NOTE ON THE EPIDEMIOLOGY OF DYSENTERY.

By H. M. WOODCOCK.

In an article on dysentery in a recent number of the British Medical Journal (March 31, p. 418), Captain Carey Evans, I.M.S., concludes that while infection with bacillary dysentery is mainly transmitted by the agency of flies, the amœbic type is chiefly conveyed by water. I was interested in reading this statement because as a result of recent experiences (vide British Medical Journal, 1917, i), I had already formed the opinion that in the transmission of amœbic cysts some factor other than or in addition to flies was essential; and a factor, moreover, which is not of nearly such great importance in the spread of bacillary dysentery.

In the area where I have been working flies have been abundant amongst British troops, and bacillary dysentery has been very common, whereas the amœbic type has been quite uncommon. Further, among Indian troops, where amœbic dysentery has prevailed to a considerably greater extent, there has been, nevertheless, practically no increase in the number of infected men, i.e., no spread of the infection; the ratio of amœbic cases to the total number of dysenterics being actually less than the percentage of Indians (twenty per cent) whom I found were normally "carrying" the cysts of Entamoeba histolytica. In other words, amœbic dysentery among the Indians has occurred almost entirely in men who were carriers; the hardships and different conditions as regards food, etc., incident to active service in the field have tended in a number of these men to lower their vitality and impair the resistance of the bowel, and as a consequence an attack of amœbic dysentery has resulted.

Wenyon and O'Connor have demonstrated that amœbic cysts can successfully pass through the intestine of the fly, to be voided with the feces wherever these may be deposited, and have concluded that flies are a very potent factor in the spread of amœbic infection. How is it, then, that flies may be extremely numerous and bacillary dysentery common, while the amœbic type is very infrequent? In the area with which my own work has dealt there has been at all times an ample "reservoir" of cysts among the Indian troops, not to mention an accessory reservoir—of very much less importance, it is true—amongst the native population. It cannot of course be said that sanitation is so perfect that the cysts have no opportunity for dispersal because there is the fact that bacillary dysentery—which is, probably, mainly fly-borne—nevertheless occurs.

Since the ability of flies to carry amœbic cysts was demonstrated, there has been, naturally, a disposition to regard the fly as the essential agent in the spread of this type of dysentery, with the result that the important part played by water has been somewhat overlooked. An essential factor in the spread of amœbic dysentery in a warm climate is the prevalence of moisture and humidity. Without this condition any number of flies are of little avail. Amœbic cysts cannot withstand drying, but on the other hand, as was recently shown by Penfold, Woodcock and Drew (British Medical Journal, 1916, i, p. 714) they can retain their vitality—proved by their ability to excyst—in water for at least a fortnight, and probably much longer. I think this fact has a most important bearing on the successful propagation of the species. Now, countries like India and Mesopotamia, for instance, possess, during certain seasons of the year, a very damp climate, with much rain and a high degree of humidity. Hence in these coun-
tries there is an excellent chance for the survival of the cysts deposited in human faeces. Egypt, on the other hand, at all events over large areas, including the Southern Canal Zone where I have been working, is a very hot and dry land with scarcely any rain and a low degree of humidity. A well-known exception is the fringe of coast bordering the Mediterranean, where the temperature is less and the humidity is much greater owing to the moisture-laden northerly winds. Hence one may expect to find a higher percentage of amoebic infections in the northern coastal districts than elsewhere, and the indications are that this is the case. The percentage of carriers among the native population which I have found (about four per cent only) is considerably less than that found by Wenyon, working in Alexandria. Further, I have examined the stools of over fifty Turkish prisoners of war from Arabia and did not find a single amoebic carrier. On the other hand, out of a number of Turkish prisoners and Egyptian Labour Corps men from Mesopotamia, nearly twelve per cent showed cysts of E. histolytica in their stools. There can be no doubt that for amoebic dysentery to be prevalent in a particular area the first necessity is plenty of moisture and a high degree of humidity. In a warm, dry climate (or season), notwithstanding an abundance of flies, amoebic cysts have, ordinarily, little chance of survival. It is evident that dysenteric bacilli must be able, on the contrary, to withstand a much greater degree of dryness; otherwise the occurrence of bacillary dysentery in a hot, dry climate is very difficult of explanation.

It remains at present uncertain whether, granted suitable climatic conditions, flies have actually any large share in the spread of amoebic infection. Wet and damp are in the first place less favourable to flies. Further, in such conditions, there is of course far more likelihood of infection by direct contamination, drinking fouled water, and so on. Therefore, while it is quite probable that flies do to some extent act successfully as transmitters of amoebic cysts, I think that water, moisture and humidity constitute a far more important factor in the spread of this infection. And the same is most probably true also in the case of the other intestinal protozoan infections.

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Reviews.


The question of the reality of alleged incapacity due to disease is one which has been forcibly brought before the mind of the public during the last three years. Nothing however was revealed which was new to employers of workmen, the officials of benefit societies, their medical officers, and others in a position to know how bad has been the effect of recent legislation on the essential honesty of the average working man.

Malingering has only been known to the general public as a military offence, but the soldier's efforts in this direction are but feeble compared to the results