

Correspondence.

NITRIC PEROXIDE AS A DISINFECTANT IN PLAGUE AND JIGGER.

To the Editor of "THE INDIAN MEDICAL GAZETTE."

SIR,—In your issue of this month there is an article by Mr. E. C. Cotes, M.A., under the head of Jigger or Chigo, in which it is stated as follows in regard to the importation of mice infected with jigger:—

"It may be added that the burning of sulphur on board-ship is quite useless against such insects as the jigger, though it is possible that it might have some effect in killing rats that might otherwise convey the infection."

Mr. Cotes further states that if any case of the disease occur on board it should be "swabbed down with kerosene oil."

There cannot be thorough disinfection unless some good gaseous disinfectant is used either alone, or along with some liquid disinfectant.

With a view to ascertain the relative value of disinfectants, some experiments were made at Baroda, which showed that nitric peroxide and chlorine were far better than sulphur fumes.

Nitric peroxide can be easily prepared, as no apparatus or skilled labour is required for it. In one experiment infusoria were destroyed by the gas in question.

In order to ensure thorough disinfection the gas is required to be used in a large quantity.

In a book called "Workshop Receipts," it is stated as follows:— "A commission of the French Academy report that nitric oxide is a most potent disinfectant, being greatly superior to every other substance as regards its action on infectious germs. The gas is applied by mixing in a two-gallon stoneware vessel two quarts water, 3½ lbs. ordinary commercial nitric acid, and ¼ lb. copper turnings. The gas thus evolved is sufficient to disinfect a room containing thirty to forty cubic yards; the crevices in the doors and windows should be covered over with gummed paper to avoid loss of fumes."

When plague was prevalent in the Baroda territory, a number of houses were disinfected with the above gas, and the results were satisfactory. During disinfection the doors and windows of the houses were merely closed; the crevices in them were not covered over with gummed paper.

I would in the interest of public health beg to suggest that experiments might be made to ascertain whether jigger is destroyed by nitric peroxide.

BARODA, } Yours faithfully,
19th May 1899. } SHAMSUDIN J. SULEMANI.

SANITATION IN CANTONMENTS.

To the Editor of "THE PIONEER."

SIR,—In view of the immense importance of the subject will you kindly grant me space and your powerful aid to bring public opinion to bear on the matter? I mentioned in my letter in your issue of 30th ultimo that I had been advocating a departure from the present abominable practice of loading the soil in the immediate vicinity of cantonments with nitrogenous material. The "Septic Tank System of Sewage Treatment" was adopted as an abstract principle by the Cantonment Committee here last June. The reason given for not carrying out improvements is "want of funds" and it is doubtless a perfectly true reason. Now, what I say is this—is it fair to the troops, or to the several Cantonment Committees, that urgent sanitary reforms cannot be effected for want of funds? The British Government sends out to this country men who are necessarily not inured to the climate, and who for the preservation of their health should be placed in the best hygienic surroundings. The only funds available for sanitary improvements of all sorts are the Cantonment Funds—which all will admit to be absurdly inadequate for the purpose. The Government of India cannot afford to pay for these improvements. It follows that the Home Government, in the name of all that is reasonable and truly economical, are morally bound to supply the necessary funds. Enteric fever is everywhere rife, special sanitary officers are appointed to bring about sanitary improvements, and yet after the lapse of a twelve month a most pressing reform remains yet to be initiated on account of "want of funds." There are two other points which I should like to mention. The enormous native population living in cantonments should be immediately and vastly diminished. Many people would be astounded if they only knew the number of natives living in their own compound—amounting, I know, in some cases to 50. This huge native population in cantonments greatly increases the difficulty of the question of sewage disposal, and is most undesirable in every way. My second point is that I would abolish all

native shops in cantonments for the sale of food and drink to Europeans, and would establish in their stead Government markets under European supervision. I would reduce, as I have said, the number of natives living in cantonments to the lowest possible number, and I would insist on their living in moveable habitations, so that they should from time to time camp on fresh grounds.

