

what will destroy them. At the present time almost every scientist who has studied the subject enough to be entitled to hold an opinion about it believes that these infections are living bodies; that they belong to the kingdom of nature which is endowed with life; that they are living germs which have a natural life history, which reproduce themselves, grow old and die like other vegetables or animals. These learned men give these little objects very long and learned names. They call them micro-organisms, microbes, bacteria, micrococci, etc. They are only visible by the aid of the microscope, as most of the names given them indicate.

If, then, the infection which causes each disease of this dangerous class is a living germ, it has a career—that is, it has a beginning, a period of existence, and a death; and it follows as an inevitable corollary to that fact that for every living thing there must be an environment suited to the needs of its life, and also other environments in which it cannot live.

If it were possible to know the conditions favorable to the propagation and perpetuation of all the different disease germs it might be also possible to know how to avoid these conditions. So, on the other hand, if we could know how to destroy the life of disease germs, or how to surround ourselves with an environment in which disease germs cannot exist, it would then be possibly practicable to protect and defend ourselves wholly from infectious diseases. So that the occurrence of a disease which can only be caused by a disease germ would always be of the nature of an accident, or of carelessness, or even the consequence of a criminal act—because every infectious disease is caused by the invasion and reproduction within the human body of a disease germ.

It is scarcely to be expected that complete immunity from such diseases will ever be realized; but the progress which has been made within the period of the present generation in studying the conditions under which these germs do live and thrive, and the converse, the condi-

tions under which they perish, excites very hopeful prospects for the future. Indeed, the application of the knowledge already acquired to the details of practical life have given the most encouraging results in demonstrating the practicability of excluding such diseases from communities and of limiting their spread when they do get a foothold. In the present state of knowledge the guiding principles of safety consist in avoiding or destroying the disease germs.

To illustrate: A child becomes ill with scarlet fever from a brief contact with a few scarlet fever germs, emanating from the body of another scarlet fever patient. The seed germs thus sown in the child's body lie awhile, several days, a week or more, dormant apparently, the period of incubation, the hatching period; then suddenly the child is ill, the whole system is disordered, and scarlet fever is established and runs its course. But the few germs which that child received found a fruitful soil, and they have sprung up and yielded such an abundant harvest that, wherever that child may be, that atmosphere about it and whatever touches it is fully charged with the same germs, all capable of communicating the same disease to other susceptible members of the human family.

These germs produce only scarlet fever, never any other disease. It is no more possible to acquire small-pox from a scarlet fever patient than it is for a farmer to raise a crop of peaches from a field in which he had planted only potatoes.

But there is another consideration—the vitality of these scarlet fever germs is very enduring. The maximum period of existence is not known. It is known, however, that if the clothing of a scarlet fever patient be taken off and packed in a trunk, that clothing will retain the infection in an active form for weeks, months, and possibly for years, so that persons in its presence when it is unpacked will take the disease.

Conversely, it is known that if the clothing of such a patient is exposed to the open air the disease germ speedily perishes and loses its infective power.