

function of the white corpuscle was in the least understood by even the most skilful observers. Later investigations, however, proved the identity of the leucocyte with the lymph corpuscle, which was itself supposed to possess as the simplest original cell, metabolic or tissue-forming functions. This gave a new importance to the leucocyte and when to this was added the recognition of the pus corpuscle in retrograde metamorphosis as nothing more or less than a leucocyte under altered conditions, it was not long before its true significance as the real tissue-builder of the organism was fully established. A peculiar movement of the leucocyte as it goes along through the current of the blood had long been noticed, on account of its resemblance to that of the amoeboid movement, by which it changed its form apparently at will, becoming often so elongated and slender that it slipped through the walls of the blood-vessels and held high carnival in the surrounding tissues. All this pointed to some mysterious power or function, as yet unrevealed to the eye of the physiologist. A closer study of its morphological characteristics proved that there were several forms of leucocytes, differing in the number of nuclei which they possessed. The simplest, those having but one nucleus, were called mononuclear, those possessing two or more nuclei were called multi, or polynuclear leucocytes. In these it was seen that the amoeboid movement was most active. Vierordt, who has made the most accurate observations upon the blood of any other physiologist perhaps, found the numerical relation of the leucocytes to the red corpuscles to be in health in the ratio of 1 to 671.

Now, we are prepared to understand the next step in the functional history of the leucocyte. These bodies, differing in size, shape, and number of nuclei, were observed to swell up and burst, pouring out a plasmic, granular mass, which appeared to be in a state of active molecular vibration. The nuclei came forth from the breach in the cell wall with some of this blastema hanging closely around it, while the rest of the blastema with the ruptured cell wall floated off in the blood current. Where there were two or more nuclei, each one became rapidly a perfect cell with its nucleus and nucleolus, and in this way was established a great increase in the number of leucocytes. This process of cell proliferation, it will be seen, lies at the foundation of all nutrition.

The next phenomenon observed was what might rationally have been expected to be established—the taking up by the leucocytes of the proteids which are delivered to the blood by the absorbents after digestion is complete.

As soon as these proteids get within the walls of the blood-vessels,