Science and Religion in Colonial America: The Early Days

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Abstract

The use of science to validate biblical accounts or prove the existence of God began in the United States with the publication of Cotton Mather's *The Christian Philosopher*. Cotton Mather is generally remembered for his role in the Salem Witch Trials but his contribution in bringing science to Colonial America is not well known. Mather had an extensive library, was a member in the Royal Society of London and had contacts with scientists in the great learning centers of Europe. Mather was perfectly positioned to bring scientific ideas to the common man in Colonial America. This overlooked book continues to be useful today to both scientists and religious leaders in understanding the origins of the Creation Science/Intelligent Design controversy in the United States.

Cotton Mather and The Argument From Design

Audis tibi loquentes Lapides; tu ne sis Lapis in hac parte, sed ipsorum Vocem audi, & in illis Vocem Dei.
You hear the rocks speaking to you; do not be a rock in this matter, but hear their voice and in them the voice of God. Johann H. Alsted

Today's use of science to glorify the greatness of God's creation, to validate biblical accounts or find evidence for the existence of God is not new. The roots of modern versions of Creation Science and Intelligent Design in the United States can be traced back to the writings of Cotton Mather in Colonial America. Plato formulated the argument from design, an argument for the existence of God based on evidence of the perceived order, design, or purpose in nature. Creation Science is a modern version of this design argument and Intelligent Design takes this a step further by arguing that nature is too irreducibly complex to have been come about by chance, therefore was created by a Creator. Cotton Mather was the first to use science and religion to bring the design argument to Colonial America. Colonial living existed on the periphery of the great European centers of learning. Contemporary books were often collections of curious facts and conflicting theories. It took an informed reader to borrow from them and distill modern scientific ideas into an acceptable format for a Colonial American. Cotton Mather was perfectly positioned to do so.

Most people know of Cotton Mather only from his role as a judge at the infamous Salem Witch Trials in 1692. However, in their volume Cotton Mather: First Significant Figure in American Medicine, Beall and Shryock (1954) argue that it is ironic that Mathers' religious writings and association with the witchcraft trials supercedes his scientific achievements and membership in the Royal Society of London. Solberg (1994) emphasizes Mather's importance in introducing the Englightenment to colonial America, an achievement for which he has received too little credit. Of Mather's writings, none is more important to the introduction of the sciences in America than his *The Christian Philosopher*, the first comprehensive collection of essays on all the sciences known at the time by an American author. In this book, Mather articulates his evidence for the proof of God's existence based on Mather's perception of the order and design he saw in nature.

Plato had originally formulated the argument from Design, an argument for the existence of God based on evidence of the perceived order, design, or purpose in nature. The Augustinian doctrine, derived from Plato and influenced by Neoplatonism, held that God is the author of both nature and Scripture, which is authoritative. The natural and supernatural must be concordant (Solberg 1994). Mather was familiar with and influenced by these ideas.

Mather, The theologian

Cotton Mather, son of Increase and grandson of Richard, was a Calvinist who followed the tradition that all men's fates are predestined, only the elect are saved, one cannot earn salvation, and Christ's sacrifice allows some men to receive election. It was expected that Mather would be successor to his father's pulpit at Boston's original North Church. Mather feared a childhood speech impediment would impede his desire to become a clergyman. He

redirected his ambitions towards medicine. As a student at at Harvard College (1674-78), Mather studied medicine so astutely that he treated himself with various concotions to cure imaginary maladies (Levy 1979). He went on to earn a Masters of Arts from Harvard in 1681, arguing in his thesis that Hebrew vowel points are of divine origin. During his masters studies he served as an unordained assistant at his father's North Church. By the age of 21 he overcame his stammer by cultivating a deliberate and emphatic style of preaching which carried over into his writing (Solberg 1994). He did not assume full responsibility as Pastor of the church until his father's death in 1723. During the time between his studies at Harvard and his father's death, Mather devoted his time to his writings on science and religion.

Many authors discuss the extensive library that Mather possessed. By 1700, Mather's library contained between two and three thousand volumes and was still growing. At the end of his life it consisted of probably four thousand volumes and was probably the largest private library in America (Solberg 1994). Mather had a great devotion to service and he used his writing to give spiritual assistance, to do good. Mather's desire to do good was influenced by the writings of Rev. Richard Baxter who believed that all good men should work to free other men from burdens and temptations and that one would find his own joy in helping others (Levy 1979). For Mather doing good meant using his writings as a way of communicating his acquired knowledge and ideas to his readers. Mather had no trouble reconciling himself as a servant of God and as a natural philosopher. He wrote: "Science should be a mighty and wonderous Incentive to Religion"(Levy 1979). Mather wrote over 460 works during his lifetime on subjects including theology, historiography, and science (Solberg 1994). No person was better positioned to educate the colonies than Mather himself.

