

literature, to have placed it at the entrance of his textbook of physiology, and thus to have given the student a somewhat more detailed description of the elementary functions of living matter than was afforded by the older term "vortex," employed by Cuvier.

33.
"Metabol-
ism."

These merits of Schwann, which attach more to the conception of "metabolism" than to that of the cell, are not reduced by our having to state that the latter conception has been entirely changed since his time. The cell of to-day is not the cell as Schwann conceived it. Of the pretty clearly defined structure or organisation of that biologist, with its wall (membrane), its kernel (nucleus), and its fluid contents (cell sap), nothing has remained but the cell contents, termed protoplasm by von Mohl; and the living process can no longer be considered as the function of a well-defined organ or machine. It is rather the fundamental property of an almost homogeneous substance, the mass of protoplasm, in which the kernel is the only recognisable differentiated portion. The immediate effect of this destructive analysis of the early conception of the cell was to destroy the idea that the living processes carried on in any special cell or organ are a result of its organisation, as the function of an apparatus is dependent upon the arrangement and combination of its parts. It has promoted the view that—for our understanding at least—the first thing to learn is the nature of the processes themselves. We have to look upon the visible structure of special cells and organs merely as "mechanical contrivances, serving only to modify in special ways the results of the exercise of these fundamental activities,