

CHAPTER II.

THE BLOOD—COMPOSITION, USES, CIRCULATION, AND AERATION OF.

17. The Blood is an animal fluid, formed chiefly from the chyle, and acquiring important properties during respiration. It enters every organ through the circulation, distributes the nutritive principles to every tissue, and is the source of every secretion. Human blood, flowing from the body, is a thickish, heavy fluid, of bright scarlet color when it comes from an artery, deep purple or nearly black when it flows from a vein. Its specific gravity at 60° Fahr. is on an average 1055. Its temperature in health is generally 100° Fahr., and it has a slight alkaline reaction. Blood taken from the body and left to itself in a vessel separates into two distinct parts—the *serum*, or watery, supernatant fluid, and the *coagulum*, or clot.

18. Chemical analysis shows the average proportions of the principal constituents of the blood in 1,000 parts to be—

Water	784.
Red blood cells	131.
Albumen of serum.....	70.
Saline matters	6.03
Extractive, fatty and other matters	6.77
Fibrine.....	2.2
	1,000

19. Blood-cells are of two principal forms, the red and the white, of which the latter are in process of being developed into the former; and this mode of development continues throughout life. Every new white blood-cell forms itself in and from the materials of the lymph and chyle, and is perfected in the blood; and the blood is maintained by constant repetitions of this process. The human red blood-cells are discs of different sizes, appearing under the microscope like tiny rolls of coin. They are composed of a membranous cell wall which encloses a peculiar substance impregnated with the red coloring matter