised. The operation was done on August 9th. The wound healed well and the artificial limb was fitted three weeks later. The patient now walks well and is free from pain.

CASE VI.—Gunshot Wound of Left Leg: Amputation below the Knee: Painful Stump, Unable to Wear Artificial Limb: Excision of Remaining Part of Fibula. Result, Serviceable Stump.

W. D., aged 26, was wounded in the left leg in 1917. The left leg was amputated below the knee. He complains that, although fitted with artificial limbs which he has been able to wear, he has never been really comfortable for any length of time. He considers that the artificial limbs with which he has been supplied fit well and that it is the pain in the stump which prevents him from wearing them.

Examination.—The left leg has been amputated below the knee. The stump measures 4 inches in length; the fibula is unduly prominent and the muscles covering the stump are wasted. The scar is adherent to the tibia.

Removal of the fibula with freeing of the adherent scar was advised. The operation was willingly agreed to and was performed on March 26th, 1922. The wound healed by first intention, and five weeks later the patient was fitted with an artificial limb. The stump was now painless, with a result that he could walk and stand with comfort.

Removal of the fibula adds so much to the efficiency of stumps after amputation below the knee that I think it is an advantage to perform it in all cases in which the stump will not measure more than four inches.

BRONCHIECTASIS WITH UNUSUAL COMPLICATIONS.

BY

IVOR J. DAVIES, M.D., M.R.C.P. LOND.,

PHYSICIAN WITH CHARGE OF OUT-PATIENTS, KING EDWARD VII HOSPITAL, CARDIFF.

In the issue of the BRITISH MEDICAL JOURNAL for June 5th, 1920 (p. 767), I referred briefly to two instances of certain complications of bronchiectasis which apparently had not been recorded up to that time, and which can now be described in more detail, as the second case terminated recently.

CASE I.

The first case was one of bronchiectasis in a man of 46, of pneumonic and pleurogenous origin, in which the accessory nasal sinuses became infected in turn, requiring operation for empyema of the antra of Highmore. The fetid pus from the pulmonary cavities was often expelled in quantity and projected suddenly with much force into the mouth and nose, and infection of the accessory sinuses arose in this way. The patient frequently complained of severe frontal headache, which probably resulted from a chronic inflammatory state of the mucosa of the frontal sinus. Severe attacks of haemoptysis occurred from time to time, and death took place after fourteen years from pneumonia and gangrene of the lung.

CASE II.

The second case was that of a man, aged 59, of vigorous build and sound health up to the time of an attack of pneumonia and pleurisy seven years previously, after which time he suffered from a chronic cough, profuse purulent expectoration, and gradual failure of health. He was able to hold a responsible position, which necessitated much travelling, in connexion with a railway, to within a month or so of death.

He had several attacks of pleurisy (and probably pneumonia) during the course of the disease, which he always attributed to a chill. He was thus susceptible to the septic complications of the disease from the nature of his vocation. The exact situation of the multiple lesions of the disease was indefinite, probably owing to the associated fibrosis and emphysema of the lungs and

to pleural adhesions over the lower lobes. The main lesions appeared to be in the upper and lower lobes of the right lung. The sputum was examined on several occasions for tubercle bacilli, with negative results. He had never suffered from syphilis, and the Wassermann reaction was negative. He indulged very moderately in alcoholic beverages and tobacco. The disease lasted for close on ten years, when death took place from bronchopneumonia.

The complications which chiefly deserve notice were a condition of chronic glossitis, and a persistent severe albuminuria from chronic nephritis, both of which were probably of toxic origin from chronic infection.

The patient was seen regularly over a period of three years up to the time of the termination. The general state of his health and nutrition was fairly well maintained, despite the secretion of a fair amount of purulent sputum daily and the presence of well marked albuminuria. There was a slight degree of cyanosis with but slight clubbing of the fingers. His tongue from the time when he was first seen was large, red, and unhealthy-looking, being deeply fissured. After coughing, and even on lightly wiping the tongue, the fissures were occupied and filled by expectorated purulent material. A condition of chronic glossitis undoubtedly arose from direct contact with the pus expelled from the lungs, and, despite careful cleansing with antiseptics, the tongue remained enlarged and chronically inflamed, with but slight inconvenience in the form of some local discomfort. There was no undue arteriosclerosis, no cardiac hypertrophy, and the systolic blood pressure never rose above 160 mm. The fundus oculi was normal. No oedema was observed.

The urine was examined on several occasions by Dr. R. L. Mackenzie Wallis of St. Bartholomew's Hospital, with the following results: The colour was pale. The quantity throughout was only a little in excess of normal and was well maintained up to the time of death. The reaction was acid. The specific gravity declined from 1020 in the earlier reports to 1014 a few weeks before death. The albuminuria was considerable and varied from 0.35 gram per cent. (Aufrecht) to 0.75 gram per cent. shortly before death. Globulin was usually present in too small a quantity for accurate estimation, but was approximately 0.05 gram per cent. on one occasion, and the ratio of albumin to globulin was about 8:1, which figures agree closely with those found in ordinary nephritis. Sugar, blood, acetone bodies, and urobilin were absent. Indican was present, from a trace in the earlier stages to a strongly positive reaction in the terminal stages of the disease. The total acidity was from 52.4 per cent. N/10 NaOH to 47.2 per cent. N/10 NaOH. Ammonia was present, from 0.05 gram per cent. to 0.03 per cent. The urea concentration test after the administration of 15 grams of urea gave a figure of 1.4 per cent. urea, whereas the urine a few weeks before death contained 2.1 per cent. urea, on a fairly liberal diet. The diastase content was usually 5 units, but was 10 units in 1921, six months before death. Microscopically, pus cells were present in fair number in the earlier stages, but became fewer in the later stages. Red blood cells were absent. Epithelial cells were usually present. The casts were generally of the granular and hyaline variety, and no epithelial and fatty casts were found at any time.

