

or inflamed, the bacillus may become highly pathogenic. So, too, if it enters some other tissue. In the pleural cavity it may give rise to an abundant empyema. Different locations and different feeding make the differences in these instances.

By the quality of the culture medium; the bacillus anthracis can be changed from the most virulent type to a harmless putrefactive organism. This is only an instance of what can be done with almost all pathogenic germs. Nature is doing the same thing all the time. Diseases are thus constantly changing in their type, as to their severity, or leniency. The pathogenic characters are constant only in so far as their environments are constant. The most virulent type of diphtheria can be modified into a mere saprophyte. It is not uncommon to find a virulent type of the Klebs-Löffler bacillus in healthy persons, which under favorable conditions may produce diphtheria in the same, or another person. It is not possible therefore to be too dogmatic in the matter of diagnosis, because the germs of diphtheria may be found.

The bacillus tuberculosis is an excellent example of the modifications arising from the different environments in which the bacilli may live. Avian, bovine, and human tuberculosis have relationships to each other and yet they have some marked features wherein they differ from each other. The bacilli as obtained from man, can, with difficulty, be made to grow in the calf; but once they have done so, they can with ease be made to grow in another calf. The calf, as a new culture ground for the germs taken from the human body, has modified them, with the result that they now prefer the calf and readily infect it. The seed, and the soil, and the crop are here most beautifully related to each other. The high grade apple can be grafted on to the hardy seedling. There is, no doubt, for all varieties of tuberculosis a common origin. The different animals and birds are just so many different culture media that modify the germs, as may be done, under certain conditions, in the laboratory.

All this leads to the sure ground that the germ is not the sole cause of infective and infection diseases. The germs must be evolved; and there is good reason for thinking that many germs may be harmless, or highly pathogenic, according to the culture medium, or animal they have lived in. Perhaps nowhere is this so well seen as in the venereal diseases. By frequent irritation and dirty habits comparatively mild germs become virulent, and there results gonorrhoea and chancroids, which are only short removes from urethritis and simple ulcer.

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