Mather's theology was strongly influenced by reason. One of his biographers, Middlekauf, interprets Mather's *Reason Satisfied* to gives us information about Mather's view of reason. Middlekauf defined Mather's trinity as God, nature and reason (Middlekauf 1971). Mather believed that men have innate ideas that are directly from God. He rejected the Lockean idea that everything that men know, they know from the senses. In *The Christian Philosopher* Mather argued that reason is divinely implanted. Mather used as an example Native Americans' belief in a god and the trust God provides for life after death. Although these Native American religions were false and evil to Mather, their shared beliefs showed the innateness of knowing. Mather said that reason was an "Excellent Faculty," "a noble thing," distinguishing man from beast (Middlekauf 1971). Reason takes its origin in custom and nature and requires no tutor. He felt that teaching one to think, which scholarship and logic presume to do, was worthless. On the other hand, Mather also believed that reason could help human recognize the truth of the Scriptures. Mather believed that men had to think beyond their observations and studies. Nature is not so much divine art as divine will. God exists unconfined by any eternal principle of nature or reason. He might speak with reason's voice, but He did so only out of His sympathy for men's limitations. His will was His own and unfettered by law or order.

Mather's Scientific Education

Shortly before Mather's attendance at Harvard, the curriculum had changed from using Ptolemaic cosmology to Copericanism (Middlekauff 1971). Physics at this time was an introduction to "natural philosophy" in general. Newtonian science was not introduced to Harvard until 1727. During Mather's attendance at Harvard there was no laboratory or field work done in the

sciences. Most of the "studies" consisted of self-directed readings. To improve Mather's scientific education, his father, Increase, had formed a Philosophical Society in Boston in 1683 (modeled after the Royal Society of London formed by Robert Boyle) to include Cotton in discussions upon improvements in natural philosophy (science) and additions to the stores of natural history (Beall and Shyrock 1954). Robert Boyle was a friend Increase Mather and undoubtably conversations between Increase and his son had an influence on Cotton's thinking. Mather borrowed heavily from Robert Boyle's *The Usefulness of Experimental Natural Philosophy* (1663) in which Boyle introduced the Argument from Design (Middlekauff 1971). Boyle was convinced that natural phenomena demonstrated God's handiwork. At this time there were two groups which most desired to reconcile religion with the new science: religious scientists and scientifically-minded clergy. Robert Boyle was the vanguard of the religious scientists. John Ray, another of the religious scientists, wrote *The Wisdom of God Manifested in the Works of the Creation in Two Parts* (1691). As an example of the scientifically minded clergy, the Reverend William Derham wrote: *Physicotheology: or a Demonstration of the Being and Attributes of God from His Works of Creation* (1701). Derham's attempt to put scientific matters to theological uses was very popular, went through thirteen editions and was translated into five languages (Solberg 1994). Mather freely admits at the beginning of *The Christian Philosopher* that he relied heavily on the writings of Derham and Ray. These works were essential to introducing Mather to the thinking and habits of science and made long-lasting impressions on Mather's writing.

By 1685, Mather had used a microscope and been introduced to the wonders of the microscopic world. He wrote: the "seeds" of plants and animals "are no other than the Entire Bodies themselves in parvo" (Middlekauff 1971). As we can see from his from his early

scientific writings on Halley's comet (1680) to his later works including *The Christian Philosopher* (1721), Mather was keen observer of nature. Although Mather may have been writing as an observational scientist, his real aim is to glorify God as he states in *The Christian Philosopher*: "My GOD, I cannot look upon our Glasses without uttering thy Praises: By them I see thy Goodness to the Children of Men! (Solberg 1994)." Mather's earliest writings show that he was becoming a scientific-minded clergyman.

Much of Mather's natural science writing is valued for its contributions to the glorification of God. Beall and Shryock state that the Puritans originally cultivated science for the glory of God but the main point of Mather's works is that religion and science were viewed as harmonious. They also cite Robert Merton as claiming that the scientific contributions of 17th century Puritans exceeded those of any other European group (Beall and Shyrock 1954).

