Correspondence.

"Audi alteram partem."

FAMINE-DROPSY: OBSERVATIONS ON TWO KINDS OF ŒDEMA.

To the Editor of THE LANCET.

SIR,—In the annotation on Famine-Dropsy and the War in your issue of Oct. 30th you mention various theories as to its causation, including that of Fischer,¹ who published a series of experiments indicating that œdema might be the result of the increased power of imbibition of water possessed by protoplasm when it becomes acid. During the course of some experiments I have obtained evidence of the existence of two modes of change to each of which the term œdema could be applied. They were distinguished by their differing actions on the functional capacity of the tissues. My experiments were performed on the perfused hind limbs of *Rana temporaria*, one limb serving for experiment and the other as control.

An œdema which may be called the œdema of acidosis was produced by causing the muscles to accumulate free acid through tetanus or by perfusion of lactic acid through the blood-vessels. Many years ago Ranke² showed that a fatigued muscle recovered its excitability if subsequent to the loss of excitability it were washed out by sending a saline solution through its blood-vessels. He also showed that lactic acid perfused through the blood-vessels produced fatigue phenomena from which there was recovery when the acid was likewise washed away. In both instances I found that this recovery was temporary, and that it was succeeded by a slow failure consequent on the development of an œdema. The œdema was a vital phenomenon because it eventually passed away on continuance of the perfusion, and as it passed away the capacity of the muscle to be excited to contraction once more returned. But the slightest trace of œdema brought about by this acidosis abolished the capacity of the muscle to be excited to contraction from its nerve.

Mosso³ has shown, however, that a muscle can be excited to contraction by electrical stimulation of its nerve at a time when the central nervous system is no longer able to do so. Hence the finding that the slightest trace of the œdema of acidosis abolished the capacity of muscle to be excited by direct excitation of its nerve implies even more strongly the abolition of its capacity to be excited to contraction voluntarily. Hence also the finding that a patient can move voluntarily an œdematous limb can be taken as evidence that the œdema is not consequent on acidosis. I have seen many cases of famine œdema. They were "walking" cases. Had the œdema been due to acidosis they would have been bedridden.

There is also an œdema associated with perfusion. To produce it all that is necessary is to raise unduly the pressure of perfusion. A high grade of œdema can thereby be produced in half-an-hour. It goes away when the perfusion pressure is made normal again. In contradistinction to this the œdema of acidosis comes and goes at constant perfusion pressure, and can develop at zero pressure provided the tissue is in contact with sufficient fluid. A further important difference between the two kinds of œdema is that this œdema of perfusion has apparently no influence on the capacity of muscle to be excited to contraction either directly or through its nerve.

There are thus two kinds of œdema of similar external appearance, but showing marked differences of action on the functional capacities of the tissues in which they appear. There may be other kinds of œdema, and while we cannot definitely associate this œdema, due to too great perfusion pressure, with any

definite pathological bodily œdema, we do get evidence for dissociating the œdema of acidosis from any such conditions.—I am, Sir, yours faithfully,

W. BURRIDGE, M.A., M.B., B.Ch.

Physiological Laboratory, University of London,
South-Kensington, Nov. 4th, 1920.

LAWRENCE v. EDMONTON COUNCIL.

To the Editor of THE LANCET.

SIR,—It may interest your readers to know how the matter of my appointment as supervisor of the maternity and child welfare centre has been at last settled between its medical officer of health and my Council. The terms are: (1) The deletion from the minutes of the resolution dated 24/6/19; (2) my reinstatement in office as supervisor from the aforesaid date at a salary of £100 and bonus yearly; (3) the payment to me of all arrears from June 24th, 1919; (4) the payment by the Council of all my legal expenses as between solicitor and client.

Of course, no money can compensate me for the worry and mental strain endured for 16 months or more owing to the arbitrary and illegal act of my Council. You perhaps know that in February last a nervous breakdown obliged me to take three months' sick-leave, and even now I have not fully regained my health. Throughout the long struggle I have been fortified by the sympathy and support of the local medical men, of the British Medical Association and its North Middlesex Division, of the National Association of Local Government Officers and its Edmonton Branch, and of the Society of Medical Officers of Health and the Society of Members of the Royal College of Surgeons of England. Many of my professional brethren have added their individual efforts to endeavour to obtain justice and fair play for me. To one and all I am deeply grateful. To them and myself the result, though long postponed, must be most gratifying, and we can all hope that it will be a stern warning to other local authorities that there are limits—legal, if other—to the inconsiderate treatment of their medical officer of health.

I am, Sir, yours faithfully,

SIDNEY C. LAWRENCE.

Town Hall, Edmonton, N., Nov. 7th, 1920.

THE HEREDITARY FACTOR IN TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Dr. G. E. Beaumont, in THE LANCET of Nov. 13th, referring to the possibility of immunisation against tuberculosis by ingestion of infected cow's milk, asks me the following question: "Would this be a suitable means of immunising the children of London, or would the risk of mass infection be too great?" As this question is one of prime importance, I welcome the opportunity of making a very brief reply. Assuming that there is good ground for believing that bovine tubercle bacilli, ingested in milk, actually do lead in many cases to the acquisition of a relative degree of immunity to human tuberculosis, there can be no doubt at all that, if taken in large doses, they often lead to severe and even fatal infection. The investigations of Dr. Stanley Griffiths and others have shown, for instance, that tubercular meningitis is not infrequently caused by bovine bacilli. To my mind this fact settles the question. We have no right to advocate the deliberate exploitation of a method of immunisation which we cannot control and which we know to be fraught with danger if the dose happens to be excessive. The control of milk-supplies in such a community as ours is a very difficult matter, and, even if much greater success is attained than at present, it is unlikely that the children of London will be altogether deprived of opportunities of swallowing bovine tubercle bacilli. Let us hope that the doses may be so far reduced in the future as to remove at least all elements of danger. What I advocate is further research on methods of controlled immunisation. Perhaps it may, some time, become possible to use standardised doses of bovine bacilli in milk as a vaccine for oral administration. This is a line of work which invites careful experiment, but as to which exact

¹ Fischer: Œdema, New York, 1910.² Ranke: Tetanus, Leipsic, 1865.³ Mosso: Fatigue, London, 1900.