

different forms, and at the same time occasioning entirely different chemical processes, according as the chemical and physical conditions surrounding them vary.

Physiological chemistry partakes of a far greater share of difficulty than the microscopic investigation, which, apart from the method, now much used, of impregnation with coloring matters (which also leads to manifold deception), without simultaneous chemical investigation with sufficient certainty, can not make great advances. This investigation, as I shall soon have occasion to illustrate, brings great gain to physiology itself.

I must abstain from giving you a complete outline of the advances physiological chemistry has made with reference to the composition of the organs and fluids of the human body, and the processes taking place in them, effected in the last two decades. Allow me to sketch the manner in which, in the most recent period, the science has advanced.

With great diligence, and not without success, the processes of the digestion of all the most important constituents of food in the alimentary canal, with the sole exception of the part played by the bile (which, indeed, does not seem essential, and which is wanting in invertebrates), have been studied, and it has been ascertained that these processes in all their phases may be carried on outside the organism, and the products of their action isolated and investigated. Medicine and hygiene in this case, as well as physiology, have become possessed of treasures of knowledge the practical value of which already abundantly appears, but *far short of the extent to which it must appear in the diagnosis and treatment of diseases of the alimentary tract especially.*

Our knowledge of the composition of the blood and its changes under the influence of certain physiological processes has been essentially advanced in the line referred to;