Mather was aware that science in general might disturb clerical orthodoxy. But he was confident that this could be avoided by a farsighted interpretation of nature. Science and art, in his view, derived their ultimate significance from religious values. Even disease itself could be fully understood only in theological terms (Beall and Shyrock 1954).

Mather as a scientifically-minded cleric

Mather's science writings can be broken into two broad groups: his early works in which he uses science writings focused on religion and his later works in which his religious writings focused on science. An early essay written while he was a graduate student at Harvard included an almanac on Halley's comet after it became visible in New England. In his *Magnalia (1702)*, Mather elaborated upon the doctrine of divine providence, of God's intervention in man's affairs, especially through dramatic occurrences of storms, earthquakes, sickness and other phenomena.

In his *Biblia Americana* (unpublished) he applied scientific knowledge to the interpretation of scriptural texts. *Biblia Americana* was Mather's attempt to reconcile biblical miracles with new science by providing scholarly commentary for nearly every verse in the Bible (Semonin 2000). The contents of *Biblia Americana* are intended to interpret all of Scripture in the light of "all the Learning in the World." He would include as well all the "Improvements, which the later ages have made in the Sciences." The text attempts to reconcile Aristotelian concepts such as the Great Chain of Being with 17th century science (Beall and Shyrock 1954). *Biblia Americana* contains as well considerable biological information on taxonomy, cross-pollination of plants, and the development of living things. Had it been published, the contents of *Biblia Americana* would have contained two hundred separate titles. Mather's treatise on Genesis occupies over 51 double-columned folio pages. Mather was familiar with the relatively new, primitive ideas of atomic theory and states that atomic theory of matter not only agrees with the biblical account of creation, but in fact offers one of the chief proofs of God. Mather reinterpretes the Genesis account of creation as:

> In the Beginning was universal Matter by God first created of nothing; a wondrous congeries of all sort of particles, unform'd, and unmov'd' and Every where separated from one another with Empty Spaces. This Universal Matter was put into motion, by the Spirit of God, and not Left unto fortuitous Motion and Concourse. Thus was there given unto Matter, that Force which we call Nature; for Nature is nothing but that Motion which the Spirit of God has imprinted upon Matter, and which He perpetually governs with his infinite Wisdom (Silverman, 1984).

After the Philosophical Society of Boston disbanded in 1683, Mather started writing to the Royal Society in London. Many of his letters to the Royal Society related to unusual storms, earthquakes, newly discovered fossils, biological species unknown in Europe and the like (Beall and Shyrock 1954). Mathematics, astronomy, geology, meteorology, biology and medicine all were discussed in his letters. Mather also wrote 59 lengthy letters that were to be part of a later publication entitled *Curiosa Americana*. Although some of these papers were never published, some were included in *The Christian Philosopher* (1721). The papers that make up *Curiosa Americana* include his 13 letters to secretaries of the Royal Society: Dr. John Woodward and Richard Waller on the following topics:

- Ornithology
- Monstrous births (written in Latin)
- Cures and Illnesses
- Indian methods of keeping time
- Apparitions revealing to murderer's identities
- Rattlesnakes
- Thunder and earthquakes
- Speculating on the population of the world before the Flood (including giants)

(Silverman, 1984)

As was true of his earlier writings, most of Mather's "curiosa" were secondhand accounts, although he made mild efforts to indicate the authenticity of the data (Beall and Shyrock 1954). As a result of his writings to the Royal Society, he was made a member in 1714 although he was not listed as a member due to the long distance Mather would have to travel to admission ceremony (Solberg 1994).

Mather as the religious scientist

In the *Biblia Americana*, Mather examined the scriptures in terms of science whereas in *The Christian Philosopher (1721)* he reversed this by surveying science from a religious perspective (Beall and Shyrock 1954). "*The Christian Philosopher: A Collection of the Best Discoveries in Nature, with Religious Improvements*" by Cotton Mather, D.D., and Fellow of the Royal Society, was first general science book to be written in America. It summarized findings of European scientists on gravity, speed of light, and included the scientific works of Flamsteed, Leeuwenhoek, Huygens, Newton and others. Mather meant *The Christian Philosopher* to represent "A Collection of the Best Discoveries in Nature." By using the writings of other scientists, he tried to demonstrate how a Christian might come to terms with the new science itself (Silverman 1984). Writing *The Christian Philosopher* was another way for Mather to "do good," that is, to aid his fellow man. Mather must have realized that the common man did not have the access, education or understanding of science that he possessed. By using his sermons and writings, Mather could serve to educate colonial America. To be sure, he did not intend for his writings only to present current scientific understanding; he was interested in showing how contemporary science could be used to glorify God and His mighty creation.

