

Six pages would have been ample to set forth the doctrine here diluted to six hundred. Motion is the only existence; time and space merely its phases. Time is identical with force; space with matter. God is the universal principle of motion. In place of arguing these propositions, the author tags them incongruously to sketches of the history of philosophy—sketches nil as arguments, and as history rambling, feeble, and ill-proportioned. Some healthy sentiments about morality and religion are expressed in an easy and pleasing style, but the philosophical conceptions seem to be nebulous, and the method of presenting them unsuccessful.

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DR. F. E. ABBOT'S PHILOSOPHY

**Organic Scientific Philosophy: Scientific Theism.**

By Francis Ellingwood Abbot, Ph.D. Boston: Little, Brown &amp; Co. 1885.

Attributed to Peirce by Fisch in *First Supplement* (Abbot wrote in his diary that Peirce was the author). This review is unassigned in Haskell's *Index to The Nation*, vol. 1.

DR. ABBOT is one of the many thinkers who believe that science is destined to produce a theism, and he belongs also to the smaller number who think that it is already possible to say what that doctrine shall be. Considerably more than half of his 'Scientific Theism' is taken up with the proof that the world is intelligible; but this lengthy and metaphysical argumentation will convince nobody for whom very simple considerations would not have sufficed. How is it that one who believes he has the message of a new religion to announce to humanity should choose so roundabout a way of setting it forth? The following is one of the author's own summaries of his line of argument:

"1. Because the universe is in some measure actually known in human science, it must be in itself both absolutely self-existent and infinitely intelligible: that is, it must be a noumenon because it is a phenomenon.

"2. Because it is infinitely intelligible, it must be likewise infinitely intelligent.

"3. Because it is at the same time both infinitely intelligible and infinitely intelligent, it must be an infinite subject-object or self-conscious intellect.

"4. Because it is an infinitely intelligible object, it must possess throughout an immanent relational constitution.

"5. Because it possesses an infinitely intelligible relational constitution, it must be an absolutely perfect system.

"6. Because it is an absolutely perfect system, it cannot be an infinite machine, but must be an infinite organism.

"7. Because it is an infinite organism, its life principle must be an infinite immanent Power, acting everywhere and always by organic means for organic ends, and subordinating every event to its own infinite life: in other words, it must be infinite Will directed by infinite Wisdom.

"8. Because it is an infinite organism, its exient organic end disappears as such, but reappears as infinite Love of itself and infinite Love of the finite.

"9. Because it is an infinite organism, its immanent organic end appears as the eternal realization of the ideal, and therefore as infinite Holiness.

"10. Because, as an infinite organism, it thus manifests infinite Wisdom, Power, and Goodness, or thought, feeling, and will in their infinite fulness, and because these three constitute the essential manifestations of personality, it must be conceived as Infinite Person, Absolute Spirit, Creative Source, and Eternal Home of the derivative finite personalities which depend upon it, but are no less real than itself."

If this last conclusion really follows from the original premise, why need the proof have been so long? It is not like a geometrical demonstration, where there is a complicated diagram, every part of which has to be separately considered. In this case the premise is as simple a fact as can be—that something is known; the conclusion that the universe is an infinite person is also not very complex, and the intricacy of the argument to connect them affords ground for a suspicion that there is a fallacy somewhere. It would be a flattery of metaphysics to say that its history gives any warrant for holding that no more than one deduction in ten as plausible as the above turns out to be fallacious; and therefore the probability that there is no fallacy in the whole of the above chain of ten consequences is only 9-10ths to the tenth power, which is about 1-3. In advance of the verdict of posterity, then, the odds are two to one against Dr. Abbot's argument being sound. The subtlety of Nature, as Bacon says, far exceeds that of the human mind, and has a way of eluding our *must-bes*. To look no further than Dr. Abbot's first consequence, may it not be that nature is sufficiently intelligible to account for the degree of success that natural science has met with, without being necessarily infinitely intelligible?

The religion of the book seems to be only an appendage to a system of metaphysics. Whether true or false, this system is certainly valuable as presenting Objectivism, or the doctrine of an existence over against thought, in its extremest form. Its most striking philosophical characteristic is an energetic dualism. It makes the fundamental doctrines of philosophy consist in distinctions, crystalline, sharp, and unyielding; and the oppositions of things to which these distinctions refer go down to the bottom of being. The appearance and the thing are sundered by an impassable gulf, and the element of concrete outward reaction in sense and volition is much more emphasized than in other philosophical theories. The same spirit affects the author's whole style of thought and writing, which is clear and hard, and impels him to destroy every opposing tendency of thought "root and branch," instead of imitating other recent revolutionizers of philosophy in wishing to show that the error need only to receive complete development in order to be turned to the truth. Everything like uniting the members of his main distinctions by insensible gradations, by a deeper underlying unity, or by any mediating cause, except the Divine Mind which creates the relations but not the related things, is foreign to his idea.

Dr. Abbot holds that things, as they are known to physical science, possess absolute existence in themselves, not relative to or dependent upon thought of any kind. He holds that the relations of these things are hard facts, equally independent of all thought. There seems, however, to be some vagueness in his theory of relations, for on page 28 he seems to say that relations are something over and above the related things—"things and relations constitute two great distinct orders of objective reality"; while on page 63 we are told that "the affirmation of the objectivity of the relation [must not be misconceived] as an affirmation that the relation is an entity apart from the things it relates." He holds that relations inhere in groups; but whether the existence of these groups consists in the existence of the relations, or the existence of the relations consists in that of the

groups, or whether groups form a third order of reality distinct alike from things and relations, he does not inform us. And it will be one of his difficulties that his system, from the nature of it, at once opens a multitude of questions of this sort, the consideration of which cannot be shirked. The author is so remarkably loath to admit mediation that he will not admit there is any such thing as a symbolical conception (p. 139):

"The universal notion, or concept proper, is a pure thought-system of relations, reproducing only the objective system of relations of resemblance among many individuals—never the image or mental picture of one individual."

