to two presumptive instances of this. First, in the campaign in German East Africa the onset of the rainy season coincided exactly with a very great reduction in the numbers of cases of dysentery amongst the white troops with whom I was serving; and of all cases amongst these I found a very large proportion to be amœbic.

Again, in Gallipoli, it was remarked that the onset of the rain in August seemed to put a stop to the dysentery that had been so prevalent amongst the troops there, and although it has since been questioned that much of the dysentery during the Gallipoli campaign was amœbic, it is at least admitted that that peninsula must be regarded as an endemic centre of amœbiasis. No one familiar with hot dusty countries—and especially with campaigning in these countries—can forget the welcome freedom from dust accompanying the onset of the rains. My inference is that the almost absolute freedom from dust in the rainy season suggests that dust has been the medium of infection where dysentery also ceases with the onset of the rains. It may be argued that the rains also reduce the numbers of flies, but a few hours' sunshine is generally sufficient to cause these to reappear and infest food materials as before.

Note.—On the question of the duration of infections of *T. intestinalis* and *T. mesnili*, one case I know to have lasted for over two years, including a period of four months in England. Cyst formation seems to be irregularly periodic in occurrence.

Clinical Notes :

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

INTENSIVE IODINE TREATMENT.

BY TOM BIRD, M.A., M.R.C.S.

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Dr. Louis Bourdreaux published in 1914¹ his experience, of some 14 years' duration, of the intensive treatment of tuberculosis by large and continuous doses of the tincture of iodine of the French Codex. The article is remarkable for three things: his great success as to results in tuberculosis, the large doses that can be given by a gradual increase, and the proof of sincerity in that Dr. Bourdreaux did not publish his results until some 14 years after he began the treatment. His colleagues only had knowledge of his work, and he showed rare restraint in delaying publication for so long. He suggests the "intensive treatment of iodine" might be useful in other diseases. The article came under my notice through a letter of Dr. William Ewart, of St. George's Hospital, who resorted to the treatment for his own arthritis with such success that "from being unable to go upstairs one at a time, he could manage three at a time." He took 10 gr. in the day of pure iodine, through the medium of the French tincture (or Indian tincture), neither of which contain any iodide of potassium.

In quite a number of arthritic cases, and in three or four cases of chronic gout, and in those cases called "rheumatic gout," I have had a quite remarkable success, especially as to pain and insomnia. In 1917 I met an old friend, Dr. J. H.

Ewart, of Eastbourne, and no relation of the above-mentioned Dr. Ewart, who told me he used the treatment, and "was continually having prescriptions returned by the chemists, who were surprised at the doses." Although he is himself susceptible to iodine, he told me that he could take 3i of the French tincture for a dose. He wrote:—

"I tried the treatment, tinct. iodine (French), and began with 10 min., and went on to 30 min. three times a day, and the results were really marvellous; my finger-joints decreased in size in a most wonderful manner. I then went wrong, and began taking 60 min. three times a day, and this ended by giving me a diarrhoea I shall not forget. But to refer to other people. I treated at the All Saints' Convalescent Hospital everybody who complained of chronic rheumatism with tinct. iod. (F.). I don't think the three weeks they were there that I got beyond 30 min. *ter die*; but the results were really splendid."

With regard to tuberculosis, I have only one case to report. He had been at a sanatorium, and was apparently cured; but in a comparatively short time began to fail, and at last came hæmorrhage. I had already advised him to try iodine as a prophylactic. When the hæmorrhage came he was alarmed and began to take iodine. Some two months after I met him by accident and was surprised at his healthy appearance; he was, he said, quite well and had increased 10 lb. in weight. One swallow does not make a summer, but a swallow is a happy omen when it comes.

Some people are susceptible to iodine, as is my friend Dr. Ewart, of Eastbourne; yet he arrived at 3i. doses. I generally order 1 gr. after meals three times a day the first week, 2 gr. the second week, 3 gr. the third week. For arthritis I seldom give more. Beyond slight catarrh of the nasal mucous membrane, of the possibility of which I warn patients, I hear of no inconvenience, certainly no iodism. If the treatment has been left off it is better to begin again with small doses, as diarrhoea may follow a large dose. When pain and swelling have been relieved my custom is gradually to discontinue the medicine. It is unfortunate that the article in the *Journal de Médecine* is out of print, and apparently unobtainable, as some of the details recorded are interesting and illuminating.

The notable absence of iodism following the use of the French tincture suggests that it might be used instead of iodide of potassium.

Conduit-street, W.

A CASE OF OSTEITIS FIBROSA.

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THE chief point of interest in this case was that, although the X ray photograph so closely resembled that of Mr. E. G. Slesinger's case which appeared in THE LANCET of Nov. 15th, 1919, and very strongly suggested cyst formation, both the operation and subsequent microscopy showed the complete absence of cysts.

The patient, a girl aged 7 years, attended the Queen's Hospital for Children in March, 1916, with a history of a fall three years previously and subsequent limping. There was no shortening of the limb or tenderness, and a bony swelling was felt over the upper end of the femur. The X ray showed a coxa vara with questionable signs of old tuberculous disease or periostitis.

¹ Journal de Médecine de Bordeaux, January, 1914.

Skiagrams illustrating (1) Mr. Norman Lake's case of Osteitis Fibrosa in a Girl aged 7; and (2) Mr. E. G. Slesinger's case of Osteitis Fibrosa of Upper End of Femur in a Woman aged 25.

FIG. 1.—Mr. Lake's case.

FIG. 2.—Mr. Slesinger's case (reproduced from THE LANCET, Nov. 15th, 1919, p. 868).

