

fever being prevalent near swamps; typhoid, plague and other diseases occurring in unsanitary cities; diphtheria and tuberculosis in homes where stagnant sewer gas and other foul air existed.

What has been proven to be the nature of their cause and spread? Malaria and yellow fever have been found to be due to infection by germs, and these early forms of life exist in the mosquito and get into the blood stream of man through the bite of this insect. Plague is caused by a known germ which also infects rats and ground squirrels and multiplies in these animals and may thus travel from place to place, infecting man indirectly through food or otherwise.

Typhoid fever is caused by a germ which has no intermediate host in lower animals or insects as the above mentioned have, but is known to live for some time in water, ice, earth, milk and other foods, and may live for many months in people who have had typhoid and who have recovered from its symptoms, or in people who have had typhoid infection but in whom the symptoms did not develop or were so mild as to be unnoticed. These persons give off — not always continuously — germs by way of feces and urine. Their hands and clothes are thus infected and the food of other persons in this way contaminated.

Tuberculosis in the human form has no intermediate host, but the tubercular germ infecting cows can and does live in man and cause tubercular disease. This disputable point has been settled once and for all time by the final report of the Royal Commission on tuberculosis.

Human sputum from tuberculous people is almost constantly infectious, and these germs live on clothes, in dust and elsewhere for variable periods.

Spinal meningitis and infantile paralysis have both been traced to a known and constant infecting bacillus, but its mode of propagation and dissemination has not been definitely determined.

The other diseases mentioned, are undoubtedly of germ origin, but the germs have not been finally decided upon, therefore our means of combat is simply isolation for definite periods.

How does this concern the housewife? In the first place, it is becoming the view

of many public health men that most of the germs causing specific diseases do not live long outside the human body or the living intermediary hosts referred to. In fact, 97 to 99 per cent. of the germs this discussion is concerned about die within 24 hours to a week from the time they are discharged. Even typhoid epidemics from water infection are very sharp and usually short in their duration unless there is a constant pollution of the water by fresh fecal contamination. Infected wells are slower to purify themselves than city supplies, but even these are non-injurious if their source of infection is cut off. It is almost a certainty that nearly all infection is spread by carriers of one form or another. Even the germs that live outside of the body of their host, practically do not multiply except in milk, and very slightly there if milk be kept under 50 degrees Fahr.

The principal carriers we know of are the mosquito, the rat and squirrel, and man. The method of combating the mosquito is drainage of all bogs and low lands, the spreading of oil over stagnant waters, and the complete screening of houses and places of habitation. Panama Canal zone is now an excellent example.

The rat and squirrel must be combatted by governments and municipalities.

The last named carrier, man, is largely entrusted to the careful housewife.

Carriers of smallpox, chicken pox, measles, whooping cough, mumps, scarlet fever and diphtheria are:

First, those who have not entirely become clean or recovered from illness before they are allowed to mix with other people of their own or other households.

Second, those who have in their system the germs causing the above mentioned diseases, but in whom no symptoms have been produced;

Third, those who have in their system the germs causing the above mentioned diseases, but in whom the symptoms have been so light as not to have been recognized, or if recognized, for various reasons have not been treated as infectious.

Under No. 1, the housewife should feel it her duty to the other members of the household and the outside general public to make sure the case is entirely better, and where possible insist upon a thorough personal examination by a physician to as-