The low urea concentration and the low diastase figures in the earlier stages suggested renal inefficiency, but later examinations did not confirm this view, and shortly before death the urea percentage was normal. Blood urea tests were not performed. There was no evidence of uraemia or of its minor manifestations, so that the kidneys were probably not seriously affected despite the severe degree of albuminuria. The renal condition was probably one of toxic nephritis from septic absorption, for there was no evidence of lardaceous disease of any other organ, such as the liver, spleen, or intestines. The characters of the urine were more those of nephritis than of lardaceous disease, more especially in the absence of polyuria and of a urine of low specific gravity. No other septic complications occurred, and haemoptysis was absent throughout. No *post-mortem* examination was made.

I am indebted to Dr. Mackenzie Wallis for his reports, and to Dr. B. Barnard of Machen, Mon., for valuable information in the case of the second patient.

THE tenth congress of French-speaking anatomists and histologists will be held at Lyons from March 25th to 29th, under the presidency of M. Lesbire, professor at the Lyons Veterinary School.

THE second International Congress of Comparative Pathology will be held at Rome from October 7th to 14th. Medical men, veterinary surgeons, botanists, and biologists who propose to attend should communicate with the President of the Congress, Professor E. Perroncito, 40, Corso Valentino, Turin.

THE eighth French Medico-Legal Congress will be held in Paris from May 24th to 26th, under the presidency of Professor Parisot of Nancy. A discussion on international legislation to control the sale of cocaine will be introduced by Professor Courtois-Suffit. Injuries of the vertebral column by industrial accidents and the law of industrial diseases will also be discussed.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

A CASE OF ADDER BITE.

I HAVE written out these notes at the suggestion of Sir Thomas Oliver, whose paper on adder bite was published in the *BRITISH MEDICAL JOURNAL* of December 9th, 1922 (p. 1114).

A boy aged 6 was brought to my house at Helston, Cornwall, in the autumn of a year between 1906 and 1910. While picking blackberries he had been struck by an adder at a point half-way between the base of the nail and the last joint of the right index finger. He walked half a mile home, was dressed in his Sunday clothes, and walked again to the station about half a mile away; then came four miles by train, and walked another half-mile down to my house. During the latter part of the journey he was exceedingly sick. My waiting-room was full, and it was not till he had been in the house half an hour or so that I was told a child had fainted. When I saw him—some two and a half or three hours after the bite—he was lying on the floor, blanched and sweating profusely and practically pulseless. With an injection of strychnine, hot bottles, etc., he gradually revived, and after he had had a stiff glass of brandy and milk I was able to put him in my car and drive him home. Two tiny punctures were just visible at the time of my first examination. By the time he reached home the arm was swollen and he was semi-conscious, and moaning with pain. Hot fomentations from hand to shoulder seemed to relieve this somewhat. The semi-conscious condition lasted about two days.

The morning after the bite, when the late Dr. Edward Permewan of Redruth saw the child with me, the right arm was swollen to the size of his thigh, the skin deeply mottled with all the colours of the rainbow, the swelling and discoloration extending half across the chest in front. Next day the discoloration extended across the chest back and front, and down the left arm to the elbow. There was some swelling of the root of the neck, but not enough to cause any difficulty in swallowing. The limitation of the discoloration was most marked. It did not extend to the neck, and was bounded below by a line drawn round the chest at the level of the lower part of the axilla.

From that time the child gradually improved, the swelling and colour dying down, and in about a fortnight he was quite restored to health.

Owing to the length of time that had elapsed before I saw him, local treatment was useless, but as a matter of precaution I incised the punctures and rubbed in some disinfectant. I think potassium permanganate. The child was so collapsed when I first saw him that I did not expect him to rally, and he must have had an exceedingly narrow escape from death.

The case impressed itself very deeply on my memory, and, though my original notes are lost, the above account is substantially correct as to the time when the various symptoms appeared.

In spite of the large number of adders to be found in Cornwall, this was the only case I heard of where a human being was bitten. I was told that when a lane was being cut through the gorse on a moor near Helston to make a 500-yards shooting range, 160 adders were killed. I asked a farmer once to get me some specimens, and he brought in five which he killed in a few minutes on the sunny side of a hedge one April morning. Personally, I had three very narrow escapes from being bitten when shooting and fishing, while my son has twice been struck on the foot. Hounds hunting at the end of the season, when the adders were sunning themselves after emerging from their winter torpor, were frequently bitten, but I believe always recovered. A terrier of mine was bitten under the jaw. The neck and face swelled up very much and the dog was unable to open its mouth for some days, and had to be fed on milk and brandy with a teaspoon. Except for deafness on the injured side, there was no after-effect. Years ago a nephew of mine, when in the *Britannia*, picked up an adder while ashore, and put it in his pocket and forgot it. Later on he put his hand in his pocket to see if the beast was still there, and was bitten on the ball of the thumb. I know no details, but remember that the boy was exceedingly ill and his people had to be sent for.

Norwich.

MARK R. TAYLOR.

TRIANGULAR FRONTAL HYPERAEMIA IN INFANTS.

CERTAIN infants and young children display a phenomenon which has not, I believe, hitherto been noted in medical literature. It consists of a triangular area of hyperaemia situated over the juncture of the two frontal bones and extending from the anterior fontanelle above to the nasion