the anterior superior spine of the ilium, by means of an ordinary-sized serum needle, the needle being pushed in till the bone was felt, then slightly withdrawn and the contents of the syringe injected. On withdrawal of the needle the area was briskly massaged with a hard pad of cotton-wool to diffuse the fluid through the tissues.

A sharp reaction usually followed in about six to eight hours; there was some local redness and tenderness, and the temperature rose a degree or so. Further, there was a tendency to perspiration, but no other symptoms developed. The injections were given at night, and the patient was able to be up and about the next day without discomfort. No special diet or medicinal treatment was indicated. The results of the treatment of twenty-four cases by this method are given in the accompanying table (p. 13).

The following points were noted: Generally the results were quite good. In younger patients the signs of improvement were to be seen early; age seemed to count more than the duration of the condition—as age increased the condition was more stubborn to treatment; but in some cases, as will be seen, prolonged exhibition of the combination gave satisfactory results. One of the cases after prolonged administration developed nephritis, which cleared up after stoppage of treatment. All the cases gained in weight while under treatment and their general health was improved.

OUTWARD DISLOCATION AT THE TARSO-METATARSAL JOINT.

BY

J. BINFORD BARNETT,

REGISTRAR, ROYAL NATIONAL ORTHOPAEDIC HOSPITAL.

DISLOCATION at the tarso-metatarsal joint is usually caused by great violence—when the foot is run over by a heavy wagon, for instance. The following case, in which the trauma was comparatively slight, seems worth recording:

Mrs. N., a heavy woman of 65, "sprained" her left foot in September, 1922. While standing on a chair she overbalanced, and as she stepped down her full weight came on the inner side of the left forefoot. In her own words, her foot "stuck out sideways" until reduced by a helpful neighbour, and it was very painful. She says that she heard a distinct snap as her foot struck the ground. She remained on a couch for three weeks,

FIG. 1.—Diagrammatic drawing from a skiagram.

FIG. 2.—Drawing from a photograph.

applying to the foot a liniment of great promise but defective performance. When seen four months later, the left foot was valgoid, and the forefoot displaced outward; the internal cuneiform bone was very prominent; there was a general stiffness of the foot, and movements were painful. A skiagram showed dislocation at the tarso-metatarsal joint outward and slightly dorsal, with considerable bone atrophy. She was ordered a light outside steel to the knee, valgus T-strap, and a surgical boot wedged on the inner side. A month later function was good.

Of the fifty cases recorded by Lenormant in his authoritative article,¹ only four occurred in women, and in none of those was the dislocation dorsal and outward. All were caused by great violence, and upon consideration of the anatomy it is difficult to understand how stepping down from a chair could have such serious consequences. Desprès insists that a fracture of the second metatarsal is always present in these cases. Bayer and others deny this. Quénu suggests that a fracture of the distal end of the external cuneiform renders the interarticular line

straight, and permits luxation. In the case of Mrs. N., fracture of both the second metatarsal and external cuneiform appears to have occurred. Girsensohn² attributes a similar injury to the joint approximating to the ball-and-socket type, and to the absence of a dorsal inter-metatarsal ligament.

The physical signs are quickly masked by the great swelling of the dorsum of the foot, accounting for the late diagnosis in 20 per cent. of cases (Lenormant). The history of the type of violence and of displacement of the forefoot is therefore of great importance. The cases soon become irreducible by manipulation (fifteen days, von Linhart), and fibrosis, exuberant callus, and retraction of soft structures occur. Lenormant describes an ossification of the plantar ligaments, forming a bony bridge under the site of injury, as the chief difficulty found in these late cases. But in those early cases submitted to open operation the obstacle to reduction has been that portion of the tibialis anticus tendon attached to the first metatarsal, which becomes lodged between the base of the metatarsal and the first cuneiform. When this is cut, reduction can be effected with ease,³ and the result of operation has been excellent. The results of operation in late cases have been poor (Lenormant).

It would appear, then, that in early cases an open operation with tenotomy of the tibialis anticus is indicated. In late cases function is fairly good anyhow, and the results of operation have not been encouraging.

I have to thank Mr. J. Jackson Clarke for permission to publish this case.

REFERENCES.

- ¹ Arch. Gén. de Chir., 1908, 11. ² Deut. Zeit. f. Chir., cxlix, 135.
³ J. J. Douglas, Trans. Clin. Soc. Lond., xxxix.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

CARBON MONOXIDE POISONING DURING PREGNANCY.

ALTHOUGH cases of carbon monoxide poisoning are of common occurrence, I have been able to find few references to such a condition during pregnancy. The following case was of considerable interest, and in view of its unusual features seems worthy of record.

On February 15th, 1923, a man, his wife, and a male child aged 2 years, were all "gassed" whilst asleep, through leakage from a fractured road main filling their house with coal gas. They were taken to the Bristol General Hospital at once. Husband and wife were unconscious on admission; the child was dead. Both patients had stertorous breathing, pulses almost imperceptible, and the complexion a pinkish-grey colour.

The man, aged 26 years, recovered consciousness in four hours after treatment with camphor injections, stimulants, and oxygen. He made an uninterrupted recovery in about five days.

The woman, aged 23 years, regained consciousness in three hours under similar treatment. She vomited once during this time. When the accident occurred she was six months pregnant, and because there had been no foetal movements since the occurrence she was examined by the physician accoucheur (Mr. D. C. Rayner), who decided that in all probability the foetus was dead. Having considerably recovered she was discharged from hospital on February 22nd. Three weeks later she was admitted to Southmead Infirmary for observation. The fundus uteri only reached the umbilicus. The tumour was "doughy" rather than elastic; the patient had felt no foetal movements; she had had no pains or discomfort; milk could be expressed from both breasts. Since she had lost her first child, the patient naturally clung to the smallest hope of the foetus being still alive. Consequently it was decided not to induce labour, and the patient continued in apparently normal health.

On April 15th (exactly two months after the accident) definite labour pains commenced at 8.15 p.m. About two hours later the os was found fully dilated, with a large elongated bag of membranes almost reaching to the vulva. The presenting part felt "soft and flabby" and during the examination the membranes ruptured. The liquor amnii which escaped was dark brown in colour, but not offensive. It seemed certain now that the foetus was dead, and the patient was left an hour or so in the hope that the uterus would expel its contents. During this time she complained of severe pains about every five minutes though the uterus did not feel to be contracting well. A second vaginal examination showed that the os was somewhat smaller than before and the ribs of the foetus could be felt.

In view of some slight haemorrhage it was decided that the uterus must be emptied as soon as possible. The uterine contractions still continued poor and seemed totally unable to express