

suppurative disease (pyæmia) and of pneumonia, not to mention yet other examples, that we are dealing with a disease due to a microbe of usual pathogenic properties, there cannot, in a typical case, be the slightest doubt, yet it is possible very frequently to obtain from the healthy individual, either from the skin or again from the pharynx and mouth, cultures of a form morphologically and biologically undistinguishable, from the virulent microbes of the above mentioned disease.

This class of cases, it is true, is not quite so difficult to deal with as those previously mentioned, because while morphologically the saprophytic forms are undistinguishable from the pathogenic, a clear distinction can be gained by experimental inoculation. Animals will take the disease and die in the course of a few hours if inoculated with the pathogenic form, and will resist inoculation or die only after many days if inoculated with the saprophytic form, and yet it must be confessed that from a diagnostic point of view this morphological likeness does introduce the grave difficulty that in order to arrive at a sure diagnosis, experimental inoculation must be performed and the bacteriologist must sacrifice a very large number of animals. But even this experimental procedure only determines the pathogenic qualities of the isolated microbes; it does not wholly settle the question of species. We know both by experiment and study of growths obtained from various cases that pathogenicity is a variable quantity, just as are ferment production and optimum temperature of growth.

Of course I must acknowledge that in speaking thus I am looking and making you look at one aspect of the case, but I am doing this purposely, because unless this aspect be duly contemplated, there is a danger of wholesale and uncertain diagnoses being made, and if bacteriology is to be the indispensable adjunct to departments of public health, it is urgently necessary that during the next few years, while the usefulness of bacteriology in diagnosis is under trial, the very greatest care be taken to preclude