

SIR.—May I add a few comments to Dr. King Martyn's letter? I write, of course, as a layman.

The expression "trench fever" is perhaps a confession of ignorance; it certainly covers a number of fevers due to varying causes. Every one knows how prevalent malaria once was in England, and unless precautions are taken it may re-establish itself. What is not so well understood is the fact that the particular species of mosquito which conveys it from man to man is still very widely spread in our islands.

*Anopheles maculipennis* is one of our commonest aquatic insects. Professor Nuttall, Dr. Cobbett, and Dr. Strange-ways published in 1901, in vol. i of the *Journal of Hygiene*, an account of its distribution in Great Britain, illustrated with maps. They said that "we find that *Anopheles maculipennis* is by far the most prevalent species in this country and other parts of Europe and apparently in America. This species has been found in England, Scotland, Wales, and Ireland." At the time they wrote they recorded only one case of ague known to them arising in England. I have seen another case lately, in the western country, a man who must have contracted the disease at home.

The fact that the Academy of Medicine of Paris, as was mentioned in your columns on August 28th, has appointed a committee consisting of men bearing such well-known names as MM. Laveran, Blanchard, Roux, Wurtz, and Mosny, is evidence that they consider the matter of malaria well worth watching.

Another disease which is conveyed by mosquitos is caused by the presence of the nematode parasite *Filaria*. Their larvae are also known to be conveyed by a species of mosquitos or gnats, though I do not think at present that any of our endemic *Culicidae* have been found guilty. Last month I saw two cases in which patients were infected by these parasites, one of whom had returned from the Cameroons and the other from West Canada, where he had associated largely with Chinamen. They both had microfilaria in their cutaneous blood vessels. We do not know the potentiality of our native *Culicidae* in conveying these organisms to a fresh host, but it is worth investigation.

As the autumn draws on the fertile female *Anopheles* will be retiring to disused sheds, outhouses, cellars, and such places, to reappear in the spring of 1917 with an increased appetite. By that time we ought to be prepared to keep her away from malarious and "filarious" patients. We should, I think, at the time of her re-emergence be able to segregate such patients in mosquito-proof buildings. Unless some such precautions are taken we may find malaria, which was so terrible a scourge in comparatively modern times, re-established in our midst, and, although I doubt it, elephantoid disorders due to *Filaria* may occur.—I am, etc.,

Cambridge, Sept. 25th.

A. E. SHIPLEY.

#### ANTENATAL CLINICS.

SIR.—In your issue of September 23rd Dr. J. W. Ballantyne gives a useful and convincing account of a day in the antenatal clinic of the Edinburgh Royal Maternity Hospital.

Fourteen pregnant women attended and one woman with albuminuria who was found not to be pregnant.

Of the fourteen women who were pregnant four were normal; of the ten others, one had to have induction performed for fetal heart failure and was found to have central placenta praevia, three also required induction of premature labour, and one Caesarean section for contracted pelvis, and one with a slight contraction was watched and allowed to go to term. Two others had swollen feet but no albuminuria and recovered under treatment. One had slight accidental haemorrhage and another pulmonary phthisis.

The proportion of cases requiring treatment at this clinic was of course exceptional, and it is probable that most of the women had already attended antenatal clinics at some outlying maternity centre or had already seen a doctor and had been sent on to Dr. Ballantyne for special advice and hospital treatment.

The account proves how useful antenatal clinics are and how valuable is the linking up of a general or maternity hospital with the surrounding maternity centres and clinics; and further, it shows the necessity, as Dr. Ballantyne insists, for prematernity beds being associated with the headquarters or consultative antenatal clinic.

Can Dr. Ballantyne tell us how pregnant women in Edinburgh are induced to attend local maternity centres for antenatal supervision? Is it through advice given by their medical practitioners and midwives or through health visitors or some other agencies? This, and linking up, are now the chief difficulties in ensuring medical supervision during pregnancy, for compulsory notification of pregnancy is impracticable.—I am, etc.,

London, W., Sept. 23rd. AMAND ROUTH, M.D., F.R.C.P.

#### THE LIFE-HISTORY OF ASCARIS LUMBRICOIDES.

SIR.—I should be greatly obliged if you could afford space for a reply to your editorial note on the life-history of *Ascaris lumbricoides* (July 1st, p. 23).

The note does not refer to my theory that the rat and mouse are intermediate hosts in the life-history of *Ascaris lumbricoides*. Another theory is advanced, to the effect that the ripe eggs hatch in the alimentary canal of the definitive host (man or pig, or the cat in the case of *Ascaris mystax*), that the larvae then migrate to the lung, and pass through the trachea and oesophagus to the intestine where they become adult. It is suggested that had the appropriate definitive host been used in my experiments in place of the rat and mouse, further results would have been obtained. This suggestion appears to give insufficient weight to the experiments recorded by me in which two pigs were treated with enormous doses of ripe eggs of *Ascaris suilla*. It also overlooks the experiments of Leuckart on the pig, horse, dog, and cat, in which these animals were treated each with the eggs of its own appropriate ascaris.

It may be suggested that the lungs were not examined in these experiments. But according to the theory under discussion the larva in the lung is merely the precursor of the adult in the same host. Now millions of ripe eggs were used in my pig experiments and only one adult was found in the two pigs employed. Leuckart's experiments were entirely negative.

Errors of technique are excluded in my experiments since the same technique was used as in the experiments on the rat and mouse. If infection succeeded in (inappropriate) animals such as the rat and mouse, it cannot be supposed that it would fail in the pig, which according to this theory is the appropriate host. This theory is, therefore, in my opinion untenable.—I am, etc.,

August 18th. F. H. STEWART, Captain I.M.S.

SIR.—The following statistics have been collected in the island of Grenada, British West Indies, where the International Health Commission of the Rockefeller Sanitary Institute have supplied the Government with funds to carry on a campaign against hookworm infection; of this campaign I have for two years been director. Here and now I do not discuss more than the significance of the figures to the mode of infection by *Ascaris lumbricoides*.

I shall assume that the relative "infectivity" of the three different intestinal parasites enumerated may be inferred from the extent of their incidence, regardless of the mode of infection and other factors.

The relative infectivity on all ages is: Hookworm, 75 per cent.; trichuris, 85 per cent.; ascaris, 93 per cent. Almost the whole population (98 per cent.) are infected with one or a combination of these.

The relative incidence at the age period under 1 year is: Hookworm, 6 per cent.; trichuris, 9 per cent.; ascaris, 21 per cent. The total infection by these three at this period is 24 per cent.

At the age period 1 to 5 years the infection is: Hookworm, 30 per cent.; trichuris, 78 per cent.; ascaris, 92 per cent.; and the total infection 95 per cent. There are slight differences in the relative incidence for sex at these age periods, which may have significance; but meantime I shall ignore them and assume that there is no special infectivity for sex.

For the other age periods the infection of hookworm jumps to near its maximum at the period 5 to 15 years, attains the maximum in the 15 to 45 years period, and remains there for the farther ages. The other infections attain their maximum earlier and maintain it over all ages.

The "opportunity" of infection is evidenced by the incidence. At the age period under 1 year the "opportunity" of infection is least for hookworm, considerably