

country possessed the necessary conditions and extensive organisations, the habits of combined study and patient co-operation, the large views and the high aims, which had been acquired at the German universities under the guidance of the German ideal of *Wissenschaft*, and under the sway of the philosophical and classical spirit.

A great authority,¹ who as much as any one represents the modern as distinguished from the earlier views in biological science, reviewing the different agencies which have brought about the great change, speaks thus. He is referring to Johannes Müller, the father of modern physiology. "The modern physiological school," he says, "with Schwann at its head, has drawn the conclusions for which Müller had furnished the premises. It has herein been essentially aided by three achievements which Müller witnessed at an age when deeply-seated convictions are not easily abandoned. I mean, first of all, Schleiden and Schwann's discovery, that bodies of both animals and plants are composed of structures which develop independently, though according to a common principle. This conception dispelled from the region of plant-life the idea of a governing entelechy, as Müller conceived it, and pointed from afar to the possibility of an explanation of these processes by means of the general properties of matter. I refer, secondly, to the more intimate knowledge of the action of nerves and muscles, which began with Schwann's researches, in which he showed how the force of the muscle changes with its contraction. Investigations which were carried on with all the resources

38.
Du Bois-
Reymond
on Müller.

¹ See Du Bois-Reymond, 'Reden,' vol. ii. p. 219, &c.