

## ANÆSTHESIA, ITS EFFECTS ON THE BLOOD.

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*Mr. President and Gentlemen:*—In looking over this subject I find it impossible to condense within reasonable limits of a paper to be read before this Society, all that I might say on anæsthesia. I shall therefore speak more particularly of the influence of the several anæsthetics on the blood, and through it on the general system; presuming that that of more immediate practical importance will be fully brought out in the discussion that will follow.

To properly explain or comprehend the physico-chemical phenomena of anæsthetics, it may be well, first, to very briefly look at the component parts and uses of the blood; how its life principle is sustained; its relation to the nerve centres; the composition and chemical properties of the anæsthetics in general use; their immediate effects on the blood, and through it on the system. In doing this I shall draw largely from the experiments of others, and condense some important portions to mere statistics.

The blood is composed of serum, fibrin, coloring matter, and a small proportion of saline compounds. The serum is composed of about nine parts water, nearly one part albumin, and the remainder of salts of potassa and soda. The fibrin is the soft solids, and is formed in minute nuclei, which are surrounded or encased with coloring matter, which prevents them from adhering to each other as they are carried forward in the circulation, and is vitalized by the absorption of oxygen from the air we breath, as it passes through the lungs. It is these nuclei that we shall have most to do with. The coloring matter is subject to some speculation, but nearly all experimenters decide it to be some of the chemical combinations of iron, and is brightened in color by the oxygen in the lungs, making arterial blood; and is darkened, as in the veins, by its loss, and the absorption of carbon and effete matter carried from the absorbents, to be cast off in the form of carbonic acid gas and vapor as it returns to the lungs. With this change of color the nuclei becomes vivified.

The quantity of blood in the human body is not positively known, nor can it be; but the average of estimates place it at about one-fifth or one-sixth of the whole weight of the body. Neither is the vel-