

to us in its intrinsic nature) of the living substance, and are active in its smallest particles,—since living matter is neither permanent nor quiescent, but is in more or less constant internal motion.”

“To assimilate and dissimilate is a fundamental property of living matter, engrained deeply in its nature, and these functions continue, provided the essential conditions of life are present—without assistance of external stimuli”; though such stimuli may compel the living matter to greater activity in either direction.

Similarly, Prof. Gaskell was led from his study of nervous function to the idea that life implies an alternation of two processes—one of them a running down or disruption (katabolism), the other a winding up or construction (anabolism). There are minor differences between the two views, but Gaskell's anabolism and katabolism correspond respectively to Hering's assimilation and dissimilation.

Before we leave the subject, it may be well to recall the uncertainties. We have no knowledge of the real nature of living matter; we cannot define any substance physically or chemically, and say, *this* is pure protoplasm. According to one view, protoplasm is a mixture of complex substances; according to another view it is a single substance allied to proteids; according to a third—perhaps most probable—view there is no such thing as living matter. The meaning of the last view, which may appear paradoxical, is simply that vital function may depend upon the interactions or inter-relations of a number of complex substances, none of which could by itself be called alive. Just as the secret of a firm's success may depend upon a particularly fortunate association of partners, so it may be with vitality.

“We are compelled”, said Prof. E. B. Wilson in 1896, “by the most stringent evidence to admit that the ultimate basis of living matter is not a single chemical substance, but a mixture of many substances that are self-propagating without loss of their specific character.”

Even at an early date biologists recognized that the behaviour of cells, especially in development, necessi-