The case appears to have been left until a year later, when the X ray report says "an old greenstick fracture at about the level of the lesser trochanter, with curvature of the upper part of the shaft and some lessened obliquity of her neck."

In August, 1917, a sub-trochanteric osteotomy was performed, and at the operation the bone was noted to be thickened antero-posteriorly, and to be of a soft spongy consistency, not easily broken. The limb was immobilised in plaster for four months, and later treated with massage until the patient returned to hospital two years later complaining of pain in the hip. A large bony swelling was present over the outer surface of the femur. The X ray now showed expansion and rarefaction of the upper third of the femur.

One of us (N. C. L.) then removed a piece for examination, which was reported by Dr. W. C. Topley, of Charing Cross Hospital, to consist of "a loose fibrous matrix in which are embedded irregular islets and trabeculae of imperfectly formed cartilage. There is no cyst formation, calcification is almost absent, but several of the cartilaginous areas show the other changes connected with commencing ossification. No true bone marrow is present." The whole of the diseased spongy tissue was then removed, first cutting through a thin shell of normal bone, and then curetting along the great trochanter into the neck. The periosteum was left, and a thin shaft of normal bone along the inner aspect of the femur. The wound healed without interruption, and subsequent X rays showed growth of callus, but no signs of a return of the tumour.

The history of this case leads to the conclusion that the osteitis fibrosa was secondary to a traumatic coxa vara.

Note.—Since the above was submitted for publication, one of us (N. C. L.) has had a somewhat similar case at Charing Cross Hospital. The patient, a girl of 19, had a spontaneous fracture of the neck of the left femur three weeks previous to admission. A radiogram showed the typical appearance of the bone surrounding the fracture. There was an indurated gland in the groin which on section, however, proved to be chronically inflammatory. Microscopy of the diseased tissue removed showed it to be of exactly the same structure as the first case. With regard to this case the following points are of interest: absence of mechanical trauma, although there is reason to believe from her previous history of pain that she probably had some infective trauma of mild degree; negative history of syphilis and negative Wassermann; absence of Bence Jones's proteid from the urine, and no cyst formation despite the definite indications of the radiogram.

A NOTE ON THE POSTERIOR NERVE ROOTS OF THE SPINAL CORD:

THEIR STIMULATION IN THE LIVING SUBJECT AND
DEMONSTRATION OF DECUSSATION OF THE
NERVE FIBRES.

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WHILST investigating the electrical excitability and conductivity of the nerve trunks of the lower limbs for purpose of diagnosis I have made attempts to stimulate their roots of origin at their exit from the vertebral foramina or in the neural canal. Very strong currents are necessary for this purpose, because the nerve roots lie some distance below the surface. The first attempts were unsuccessful, and no muscle in the lower limbs could be made to contract even when the current had reached the maximum strength which could be tolerated. The faradic and galvanic currents were first used. The galvanic current causes much pain, and the ordinary tetanising

faradic current, though less painful, gives a very disagreeable sensation when its strength is much increased. If, however, the primary current is interrupted much less frequently, say once a second, the single shocks caused by the induced current in the secondary coil at break can be tolerated with little or no discomfort. The primary current can then be further increased (or the secondary coil pushed farther over the primary) and a much stronger stimulus can be applied and borne without pain. The coil which I have used for this purpose is the Tripièr coil. This is provided with a special see-saw interrupter which can break the primary current any number of times, from 1 to 60 per second. A coil, of English make, known as the "Physio" coil¹ is fitted with a similar interrupter.

If an electrode consisting of a padded metal disc, $\frac{1}{4}$ inch in diameter, is placed on the skin over the lumbar vertebræ, with an indifferent electrode on the abdomen, and the interrupter regulated so as to break the primary current once a second, the secondary coil can be gradually moved over the primary till contractions of the lower limb muscles occur. The region to which the active electrode must be applied lies over the second, third, and fourth lumbar vertebræ, $\frac{1}{2}$ inch from the middle line. The skin must be well moistened, and the electrode pressed as close to the vertebræ as possible.

In the first patient on whom I tried this form of stimulus I noted that the muscles of the lower limb on the opposite side contracted. I then applied a similar stimulus to three normal subjects, one male and two female. Similar results were noted. If the current was much increased the muscles of both lower limbs contracted, but those on the opposite side contracted more strongly. When the current was reduced contraction was noted only on the opposite side. In one of the subjects a particularly strong contraction of the opposite quadriceps was noted, even when that of the same side was quiescent. It was well demonstrated when the subject lay face down with the knees flexed to a right angle. Each time the primary current was interrupted the quadriceps on the opposite side gave a sudden tug, and if the ankle was held by the operator the effort of the muscle to extend the knee was felt, and no pull was felt on the same side. The contraction of the opposite quadriceps occurred when the active electrode was placed anywhere on the region mentioned on the second, third, and fourth vertebræ.

In this experiment the contraction is due, in all probability, to stimulation of the posterior nerve roots in the cauda equina. If it were due to stimulation of the anterior roots, contraction would have occurred on the same side, or more strongly on the same side than on the opposite, and the groups of muscles contracting would have been smaller as the electrode was placed successively on the second, third, and fourth lumbar vertebræ, thereby stimulating successively smaller numbers of nerve roots.

Another observation made during these experiments was that reversal of the direction of the induced current (obtained by reversing the primary current) was followed by little or no contraction on either side.

These experiments appear to demonstrate the decussation of the afferent (sensory) nerve fibres after entering the cord.

¹ This is made by the Medical Supply Association.