

the faculty of swallowing and digesting intruding bacteria of every kind, harmless ones as well as pathogenic ones, or such as produce disease. Not all elementary organs of the body are equally qualified for this purpose, the function being intrusted to certain cells of the tissues and blood, which Metschnikoff calls *Phagocytes*. Health as well as disease depends upon which party is victorious in the struggle. Health is insured as long as the cells are capable of overpowering the intruding bacteria; an animal in such a condition is secure against disease. Experiments performed by Metschnikoff have given evidence that the bacilli of splenic fever are easily devoured and digested by *phagocytes*. On the other hand, several observers of late have maintained that the liquid part of blood, the plasma, and even common albumen possess the faculty of killing bacteria. This, however, appears improbable, and a final decision of the question has still to be expected in future.

Susceptibility to diseases is as variable as sensitiveness to vegetable and animal poisons. Judging from the current opinion that putrefying animal matter is the principal bearer and transporter of infectious germs, we are forced to ascribe a high degree of immunity to certain animals which, like swine, ducks, chickens, and rats, are accustomed to select their food from places where such matter is accumulated. Predisposition for splenic fever is stronger amongst herbivora than among carnivora: birds of prey seem to be quite free from it. Experiments on sheep, performed by Pasteur, the results of which were confirmed by application on a large scale, gave evidence that immunity against splenic fever may be acquired by systematic inoculation of the attenuated virus very much as small-pox is prevented by vaccination.

Various herbivora, chiefly horses, sheep and goats, are exposed to a disease called "glanders," which ends by death in most cases. White mice are safe against it. This circumstance of late occasioned R. Koch to ascertain, by experiments, whether predisposition to glanders might not be

artificially induced by changing the composition of the animal juices. The change consisted in the formation of sugar in the blood of the mice, which received as food *phloridzin*, a crystalline compound, naturally preformed in the roots of fruit trees and easily splitting up into sugar and some other products. It undergoes a similar change when brought into circulation of the blood. The result of these experiments was, that white mice lose their immunity and become susceptible to glanders when phloridzin is given to them; infection by this disease invariably took place when the mice were inoculated to the virus, and thus the proof was furnished that by changing the chemical conditions of an animal its immunity from infectious disease may be neutralized. This indicates that immunity in the present case, as in the action of carbon monoxide, depends upon the composition of the blood, predisposition being established when the composition is changed.

These facts indicate that, as to susceptibility to and immunity from the effect of poisonous and virulent matter, the composition of blood is of the highest significance, and that the changes caused chiefly relate to its condition. They coincide with the experience that the action of poisons throughout is quickest and most energetic when they are injected into the blood; moreover, there seem to be many substances existing which induce infection only when present in the circulation of the blood, but not when brought into the digestive channel. Apparently harmless lesions can turn out disastrously, when even the smallest trace of a virus happens to reach the wound.

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A LIER AWAKE of twenty-five years standing, is thus quoted by the Medical Age: I took hot water—a pint, comfortably hot, one good hour before each of my meals, and one the last thing at night, unmixed with anything else. The very first night I sleep for three hours on end, turned round and slept again till morning. I have faithfully and regularly continued the hot water, and have never had one bad night since. Indigestion with pain and restlessness it appears was the trouble.