the organic world we find "intelligent forces," regulative or dominant forces. The law of substance is supposed to apply to the one, but not to the other. On the whole, it is a question of the old antithesis of a mechanical and a teleological system. But before we go more fully into it, let us glance briefly at two other theories, which seem to me to be of great importance in the decision of that controversy—the carbon-theory and the theory of spontaneous generation.

Physiological chemistry has, after countless analyses, established the following five facts during the last forty years:

I. No other elements are found in organic bodies than those of the inorganic world.

II. The combinations of elements which are peculiar to organisms, and which are responsible for their vital phenomena, are compound protoplasmic substances, of the group of albuminates.

III. Organic life itself is a chemico-physical process, based on the metabolism (or interchange of material) of these albuminates.

IV. The only element which is capable of building up these compound albuminates, in combination with other elements (oxygen, hydrogen, nitrogen, and sulphur), is carbon.

V. These protoplasmic compounds of carbon are distinguished from most other chemical combinations by their very intricate molecular structure, their instability, and their jelly-like consistency.

On the basis of these five fundamental facts the following "carbon-theory" was erected thirty-three years ago: "The peculiar chemico-physical properties of carbon—especially the fluidity and the facility of decomposition of the most elaborate albuminoid com-