The doctrine seems to be that the relations are reproduced, without being embodied in any diagram, as "concepts of relations, dropping out of consideration the things related." The knowledge of relations depends upon a special "perceptive use of the understanding." This view, although it is not adequately set forth, is the centre of all that is original in the book, and is sure to excite a fruitful discussion of the question of the mode of our discernment of relations. Of all the sciences—at least of those whose reality no one disputes—mathematics is the one which deals with relations in the abstractest form; and it never deals with them except as embodied in a diagram or construction, geometrical or algebraical. The mathematical study of a construction consists in experimenting with it; after a number of such experiments, their separate results suddenly become united in one rule, and our immediate consciousness of this rule is our discernment of the relation. It is a strong secondary sensation, like the sense of beauty. To call it a perception may perhaps be understood as implying that to discern each special relation requires a special faculty, or determination of our nature. But it should not be overlooked that we come to it by a process analogous to induction.

The one great argument which Doctor Abbot uses to support his "noumenism," as he calls it, is that the existence of natural science supposes it. But the physicist always talks and thinks of phenomena or appearances, and makes not the slightest pretension to have anywhere got down to the noumena, bottom facts, or ultimate subjects of appearances. He discovers, for instance, that air is viscous, and viscosity is a non-conservative force. It is a reality; but yet, according to the physicist, only a phenomenal reality. Matter in itself is not viscous; but this phenomenon is due to the air being composed of countless molecules moving very rapidly in nearly rectilinear paths. These molecules themselves are not necessarily the bottom subjects; they may be mere systems of atoms, which in turn may be merely phenomena due to the vortex-motions of an underlying fluid. This fluid may come to be studied in time, and physicists will be quite prepared to learn that it again is only phenomenal. The physicist certainly holds that he reaches real facts, which no more depend upon anybody's thought of them for their existence than the coach in the fable depended on the fly for its motion. For example, he holds this to be true of the laws of the mixture of colors. These laws are realities, which remain what they are whatever our opinions about them may be. But to say this, is not to say that the colors themselves are anything

more than appearances. Further, although science must hold the facts it discovers to be independent of the opinion of any person or persons, it by no means follows that it need insist on their being independent of the final upshot of sufficient investigation, nor that it need hold them to be independent of the creative thought of the Deity. As yet, science does not decide either for or against any of the current systems of philosophy. Some are undoubtedly more in harmony with its spirit than others; but we can hardly reckon among the former a theory so averse to the conceptions of the differential calculus, and so prone to hard and discrete distinctions, as the one we have noticed. It is, however, a strongly characterized and scholarly piece of work, doing honor to American thought; and it is much to be desired that the world should see the system developed in its entirety.

1889

48 (13 June 1889) 488

## THE CENTURY DICTIONARY

TO THE EDITOR OF THE NATION:

SIR: Your recent review of the 'Century Dictionary' ought to be supplemented by some remarks upon its definitions of terms in physical science, while there is still time to make corrections. The definitions in question are, in many cases, insufficient, inaccurate, and confused in a degree which is really remarkable. Take, for example, the description of Ptolemy's 'Almagest,' "a book or collection of problems in astronomy and geometry, . . . so named by the Arabs because it was reckoned the greatest work on the subjects." Far from being a collection of problems, I doubt if there is a single problem in geometry or astronomy in the entire work. In no sense of the word is it a book of geometry, nor could it ever have been considered as such. While thus giving an erroneous description, what the work really is—a system of astronomy based upon the doctrine that the earth remains immovable in the centre of the heavens—is entirely omitted. In a rapid glance through a portion of the published pages (A-Appet), I have noticed a number of other cases of insufficient, erroneous, or misleading definitions or statements. The definition of *albedo* is confused and misleading. That of *eccentric anomaly* is entirely wrong. *Absorption lines* are described as occurring just under the conditions when they are impossible. *Law of action and reaction* is accurate, with the exception of a sentence which is so far wrong that I suspect it to have been interpolated after the original article left the writer's hands. *Apochromatic* is insufficiently defined, and is illustrated by a quotation as unintelligible as could readily be found. *Alidade* and *achromatic lens* contain misstatements less remarkable for their seriousness than for their existence.

So many defects in a single subject and in so small a fraction of the book would seem to indicate that the details of the work are not such as we should expect from the attention and care with which the editor and publishers have devised and executed their part of the plan. It ought to be added that, so far as I have noticed, the definitions in mathematics and mathematical physics are not subject to this criticism.

S. NEWCOMB.

WASHINGTON, June 8.

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## THE CENTURY DICTIONARY

TO THE EDITOR OF THE NATION:

SIR: The faults which Prof. Newcomb finds with my definitions in the Century Dictionary are, I trust, at all events, confined to the earlier pages, where I was unable to see proofs of a part of what I wrote. I ask leave to illustrate my method of preparing definitions, in the instances of the five in my department to which he objects. I take these up in their alphabetical order.