

the laboratory, and how the living organism could be analysed into a complex of separate apparatus or machines, acting on intelligible mechanical and physical principles—was a radical change of the conception of vital force and the vital principle. It ceased in the opinion of many to be opposed to other non-living forces, as it was with Bichat; according to others it was non-existent, or at all events useless; others again reduced it to a purely regulative function, or even a mere idea. A popular philosophy founded upon the unknown principle of matter, and the equally unknown and even less clear principle of force, promulgated the notion that science had succeeded in banishing all spiritual entities, and was able to explain everything on purely mechanical principles. Vitalism and animism were at an end; there only remained mechanism and materialism. It is well to note that none of the great men to whom we are indebted for the real extension of our knowledge of biological phenomena favoured or embraced this view. The reasons which kept them from drawing what seemed to some the inevitable consequences of their discoveries were manifold.

20.  
Influence of  
doctrine of  
energy.

21.  
Mechanism.

As I stated before, there are two ways of approaching the problems of nature, and two interests by which our researches can be guided. The one is the abstract mathematical method, which begins with the simplest definable and measurable elementary processes, and tries to imitate the complicated phenomena of nature by more and more intricate combinations of these elementary processes. The other is the more concrete method inspired by practical interests. The mechanical, physical, and