

ON THE IMPORTANCE OF AUTOINTOXICATION IN THE CAUSATION OF DISEASE.*

(Abridged.)

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The studies of the last few years have demonstrated that not all diseases are due to external causes, but that they are often produced from agencies residing within the organism itself. The terms *autointoxication* and *autoinfection* have ceased to be technical terms which are understood by physicians only, but convey to the lay mind a distinct idea of disease conditions that are produced within the body by internal agencies.

The idea of such a causation of diseases is not new. As long ago as 1765, Albert von Haller expressed his belief that in constipation "foul water was absorbed from the fæces, and, filling the blood with rancid parts, produced fever, hæmorrhages, consumption, and insanity." It is only recently, however, that the conditions due to such internal causes were more fully understood, and we have now learned to differentiate between diseases due to autoinfection and those produced by auto-intoxication.

It is well known that there are present, even in the healthy organism, a large number of bacteria which under normal conditions are harmless, and which, indeed, are often beneficial. Professor Metchnikoff, of the Pasteur Institute in Paris, and other investigators, have shown that the process of digestion, for instance, is carried on not only under the influence of "enzymes," or substances which stimulate the occurrence of certain chemical changes in the food, but that some of these chemical processes, and, in fact, the entire breaking up of the food introduced into the stomach and intestines, depends in part upon the presence and activity of certain bacteria, through the action of which the disintegration of the food occurs; I mention here only the lactic acid bacilli. In the large bowel various bacteria are present, some of which may cause fermentation and putrefaction, but in the normal organism they do no harm. Moreover, it has been shown over twenty years ago that on the mucous membrane of the respiratory passages, including the mouth, there are often found several forms of micro-organisms which are potentially harmful, but the pathologic importance of which is held in abeyance in the

healthy body through its natural resistance to their disease-producing action. Some of these organisms may be carried by the circulation into different parts of the body, such as the lymph glands, the spleen, and often the joints, where again their harmful action is not exerted as long as the body remains in health.

The condition, however, is changed when, for some reason or other, the natural resistance of the organism is diminished. If the body is chilled through exposure, through cold winds, or through wetting, if it becomes weakened by overwork, by excessive mental strain, dissipation, and other undue exertions, it can no longer produce the substances necessary to prevent the harmful action of these bacteria, and then through this injurious action such infectious diseases as influenza, pneumonia, &c., may result without additional and special exposure to infection having occurred. Of course, as a rule, a special infection will be responsible for the development of infectious diseases, and more especially of acute infectious diseases like scarlet fever, measles, diphtheria, and small-pox.

Among the infectious diseases that are due to autoinfection—that is, that depend upon the action of potentially harmful micro-organisms—I may mention rheumatism. It is well known that some forms of rheumatism have an infectious basis, and that the bacteria responsible for the disease invade the joints, and may there remain latent or inactive and then become activated by such cause as exposure to cold, and this explains how the idea arose that rheumatism is due to cold.

It is, however, another form of endogenic disease that I wish to discuss more particularly, namely, autointoxication. In order to elucidate this question we have to inquire into some phases of the normal process of life and into the normal metabolism. We know that the food which is introduced into the body undergoes chemical changes, and is eventually made use of in the production of new blood. We also know that the blood is carried from the right heart to the lungs, where it becomes oxidized; it is returned to the left heart, and sent from there through the body in order to nourish the tissue cells of the various organs.

In the process of digestion not all particles of the food can be made use of. A certain portion is insoluble and unavailable, and must, therefore, be discharged as waste matter, just as the ashes and clinkers are removed from the furnace after the heat-producing portions of the coal have been subjected to combustion. Further, in its course through the body the blood not only gives off oxygen, but also takes

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