

## THE PREVENTION OF ENTERIC FEVER IN INDIA.

TO THE EDITOR OF THE "JOURNAL OF THE ROYAL ARMY MEDICAL CORPS."

SIR,—I see by his very interesting "Notes on Enteric Fever Prevention in India,"<sup>1</sup> that Lieutenant-Colonel F. W. C. Jones, R.A.M.C., is one of those who believe that the fly lays her eggs in the night-soil trenches, and I am sure that there are many who would be much interested to know if he has made any experiments that bear out this theory. On page 237 of Colonel Caldwell's "Manual of Military Hygiene," is mentioned an experiment which tends to prove the contrary, as does the fact that flies are not seen over properly-filled recent trenches, although a few days later the same trenches will be swarming with maggots.

Flies have ample opportunity for laying their eggs in most latrines where the pans or buckets are not changed or covered immediately after use, and this will apply to nine out of ten of all the latrines, civil or military, that I saw during five years' service in India. Where the sweeper is absent or remiss, there flies will be found. I failed absolutely to find any other breeding grounds of flies than the night-soil trenches. I never found any larvæ in collections of stable litter or in the rubbish trenches, and I am inclined to think that the reason is that these collections rise to a much higher temperature than do the trenches.

Last winter there was an outbreak of enteric fever in the 17th Lancers at Meerut, then just arrived from home. On the advice of Lieutenant-Colonel Aldridge, then Sanitary Officer, Eastern Command, India, the dry-earth system was discontinued in the regimental lines and a 2 per cent. solution of crude carbolic acid was substituted, a supply being put into each pan to receive the fæces. As a result of this the flies at once disappeared from the latrines, although a neighbouring native latrine where dry earth was still used contained as many as ever. With the disappearance of flies from the latrines the larvæ disappeared from the trenches. I do not think that this can have been caused by the action of the dilute carbolic solution on the soil, although this was enough to delay the ordinary changes in the night soil for eight to ten days.

In the laboratory flies have emerged from specimens of night soil covered with six inches of well-powdered earth; they do not, however, hatch out in wet earth, and it is well known to all *billdars* that maggots are not found during the monsoon. This, perhaps, accounts partly for the great diminution in the admissions for enteric fever during the monsoon, the disease as a rule only appearing in July, August and September, in Meerut at any rate, when the rains have "failed." It recurs after the rains are over, when dust and flies reappear. There is a similar diminution when "Christmas rains" occur.

With regard to birds, I have only seen the large birds where slaughter-house offal was buried; *mynahs* are found over trenches containing larvæ.

I am, &c., C. H. STRATON, *Captain, R.A.M.C.*

<sup>1</sup> JOURNAL OF THE ROYAL ARMY MEDICAL CORPS, January, 1907, p. 22.