

## Songs of Praise the Angels Sang

*James Montgomery (1771–1854)*

Songs of praise the angels sang;  
Heaven with hallelujahs rang,  
When Jehovah's work begun,  
When He spake and it was done.

Songs of praise awoke the morn,  
When the Prince of Peace was born:  
Songs of praise arose, when He  
Captive led captivity.

Heaven and earth must pass away;  
Songs of praise shall crown that day:  
God will make new heavens, new earth;  
Songs of praise shall hail their birth.

And shall man alone be dumb  
Till that glorious kingdom come?  
No: the Church delights to raise  
Psalms, and hymns, and songs of praise.

Saints below, with heart and voice,  
Still in songs of praise rejoice;  
Learning here, by faith and love,  
Songs of praise to sing above.

Borne upon their latest breath,  
Songs of praise shall conquer death;  
Then, amidst eternal joy,  
Songs of praise their powers employ.

## ΤΩ ΚΡΟΝΟΥ ΚΑΙΡΩ

### *In the Nick of Time*

#### **Toward a Softer, Gentler Science**

*Brett Williams*

My previous essay briefly introduced the limits of scientific knowledge and the rise of Scientism, the modernistic belief that science is superior to other disciplines. Unlike knowledge that deals with intangibles such as religion and philosophy, hard science, we are told, deals in the realm of the observable and measurable and is therefore best suited to answer life's most pressing questions. This belief is so pervasive that according to a recent *Pew Research Study* (8/2/19), Americans overwhelmingly trust scientists (86%) over other major professions, including religious leaders (57%). The majority of this surety arises from three foundational aspects of Scientism: the separation of science from philosophy, the development of the scientific method, and the idea of scientific progress.

Most school children are taught that the Enlightenment was a time in which science finally shook off the fetters of the church and archaic superstition. Copernicus and Galileo are lauded among the myriad of intellectual martyrs as they tried to distinguish science from philosophical and theological presumptions—the David of facts and evidence pitted against the Goliath of faith and philosophy. Even a cursory examination of the giants of the Enlightenment, however, reveal that science and philosophy were never considered so distinct. For most of the Enlightenment, what is now called science was referred to as “natural philosophy.” Great thinkers understood that their observations were founded upon particular philosophical (or even theological) assumptions.

One notable example was the German astronomer Johannes Kepler (1571–1630). Kepler is best known for his defense of heliocentricity in *Astronomia Nova* (1609) and his laws of planetary motion, outlined in *Harmonices Mundi* (1619). His work became the basis for much of modern physics and even laid the groundwork for Newton's gravitational theory. While Kepler was an extraordinary scientist, his training and heart were in philosophy. In a letter to a friend written in 1619, the great mathematician begged “[do] not condemn me to the treadmill of mathematical calculations; allow me time for philosophical speculation, my only delight!”

In fact, many of Kepler's ideas about motion are the result of his siding with Plato over Aristotle in an age-old philosophical debate. Aristotle believed



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www.centralseminary.edu | info@centralseminary.edu  
900 Forestview Lane N, Plymouth, MN 55441 | 800.827.1043

that there was a disharmony between what is perceived by thought and sight and that which is tacitly known by the intellect. Since knowledge that came from sight did not rightly reflect the universals, observation could not be trusted to necessarily correspond to reality.

Kepler vehemently disagreed, though not because of the reason some may assume. Adding a theological element, Kepler felt that reality is sourced in the mind of God and imprinted upon humanity through the *imago Dei*. These divine truths, or archetypes, were available to the human mind and corresponded directly to the nature of things. Observations, theories, and hypotheses could all be tested and trusted precisely because the order of the universe corresponds necessarily with its Creator. Kepler even said, “Geometry, which before the origin of things was coeternal with the divine mind and is God himself...supplied God with patterns for the creation of the world, and passed over to Man along with the image of God; and was not in fact taken in through the eyes” (*HM*, 304). In other words, geometry and other logical ideals are inherently recognized not because they can be observed but because they are categories in the mind of God that are demonstrated in creation. Geometry can therefore act as an *a priori* rubric through which observations can be tested. Hypotheses and testing are not distinct from theology; they exist precisely because the Creator is innately known.

The second aspect of Scientism is the belief that the scientific method is the purest way to knowledge and remains the foundation upon which the edifice of science stands, clearly separated from other epistemologies. This method (which is actually several methods) always employs some form of logical induction—the inference of a generalized conclusion from observation of specific things. Karl Popper (1902–1994) was an Austrian-born British philosopher and scientist who recognized that much of modern science “passes from *singular statements*, such as accounts of the results of observations or experiments, to *universal statements*, such as hypothesis or theories” (*The Logic of Scientific Discovery* 1959, 27). One might, for example, carefully and systematically examine swans and, after questioning and examining, theorize that swans are white. The logical problem, as Popper showed, is that no matter how many white swans are observed, it “does not justify the conclusion that *all* swans are white” (27). This, in fact, was the case in 15th century England when all swans observed and found in historical record were said to be white. The term “black swan” was a colloquialism to denote impossibility until Dutch explorers discovered black swans in western Australia. What is observed in the goose, it seems, is not necessarily true of the gander.

The third tenet of Scientism is scientific progress. Science is pictured along a historical spectrum with knowledge always increasing. Scientists in turn know more *now* than they did *then*. Revolutions, like the Enlightenment, are viewed as milestones in the steady march upwards. In his landmark book,

*The Structure of Scientific Revolutions*, Thomas Kuhn (1922–1996), long-time physicist and philosopher of science at Princeton and MIT, demonstrated that any notion of science as a progressive accumulation of knowledge is fanciful. He argued, rather, that science itself shifts when revolutions punctuate accepted assumptions. Most scientists in any given period of time operate within what Kuhn called “normal science,” the day-to-day science done from within an accepted paradigm (a set of assumptions about observations). This works well until something is observed that challenges the paradigm. Scientists then must seek to explain this observation by altering the philosophical assumptions about the phenomenon, a “paradigm shift.” Eventually, this will create a new paradigm in which scientists normally operate within the new assumptions. Kuhn said that “confronted with anomaly or with crisis, scientists tend to take a different attitude towards existing paradigms, and the nature of their research changes” (91). In other words, a change in paradigm is a change in the philosophical assumptions. Observations, then, follow accordingly. What is mistakenly seen as progress is actually new assumptions in looking at the same observations. Ptolemy challenged Aristotle, Galileo challenged Ptolemy, Newton challenged Galileo, Einstein challenged Newton, so on and so forth. What Scientism calls progress is simply various observations from a variety of philosophical assumptions.

Modern science is not incredible because it is somehow epistemologically pure or distinct from all other disciplines. It is incredible because it is inextricably *connected to* other disciplines. The scientific method, while valuable for data collection, is not able to interpret that data on its own. Facts never interpret themselves. It’s time for science to recognize that while seeking answers to questions of *what*, it can never delve into the questions of *why*. Discoveries are not simply a cumulation of knowledge but rather shifts in observation. Science cannot stand as an edifice alone for it stands squarely perched on the shoulders of philosophy and theology. It’s time for the hard sciences to stop being so hard-headed. It’s time for a little humility. It’s time for a softer, gentler science.



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This essay is by Brett Williams, Provost and Executive Vice President at Central Baptist Theological Seminary. Not every one of the professors, students, or alumni of Central Seminary necessarily agrees with every opinion that it expresses.

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