

1 Introduction

There is a great war raging. Western civilization is besieged. By “Western Civilization” I mean the civilization that grew out of the marriage between ancient Israel and classical Greece. First, the old traditions became intertwined in the writing of the *Septuagint*.¹ Then the two became one in Christianity, which required both traditions in order to express doctrine. Christians converted the declining Roman empire to the Faith, defended Europe against the onslaught of Muslim invaders,² and finally established a new civilization, among whose fruits are modern science³ and laws respecting the rights of man. Western civilization has many enemies. Among them are any who would deny a key Hebrew idea, such as that man is made in the image of the Creator, and any who would deny a key Greek idea, such as that a sentence cannot be both true and false at the same time and in the same sense.

One enemy of Western civilization is a particular, modern form of atheism. New Atheists,⁴ such as Richard Dawkins, deny the Aristotelian metaphysical⁵ basis for understanding reality while claiming for themselves the mantle of science, much as the Soviet Communists did during the Cold War. The present talk is motivated by my interest in combating erroneous views about modern science. In the context of the great war and my general motivation, I point to the philosophical conflict concerning how things really are.

1.1 Ancient Israel and Creation

The story of the conflict begins in ancient Israel. The relevant idea from *Genesis* is that things have not always existed. God, Who is not a thing, initially created things. A new thing, such as a pot, might

¹The *Septuagint* is the first translation of the *Tanakh* (what Christians call the *Old Testament*). The translation, into Greek, was made before the Christian era. Vander Heeren [1912] provides a detailed overview. Ratzinger [2005, 2007] comments on the marriage of Greek and Hebrew culture in the writing of the *Septuagint*.

²Belloc [1938, Chapter 4] gives a concise overview of the circumstances leading up to the First Crusade.

³The terms “science” and “scientific” are by etymology misleading. In Latin, the verb “scire” means “to know,” but what we call a “scientific theory,” is in many cases something that can never be known as a truth. There are, of course, truths in modern science; primarily, these are *observational* truths: Every repeatable observation is a truth of modern science, a truth at least in the sense in which the observation was historically repeatable, and so a viable theory must explain that. Further, a scientific theory that refers only to perceptible things might in principle be known as a truth, if it be a descriptive theory, such as the arrangement of the bones in the human body. However, a scientific theory that refers to something imperceptible, like the electron, might some day be superseded by a new theory making no reference to the imperceptible thing. Its existence in reality is therefore not certain, and so the theory referring to it cannot be known as a truth. There are many who would argue that the electron’s existence is certain, but arguments for scientific realism have problems. Chakravarty [2016] gives an overview of scientific realism and its problems.

⁴“New Atheism” is a term widely used to refer to ideas popularized by Richard Dawkins, Sam Harris, Daniel Dennett, and Christopher Hitchens in the first decade of the 21st Century. Feser [2008] devotes a whole book to the refutation of the philosophical errors of the New Atheists.

⁵The word, “metaphysics,” originates from the order of the books in the traditional list of Aristotle’s writings. His writing on the distinction between act and potency came after (meta) his writing on nature (physics). These days, any theory about what lies at the root of being or of change is called “a metaphysical theory.”

come into existence by transformation from a pre-existing thing, such as a lump of clay. However, according God’s revelation to the Israelites, there was in the past a beginning when the first things were created from nothing (*ex nihilo*), not by transformation. The fundamental distinction made by the ancient Israelites is between God and what God creates.

1.2 Classical Greece and Transformation

Another thread of the story begins in classical Greece. The early philosophers struggled to understand how things change, and their tradition culminated in the writing of Aristotle. Aristotle explained that for a thing to change is for what had existed only potentially in the thing to begin existing actually. The fundamental distinction is between actuality and potentiality. This distinction is the root of what has come to be called “Aristotelian metaphysics.”

1.3 Synthesis in Christianity

When, after having been lost for a time, Aristotle was reintroduced into the West by Saint Thomas Aquinas, he perfected the metaphysical theory so that it could explain not only change by transformation but also creation *ex nihilo*. Aquinas showed how, even if there had been no beginning in time, there would still be creation *ex nihilo* at every moment in time.

1.4 Misconceptions About Modern Science

Although Aristotle’s metaphysical theory naturally led to the emergence of modern science in the West, Aristotle’s opponents in the present conflict ironically mount their attack under the banner of science. The self-proclaimed advocate⁶ of science typically holds an erroneous view, *scientism*,⁷ according to which everything that exists is describable by modern science. He also typically holds a dubious view, *scientific realism*,⁸ according to which an imperceptible thing proposed as part of a scientific theory is certain to exist. We shall see in what follows how Aristotelian metaphysics provides arguments at least against scientism, and I shall argue also against scientific realism. First, however, we must explore the key Aristotelian distinction,

⁶Bill Nye, for example, is one of the most famous advocates of science. Yet in advocating not merely science but scientism, he makes a philosophical error. Bishop Robert Barron appears in a short movie in which he talks about Bill Nye’s scientism: https://www.youtube.com/watch?v=SH_Njsa0zVQ.

⁷Arguably the initial, definitive use of the word, “scientism,” is given by Sorell [1991]. My definition is essentially the one given by Hutchinson [2011]. There are many arguments against scientism. See, for example, Thomas Nagel’s argument from the problem of qualia, or subjective experience. Nagel’s view is summarized here: <http://www.nybooks.com/articles/2017/06/08/how-to-imagine-consciousness>, in his response to a comment by a professor Black. Note that Nagel is an atheist, though he is out of favor with the typical modern atheist, whose materialism takes the form of scientism. Feser [2014], in the introductory chapter of his book, summarizes all of the main arguments against scientism.

⁸Chakravarty [2016].



which allowed Aquinas to form a synthesis of the Judeo-Christian idea of creation and the Greek explanation of change.

2 Act and Potency

The earliest philosophers in classical Greece struggled with understanding how change can happen. The basic problem is that, along any continuum of change, there is a discontinuity between any two distinct points on the continuum.

2.1 Xeno's Paradox

For example, if an ordinary object move from Point A to Point B, there is not a discontinuous jump from A to B. However, in considering any two points between A and B, no matter how close together those two points might be, one would still have a jump from the first to the second, even if one considered still smaller separations forever. This is one formulation of Xeno's paradox.

Xeno concluded that continuous movement is an illusion because even with an infinite number of intermediate steps there would still be discontinuous jumps.

2.2 The General Eleatic Problem

2.3 Heraclitus

2.4 The General Theory

2.4.1 Example: Silly Putty

2.5 Causal Powers and Laws of Nature

3 Efficient and Final Causality

4 Formal and Material Causality

5 Essence and Existence

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⁹<https://plato.stanford.edu/archives/win2016/entries/scientific-realism>

¹⁰<http://monopolizingknowledge.net/contents.html>.

¹¹<http://www.newadvent.org/cathen/13722a.htm>.



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