

The reader has a right to know how my author's opinions were formed. Not, of course, that he is expected to accept any conclusions which are not borne out by argument. But in discussions of extreme difficulty, like these, ~~it is not when~~ <sup>good</sup> judgment is a factor, and pure ratiocination is not everything, it is prudent to take every element into consideration. From the moment when I could think, at all, until now, about forty years, I have been diligently and incessantly occupied with the study of methods inquiry, both those which have been and are pursued and those which ought to be pursued. For ten years before this study began, I had been in training in the chemical laboratory, as was thoroughly grounded not only in all that was then known of physics and chemistry, but also in the way in which those who were ~~were~~ successfully advancing knowledge proceeded. I have paid the most attention to the methods of the most exact sciences, and have intimately communed with some of the greatest minds of our times <sup>physical</sup> in science, and have myself made <sup>positive</sup> contributions, — none of them of any very great importance, perhaps, — in mathematics, gravitation, optics, <sup>chemistry</sup> astronomy, etc. I am saturated, through and through, with the spirit of the physical sciences. I have been a great student of logic, having read everything of any importance on the subject, & devoting a great deal of time to medieval thought, without neglecting the works of the Greeks, the English, the Germans, the French, etc., and have produced systems of my own both in deductive and in inductive logic. In metaphysics, my training has been less systematic; yet I have read and deeply

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pondered upon all the main systems, never ~~long~~ satisfied until I was able to think about them as their own advocates thought.

The first strictly philosophical books that I read were of the classical German schools; and I became so deeply imbued with many of their ways of thinking that I have never been able to disabuse myself of them. Yet my attitude was always that of a dweller in a laboratory, eager only to learn what I did not yet know, and not that of ~~most~~ German philosophers <sup>theological</sup> bred in seminaries, whose governing impulse <sup>is</sup> to teach what they hold to be infallibly true. I devoted two hours a day to the study of Kant's Critic of the Pure Reason for more than three years, until I almost knew the whole book by heart, and had critically examined every section of it. For about two years, I had long and almost daily discussions with Chauncey Wright, one of the most acute of the followers of J. S. Mill.

The effect of these studies was that I came to hold the classical German philosophy to be, upon its argumentative side, of little weight; although I esteem it, <sup>perhaps</sup> tooartial to it, as a rich mine of philosophical suggestions. The English philosophy, meagre and crude, as it is, in its conceptions, proceeds by ~~a~~ surer methods and more exact logic. The doctrine of the association of ideas is, to my thinking, the finest piece of philosophical work of the pre-scientific ages. <sup>Yet</sup> I can but pronounce English sensationism to be entirely destitute of any solid bottom. From the evolutionary philosophers, I have learned little; although I admit that, however hurriedly their theories have been knocked together, and however un-

tivated and ignorant Spencer's First Principles and general doctrines, yet they are under the guidance of a great and true idea, and are <sup>developing</sup> pursuing it mainly by methods that are in their main features sound and scientific. The ~~the~~ works of Duns Scotus have strongly influenced me. If his logic and metaphysics, not slavishly worshipped, but torn away from its medievalism, <sup>be</sup> adapted <sup>continual</sup> to modern culture, under wholesome reminders of nominalistic criticisms, I am convinced that it will go far toward supplying the philosophy which is best to harmonize with <sup>phys-</sup>  
<sup>sical</sup> science. But other conceptions have to be drawn from the history of science and from mathematics.

Thus, in brief, my philosophy may be described as the attempt of a physicist to ~~give such~~ make such conjecture as to the constitution of the universe, as the methods of science may permit, with the aid of all that has been done by previous philosophers. I shall support my propositions by such arguments as I can. Demonstrative proof is not to be thought of. The demonstrations of the metaphysicians are all moonshine. The best that can be done is to supply a hypothesis, not devoid of all likelihood, <sup>in the general line of growth of scientific ideas,</sup> and capable of being verified or refuted by future observers.