LUCKNOW: } J. R. FORREST, Major, R. A. M. C.,
6th May 1899. } Secretary Officer, Oudh District.

FILARIAL METAMORPHOSIS IN THE MOSQUITO.

(To the Editor of THE AUSTRALASIAN MEDICAL GAZETTE.)

SIR,—In the issue for June 20th, 1898, there appeared a letter from me asking for information on the above subject. I was anxious to learn whether anyone had written upon Filarial Metamorphosis since Manson's book appeared.*

No one replied to my enquiry except Dr. Patrick Manson, who directed me to a later work of his published in the Transactions of the Linnean Society of London.† This bears the date March 6th, 1884, whereas the book was written in June, 1883.

Dr. Manson wrote that nothing had been done since his paper in the Linnean Society's Transactions, and he encouraged me to investigate the subject. Recently I have made some observations on the life-history of the "House Mosquito," *Culex ciliaris*, Linn., described by the late Fred. A. A. Skuse.‡

This mosquito, which, it is thought, had been introduced into Australia from Europe, is thoroughly domesticated, and can be bred and kept in confinement in suitable vessels with the greatest ease.

Tradition says: "A mosquito lives a day or two; that it feeds but once, afterwards retiring to some quiet spot where the ova are matured, the eggs laid in water, after which it dies; that the male mosquito does not feed, etc.

Dr. Manson thought that it rarely occurred for them to live seven days after their meal of blood. My own investigation into Filarial Metamorphosis last year tallied exactly with Manson's in respect to mosquitoes, and also in respect to the metamorphosis, except in one important item. I had never seen the actively moving filaria, the last stage of the metamorphosis; this, according to Manson, was to be seen occasionally in mosquitoes that died on the sixth or seventh day. It never occurred to us that our mosquitoes wanted to be fed, consequently they died of starvation about the sixth day, and before the filariæ had developed sufficiently.

In confinement it is necessary to feed mosquitoes. Various methods and foods were tried, with very little success, until ripe bananas were given, which proved to be a most suitable food; it was noticed that both male and female mosquitoes sucked the juice of the banana almost every day. It was also found that mosquitoes would live in glass vessels up to two months; the life of a mosquito is, therefore, not one or two days, but a month at least, and frequently two months. Lately I have been able to resume the investigation into Filarial Metamorphosis, thanks to the Queensland Branch of the British Medical Association, and have seen the actively moving metamorphosed filariæ in the thorax of mosquitoes, but not before the sixteenth or seventeenth day; they are to be seen in every mosquito which has imbibed filariated blood seventeen days previously. Dr. Manson saw them in mosquitoes that died six or seven days after their last feed of blood, but those particular mosquitoes had, I believe, fed on filariated blood ten days, at any rate, before they came into his possession.

The embryo filaria, when it is taken into the mosquitoes' stomach, measures $\frac{3}{16}$ " in length by $\frac{3}{16}$ " in breadth; on the seventeenth day it measures $\frac{1}{16}$ " by $\frac{3}{16}$ ", and it is not killed when put into water.

I believe now with Manson that water is the medium by which the young filariæ are transferred to the human host. I should like to see the crucial test applied to set aside for all time the doubt as to whether the mosquito is or is not the agent by which Filariasis is transmitted from man to man. I suggest that this should be done in the following way:—Induce a life-sentenced prisoner to submit to swallow some of the advanced metamorphosed filariæ on condition that he receive a free pardon. I fear, however, that without the influence of the whole medical profession it would be hard to persuade any of the Australian Governments to grant the free pardon. By grossly infecting the prisoner, his life might be endangered, but with the object of proving that the disease can be so transmitted only a few filariæ need be given him, and these would cause very little, if any, inconvenience.—I am, sir, yours, &c.

THOS. L. BANCROFT.

BURPENGARY, }
March 1st, 1899. }

* The Filaria Sanguinis Hominis. H. K. Lewis, London.

† Vol. II., part 10, 2nd series, Zoology.

‡ Proceedings of the Linnean Society of New South Wales, Vol. III (series 2nd), p. 1748.