

Upon

In this first, and in one sense, this sole, rule of reason, that in order to learn you must desire to learn and in so desiring not be satisfied with what you already ^{incline} to think, there ~~is~~ ^{follows} one corollary which itself deserves to be ^{inscribed} ~~written~~ upon every wall of the city of ~~some~~ philosophy.

Do not block the way of inquiry.

Although it is better to be methodical in our investigations, and to consider the Economics of Research, yet there is no positive sin against logic in trying any theory which may ^{adopted in such a sense} come into our heads, so long as it is ~~not of such a nature~~ as to permit the investigation to go on ~~unimpeded~~ unimpeded.

On the other hand, to set up a philosophy which barricades the road of further advance toward the truth is the one unpardonable offence, as it is also the one to which metaphysicians have in all ages shown themselves the most addicted.

Let me call your attention to four familiar shapes in which this venomous error assails our knowledge:

The first is the shape of absolute assertion. That ~~not~~ we can tell sure of nothing in science is an ancient truth. The Academy taught it. Yet science has been infested with over-confident assertion, especially on the part of the ^{third rate} ~~same~~ and ^{fourth} ~~third~~ rate men who have been more ^{concerned} ~~occupied~~ with teaching than with learning. ~~It is~~ No doubt some of the geometries still

teach ~~that~~ as a self-evident truth the proposition that if two ^{straight} lines in one plane meet a third ^{straight} line so as to make the sum of the internal angles on one side less than two right angles these two lines will meet on that side if sufficiently prolonged. Euclid who logic was more careful, only reckoned this proposition as a Postulate, or arbitrary hypothesis. Yet even he places among his axioms the proposition that a part is less than its whole, and falls into several conflicts with our most modern geometry in consequence. But why need we stop to consider cases ^{where} ~~where~~ some subtlety of thought is required to see that the assertion is not warranted when every book which applies philosophy to the sciences lays down as positive certainty propositions which it is quite as easy to doubt as to believe.

The second ^{bar} ~~roadway~~ ^{bar} in which philosophers often ^{set up across} ~~bar~~ the inquiry lies in maintaining that this, that, and the other never can be known. When Auguste Comte was pressed to specify any matter of positive fact to the knowledge of which no man could be any possible, he instanced the knowledge of the chemical ~~constitution~~ composition of the fixed stars; and you may see his answer set down in the Philosophie positive. This ink was scarcely dry upon the printed page before the spectroscope was discovered and ~~that~~ which he had deemed absolutely unknown was well on the way of getting ascertained. It is very enough to be when in question the answer to which is not known to me today. But to aver that that answer will not be known tomorrow

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is somewhat ^{risky} hazardous; for oftentimes it is precisely the ~~most~~ least expected truth which is turned up under the plowshare of research. And when it comes to positive assertion that the truth never will be found out, that, in the history of our time, seems to me more hazardous than the venture of Andree.

The third philosophical stratagem for cutting off inquiry consists in maintaining that this, that, or the other element of science is basic, ultimate, ~~not~~ independent of all else, and utterly inexplicable, — not so much from any defect in our knowing as because there is nothing beneath it to know. The only mode type of reasoning by which such a conclusion could possibly be reached is retro-duction. Now nothing justifies a retroductive ^{inference} ~~conclusion~~ except its ~~exp~~ ^{being} a explanation of the facts. It is, however, no explanation at all of a fact to pronounce it inexplicable. That therefore is a conclusion which no sea-
 soning can ^{justify or} excuse.

The last philosophical obstacle to the advance of ^{knowledge} ~~science~~ which I intend to mention is the holding that this or that law or truth has been reached in a perfect formulation, — and especially that the ordinary and usual course of nature ^{can} never be broken through. "Stones do not fall from heaven" said Laplace, although they had been falling ^{upon} ~~in~~ inhabited ground every day from the earliest times. But there is no ~~can~~ ^{can} land the

absolute denial of immemorial phenomena
 such a probability to any such