like to support his contention from my own experience of the cases of that disease which are admitted to hospital in Manchester.

It is, I think, undesirable to generalize when we have a test which enables us, in the majority of cases, to decide when any given patient was infected; that test is the length of the interval elapsing between delivery and the onset of the pyrexia or the initial rigor.

When this occurs within forty-eight hours of delivery the presumption is (excluding gonorrhoeal cases) that infection took place shortly before or at that time.

Even in this it is not possible to say that the physician was directly responsible for the infection. Whenever a medical man was in attendance, the presumption is that there was a midwife, nurse, or benevolent neighbour present also; she will have made internal examinations, possibly with greater frequency than the physician, and in some cases, at all events with less regard to the necessity for asepsis.

When the latent period is four or five days, or even longer, it is exceedingly improbable, judging from the analogy of other wound infections, that infection took place at the time of delivery. Here inquiry should be made rather as to the frequency with which vaginal douches have been given by the nurse, and the manner of their administration. The frequency with which the *Bacillus coli communis* is found in the uterus in these later cases suggests also that the external genitalia have not been treated as the orifice of a surgical wound, and have not been adequately protected from infection either from the patient's own rectum or from contact with dirty clothes.

For these cases the physician cannot primarily be held responsible, though he may have neglected to give precise directions for the after-treatment of the case, for who can adequately supervise the ignorant and careless persons with which the parturient woman is sometimes (I do not say always) associated?

There can be no doubt that in our own patients a latent period of forty-eight hours or less is relatively uncommon, the proportion being only about one-sixth of all cases.

Undoubtedly some of the worst cases, clinically, that one sees have been caused by undue wounding of the parts by the careless or unwise application of forceps, or by the performance of intrauterine manipulations without adequate anaesthesia or assistance. There are a few others, but not many, where the placenta has been incompletely removed (the physician being in attendance), but these together form the smaller and not the greater part of our cases.

In a short time the reports of the recently-appointed medical officers to the various Midwives' Supervising Committees in the country will be available, and it is to be hoped that we shall find therein materials on which to base more precise statements on the causation of puerperal sepsis than have been unfortunately made in the past.—I am, etc.,

A. KNYVETT GORDON, M.B.Cantab.,
Medical Superintendent,
Monsall Hospital.

Manchester, September 17th.

THE VALUE OF CALCIUM IODIDE AND CALCIUM CHLORIDE IN THE TREATMENT OF ULCERS.

SIR,—I have read with much interest the paper on the above subject by Dr. G. A. Stephens in the BRITISH MEDICAL JOURNAL of July 21st (which has only just reached me in this distant land), but I think many general practitioners would be glad if Dr. Stephens could find time to go a little more fully into the treatment of the cases he published. No mention is made of the general treatment; and yet I presume the internal administration of calcium salts was not the only thing done for these patients.

It would be interesting to know whether they were put on any special diet and whether stimulants were allowed; but of far greater importance is the question of local treatment and rest. What did the local treatment of the ulcers consist of, and were the patients kept in bed, or were they allowed to walk about?

To us here "in the wilds" these are very important points, as some of our patients have to travel enormous distances, often over 100 miles, to see a doctor; and these we may not see more than once in three months. In the meantime all we can do for them is to keep them supplied with medicines. Therefore it is absolutely essential that we should give them very careful and minute instructions as to general treatment the first time we see them.—I am, etc.,

J. K. K. BENJAMIN.

Vryburg, S. Africa, Aug. 12th.

THE ELECTRICAL RESISTANCE OF THE BLOOD AND URINE AS A TEST OF THE FUNCTIONAL EFFICIENCY OF THE KIDNEY.

SIR,—I am grateful to Professor G. N. Stewart for calling my attention in your issue of September 15th to the fact that the electrical resistance of the blood does not depend solely upon the salts present, but also upon the proportion of the total volume of the blood which is occupied by corpuscles. I was, of course, aware from experiments made by me on artificial urines prior to 1892[1] that the presence of non electrolytes such as sugar and albumen would slightly increase the resistance, but this effect can for practical clinical purposes be disregarded in the presence of the dominating influence of the salts. I must also express my thanks to Mr. T. M. Wilson for drawing my attention to his conductivity measurements and freezing-point observations on blood and serum in pernicious anaemia and other diseases. He confirms, I am pleased to see, the observation I made a number of years ago[2] as to the increased conductivity of the blood in pernicious anaemia, but he disagrees with me as to the cause. Whether this increased conductivity be due to the diminution in the corpuscles, or to the increase in the salts, or to both, it is of importance in throwing light on the pathology of the disease.

Much more, however, can be learned as to the renal efficiency by ascertaining the ratio which I have termed the "haemorenal salt index"—namely, by comparing the electrical resistance of the blood of a patient to the electrical resistance of his urine taken at one and the same time. Thus in pernicious anaemia the index is only a fraction of what it is in health, due to the diminished resistance of the blood and the increased resistance of the urine. Dr. F. C. Hopkins[3] found a marked diminution in the salts of the urine in 5 cases of pernicious anaemia. But it will be chiefly in surgical affections of the kidney that the method will be, in combination with cryoscopy, of use in ascertaining the renal capacity. I append the notes of a case of Dr. Alexis Thomson of tuberculous kidney. The secretions were examined for me by Dr. A. C. T. Woodward.

The resistance of the blood was very high, and amounted to 153 ohms; the resistance of the urine (not coloured blue) segregated from the left diseased kidney amounted to 93.5 ohms, or more than double the average normal resistance. The resistance of the urine (coloured blue) segregated from the right healthy kidney was 62.9.

The haemorenal salt index of the diseased kidney was:

$$\frac{153}{93.5} = 1.6.$$

The haemorenal salt index of the healthy kidney was:

$$\frac{153}{62.9} = 2.4.$$

No allowance has, however, been made for the different rates of secretion of the two kidneys; had this been taken into account, as it ought to have been, there might have been a much greater difference. The result, however, so far as it goes, shows that the haemorenal index of the diseased kidney was below the normal—1.6 instead of 2; while the index of the healthy kidney was above or quite up to normal—namely, 2.4 instead of 2—because it was taking on some of the work of its fellow. No doubt more accurate information as to the salt concentration of the blood could be obtained by separating the serum, but this would be difficult when dealing with the very small quantity of blood—namely, 5 c.mm., which is all I require to draw from a patient, in addition to 5 c.mm. of his urine, in order to measure the ratio I have termed the haemorenal salt index.—I am, etc.,

DAWSON TURNER.

Edinburgh, Sept. 20th.

[1] *Proceedings Royal Society of Edinburgh*, December 21st, 1891.
[2] *Manual of Practical Medical Electricity*, 4th edition, chapter on Electrical Diagnosis; also *Nature*, July 13th, 1899.
[3] *Guy's Hospital Reports*, 1891-2.