the number of living organisms, and at the depth where the sub-soil water usually lies, bacteria and fungi have nearly or entirely disappeared....Of course, the number of bacteria and the depth to which they penetrate will vary somewhat with the character, especially the porosity, of the soil and its treatment, but the important fact that all, or nearly all, of the bacteria and fungi are retained in the ground above the level of the sub-soil water will doubtless hold true for most situations....

We have but meagre information as to the kinds of bacteria present in the ground in comparison with their vast number....

Among the pathogenic bacteria which have their natural home in the soil, the most widely distributed are the bacilli of malignant œdema and those of tetanus. I have found some garden earth in Baltimore extremely rich in tetanus bacilli, so that the inoculation of animal in the laboratory with small bits of this earth rarely fails to produce tetanus. In infected localities the anthrax bacillus and in two instances the typhoid bacillus, so far as it was posible to identify it, have been discovered in the earth. There is reason to believe that other germs infectious to human beings may have their abiding-place in the ground ; certainly no one doubts that the malarial germ lives there. As the malarial germ has been shown to be an organism entirely different from the bacteria and the fungi, we cannot apply directly to its behavior in the soil and its transportation by the air, facts which have been ascertained only for the latter species of micro-organisms.....

In view of the facility with which infectious germs derived from human beings or animals may gain access to the soil, it becomes a matter of great importance to determine how far such germs find in the soil conditions favorable for their preserva tion or their growth.....

The experiments which have thus far been made to determined the behavior of infectious micro-organisms in the ground have related especially to the baccilli of anthrax, of typhoid fever, and of cholera, and, fortunately, these are the diseases about whose relations to the ground there has been the most discussion and concerning which we are most eager to acquire definite information.

As regards anthrax bacilli, it has been determined that in ordinary garden or field earth they do not multiply, but in earth contaminated by blood, urine, or fæces their reproduction can occur. They can grow on various vegetable substrata. There is no reason to doubt, therefore, that the anthrax bacilli can find in or on the ground suitable conditions for their multiplication, although such conditions are not everywhere present. For durable infection of the soil with anthrax bacilli it is, more important that these however. bacilli should find there suitable conditions for the formation of spores, than that they should be able simply to multi-The vegetable forms of anthrax .yla bacilli would not, as a rule, be able to survive for a great length of time the hostile influences which they are likely to encounter in the ground, such as insufficient nutriment, and the attacks of saprophytic organisms, On the other hand, against these injurious influences the anthrax spores have great resistance. In the superficial layers of the ground the anthrax bacilli may often find those conditions which are most favorable for the developement of their spores. **r**eltz finds that anthrax bacilli may undergo a progressive diminution in virulence in the soil. If this should be true likewise of other infectious micro-organisms, we should be able to account, in some instances, for the variable degree of virulence which clinical observation indicates that certain agents of infection acquire.....

Of greater interest to physicians is the behavior of typhoid and of cholera bacteria in the ground. As has already been intimated the ground is regarded by Pettenkofer and his school as the principal breeding-place of these micro-organisms outside of the body. Inasmuch as the cholera and typhoid bacilli may multiply on various vegetable substrata and substances derived from animals, at temperatures often present in the ground, it is evident that here