food. The temperature should be kept, if possible, below the 103° line by cold sponging, or, if hyperpyrexial, by the wet pack, care being taken to give a stimulant if necessary. Sweats should not be shortened. A continued type of temperature shows a high degree of toxæmia or the presence of probable pulmonary complication. Arthritis should be treated with belladonna or opium applications, and the neuritis by mild hypnotics, such as sulphonal, trional, or paraldehyde; a patient should never be allowed to pass sleepless nights. If the pain is very acute morphine must be given, but should be avoided if possible.

Drugs.—These are of very little use. Quinine, camphor, methyl-blue, collargol, and electrargol have given some satisfactory results lately when administered intravenously. Piazzo's phenololipoid N is recommended—1 c.cm. of a 10 per cent. solution in oil given subcutaneously for an average of eight days was able to cure guinea-pigs which had received lethal doses of *M. melitensis*. It is antitoxic and bactericidal. Burney Yeo's mixture was useful. Digitalis, strychnine, and stimulants, as required by symptoms, must be given.

Serums.—Donzello and Trambusti had a nucleo-protein serum, and lately Nègre and Sergent have prepared a polyvalent serum which has given good results.

Vaccine Treatment.

The great majority of workers, English and foreign, agree that vaccine treatment is the most essential factor in the treatment of undulant fever, and should be continued until the patient is immunized. With this I agree, with the following reservation: that we should not give vaccine when, in very acute conditions, the patient is already overdosed with autogenous toxins; the ideal is a combination of an antitoxic serum and an autogenous vaccine, as the organism gives rise to so much toxin and remains alive for so long in the tissues. Burnet has shown that, when absent from the blood and urine in infected animals, the *M. melitensis* can always be demonstrated in the marrow of the long bones. Therefore always combine with vaccine treatment the administration of yeast or some other preparation to increase the phagocytic activity of the blood.

THE ANAESTHETIZATION OF PATIENTS FOR THE CLASSICAL CAESAREAN SECTION.*

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CAESAREAN section has a special interest for anaesthetists and obstetricians from the fact that the welfare and life of two or more individuals are involved.

On the obstetrical indications for the operation I will say nothing on this occasion except that they are being extended too widely by many practitioners.

On the anaesthetic aspect it requires some courage for an obstetrician to speak before an audience of specialists in anaesthetics, and my courage might have failed me had I not been convinced by an experience of thirty-five years of the value and harmlessness to mother and child of small quantities of chloroform given *à la reine* to mitigate the pains of labour, while insisting on the necessity of anaesthetization by an expert anaesthetist whenever an operation is required.

Perhaps I may claim a little indulgence for having broken a lance in behalf of your specialty at the Centenary of Ovariectomy meeting of the American Gynecological Society at New York in 1909, on which occasion, in a discussion on anaesthesia,¹ I expressed my amazement at finding that American patients were anaesthetized by nurses instead of specially qualified medical practitioners. My criticism was well received by my American colleagues; but Dr. Clarence Webster of Chicago (formerly of Edinburgh) was so affected by my accurate description of the position of anaesthetists in London that he informed the meeting that Scotland was the most important part of the United Kingdom, that in 1896 there was only one paid anaesthetist in Edinburgh, and that patients were generally anaesthetized there by medical students.

In this communication it is to be understood that the anaesthetic is to be administered by specially trained qualified medical practitioners.

Of the two chief methods of anaesthetizing a patient the inhalation methods are generally preferable in cases of Caesarean section. Spinal anaesthesia is undoubtedly more dangerous than inhalation anaesthesia and has drawbacks from which the latter is free. Infiltration anaesthesia has advantages, particularly in patients with pulmonary or cardiac affections. I used it successfully twenty-two years ago² in Caesarean section repeated for the third time. But I have not employed it since.

Spinal anaesthesia and infiltration anaesthesia are less humane than inhalation methods, which induce complete loss of consciousness; and, although they are useful in certain conditions, they are not advisable as a routine method, which it is the object of this short communication to advocate.

Of the two chief inhalation anaesthetics, chloroform and ether, I suppose no anaesthetist will assert that chloroform is as safe as ether, when administered to the surgical degree for long periods, especially to pregnant women. It has therefore largely been given up in favour of ether administered either by the "open" or "closed" method.

Ether Asphyxia of the Infant.

The great disadvantage of ether is that it leads to asphyxia of the infant, which is not the case with chloroform administered to the minimal surgical degree. In my early days of performing Caesarean section I had ether administered—of course by skilled anaesthetists—but found that the child was often asphyxiated, and that hot and cold baths, stimulants, and assistants were required to start respiration in the infant. The occurrence of asphyxia in the child is still common in the practice of many obstetricians. Dr. Hubert Roberts has pointed out its fairly constant occurrence. For many years I have used the method about to be described and can assert that the Caesarean child has never been asphyxiated by the anaesthetic thus administered.

The Method Employed.

No preliminary hypodermic injection is given. The patient, prepared for operation, is placed in the recumbent posture on the operating table in the theatre and the anaesthetic is administered there. Operator and assistants are prepared and the towels adjusted.

Chloroform is then administered by the anaesthetist, who informs the operator when the patient is ready. The operation is then rapidly performed and the child, usually delivered within thirty or forty seconds from the commencement of the incision, always breathes and cries at once.

Ether is then administered for the rest of the operation, usually by the open method.

If there is any unusual loss of blood a hypodermic injection of pituitrin is given.

The result of this method of administration is that in all cases in which the classical Caesarean section is done before or soon after the onset of labour the child is born free from asphyxia and cries at once.

I think it is the ideal method of administration; but I am anxious to have the opinion of members of the Section upon this point: Does the mother run any appreciable risk in having the operation performed while under chloroform administered by an expert anaesthetist? I think she does not, having particularly in mind the tolerance of parturient women for small doses of chloroform.

REFERENCES.

¹ *Trans. Amer. Gyn. Soc.*, 1909, p. 304. ² *Journ. of Obs't. and Gyn. of the British Empire*, vol. i, 1922, p. 133.

THE PELVES OF RICKETY CHILDREN AS THE PRECURSORS OF THE RICKETY FLAT PELVES OF WOMEN.

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It would appear that during the last few years a larger number of women have suffered difficulty at childbirth on account of small pelves, and a larger number of Caesarean sections have been done in lying-in hospitals, than before. This difficulty is accounted for almost entirely by the rickety flat pelves so common in women who have had rickets in childhood. Hitherto little has been written about the normal or the rickety abnormal pelves of children. In order to find

* Read at a meeting of the Section of Anaesthetics, Royal Society of Medicine, November 3rd, 1922. (See also p. 925.)