

of exactness. "The mathematician prescribes conditions for solution and forms of result. He thus dictates to existence,—he determines beforehand what means are wanted and what form the result shall appear in." The natural philosopher on the other hand dictates nothing, he only endeavors to distinguish between what is essential and what is not, in the train of apparent causes to which any given result may be attributed. Confined to study and observation only, he creates nothing—changes nothing. The great field of the actual is spread before him. It embraces facts only with which he is to become acquainted. He reads natural phenomena right onward and takes them in all their significancy as he finds them. Guided by the light of experience the modern enquirer eschews all theories except such as are based upon unmistakable facts. These he collects on every side, and although they should not bear upon the particular subject of investigation which he may have in hand he does not reject them as worthless, but stores them up for future use, confident that they occupy some position of importance in the economy of nature. Thus whilst investigating a point in the physiology of respiration Dalton discovered a rare species of Spiroptera in the right cavity of a dog's heart. Donné discovered in a similar manner the *Trichomonas vaginalis*, an infusorial animalcula in the morbid vaginal secretion of a female laboring under gonorrhoea. Accident directed Claude Bernard's attention to the glycogenic function of the liver. Numberless additional examples might be adduced, illustrative of the importance of neglecting nothing in a physical examination.

But a simple observation of great numbers of disconnected and disjointed facts, although it may cause astonishment at the versatility of nature, will afford small insight into the hidden laws which regulate their occurrence.

Facts to be of real value must be estimated comparatively and in their proper connection. Such is especially the case in the subject of inquiry which I have proposed to myself. Nowhere is the necessity of carefully conducted and connected observations of more importance than among parasites, and of these the Entozoa *par excellence*. In one place a parasite is seen to reproduce by gemmation, in another by fission, and still a third by ovulation. Disconnected observation would never establish a connection between all these three forms, and yet nothing is more certain than that they occur in the same animal at different stages of its existence. A microscopic ovule enclosing a