

A substance active on the organism, whether it be a question of a substance foreign to that organism, or of one which regularly makes a portion of it, but which is then introduced into it in a proportion notably different from that under which it is usually contained in it, may show that activity in different ways. It may act on the cellular protoplasm and there determine phenomena of coagulation or liquifaction; it may excite the membrane covering the cells, stop its functions, particularly absorption, and influence thus indirectly the vital processes. It may yet settle itself on the nucleus or on any other parts morphologically different from the cell, and induce disorder in their functions. On the other hand, a certain number of toxic substances localize their effects on some of the products of the differentiation of proto-plasma, such as hemoglobin, nervous substance, muscular tissue, etc.; others localize their effects on the products of elaboration of protoplasma, such as diastases; others, in short, are capable of forming combinations with the elementary materials, and the reserves included in the cells, as albuminoids, hydrate of carbon, fats, mineral salts, and may give rise in this way to nutritive disorders. In short, and this is not the least important point to consider, another injurious action may be put into play through a succession of phenomena of osmosis varying from simple dehydration, more or less pronounced, almost to the plasmolysis and to the death of the cell.

The fundamental importance of blood plasma rests, above all, in the fact that it furnishes energy to the active substances, capable, by their intermediary powers, of disseminating into the whole organism and of exercising their effects *in situ*. But, as the recent researches of M. René Quinton have shown, the blood plasma enters only as a feeble part into the composition of the liquid which he calls the vital medium and which he considers as the medium of culture for living cells. This vital medium, which bathes all the cells, forms a singular whole, constantly clarified and renewed by the haemolymphatic or sanguine circulation on the one hand, through the phenomena of osmosis and diffusion on the other hand. The living material can find the elements for their continual renewal in this vital medium. An alteration, more or less profound or prolonged, in its composition, ought, therefore, to bring about certain modifications, more or less evident, in the evolution of the phenomena characterizing nutrition, which may be readily changed by a chemical or microbic poison, the insufficiency of the emunctories, the defect or excess, of certain alimentary actions.

One can thus realize an indirect action on the living substance by modifying the medium in which it lives, that is in which the physico-chemic phenomena, are affected permitting the renovation and accomplishment of the physiological acts for which it is destined.