The Christian Philosopher is a collection of 32 essays or chapters. Most chapters begin with a quote or citation from an ancient authority, then medieval and Renaissance authorities, and on to the recent discoveries by contemporary scientists (Solberg 1994). The volume starts in a traditional way with the heavenly bodies, moving to terrestrial phenomena, then to the Earth, to the Living bodies, and ends with an essay on humans. This transition from the heavens to man is typical of many of the writings at this time and parallels the Great Chain of Being from

Aristotle. Each essay of *The Christian Philosopher* closes with a rhapsody or "sermonette" as to how the new knowledge redounds the glory of God. Solberg refers to this as Mather's "Devotionary part." The original edition had 304 pages, 37 lines per page for total of 11,250 lines. Solberg calculates that 79% of material was derived from others, 21% was Mather's own. Much of *The Christian Philosopher* relies on the writings of John Ray and William Derham. Ray, one of the founders of modern science was not a lab scientist but a genius as a field observer who excelled in description and classification (Solberg 1994). Mather was also an excellent observational scientist as shown in *The Christian Philosopher*.

The Science of *The Christian Philosopher*

In *The Christian Philosopher*, Mather demonstrates that he is current in his understanding of early 18th Century scientific thought. He had an extensive library, was a member of the Boston and Royal Societies, and corresponded with English scientists. Mather was uniquely positioned to bring contemporary science to Colonial America. In his first essay (*Of the* Light), he starts with a physical description of the world by explaining Newton's Three Laws of Motion. Mather interprets Newton's Laws from a theological perspective and makes a distinction between first and second causes, between the secret will of God (first cause) and the revealed will of God which man can understand by observation and the use of reason (second cause). Mather ranks Newton's laws as Second Causes, that which we can understand. In his third essay (*Of the* Stars), Mather says that the number of stars one can count depends on the magnification of the telescope, that the Milky Way is made of a infinite number of stars, and that the universe is a three-dimensional object. He also states in his essays on stars (II and III) that the constellations and stars should be renamed with Christian names. In subsequent essays on the sun and planets

(Essays IV through IX) Mather includes descriptions of Kepler's Laws of planetary motions and the universality of physical laws and constants. He includes a statement about "providence," that is, God's hand is needed to keep the physical laws constant. The inclusion of this statement separates Mather from those who would believe that God created the universe and does not interfere with its actions after creation, a view that became more popular later in the 18th Century. His writings on divine interventions by geologic and meteorologic catastrophies in *The Christian Philosopher* and other writings complement the view of Divine Justice. Mather included several tables on planetary distances from the Sun, planetary diameters and their periods of revolution. A curious inclusion in his essay on Mercury (IX) states: "astronomers who lead evil lives will be condemned to the darkness of space." Mather was refering to Thales of Miletus, a founder of physical science, who proposed looking for physical rather than mythological understandings of the world (Solberg 1994). This condemnation of those who view the physical sciences without glorifying God's creation is in line with Mather's purpose of glorying God's creation by using science. It is the directness and severity of the statement is shocking to modern readers. Mather updates his understanding of comets (Essay X), especially the periodicity of Halley's comet. Unfortunately he concludes his scientific discourse on comets with superstition. He contradicted his earlier writings that he doesn't believe in astrology, nor does he read the heavens when he said in this essay that comets are the ministers of Divine Justice.

One of the best examples showing Mather's understanding of science can be seen in his essay on the rainbow (XIII). Mather shows a good understanding of the production of the primary and secondary rainbows, demonstrating that he is well read in optics and its applications to physical phenomena. At the time of this writing, scientists did not understand about how

snow or lightning were produced and Mather conveys these misconceptions in essays XIV through XVI. An important debate about the nature of cold (being a positive or negative thing) was going on in Europe and Mather captures this debate clearly (Essay XIX). In Essay XX on the terraqueous globes he shows his understanding that the habitability of the earth is produced by the earth's orbit. In Essay XXI he produces a scientific definition of Providence by stating that gravity is created and maintained by God. "It is now plain from the most *evident Principles,* that the Great GOD not only has the *Springs* of this immense *Machine,* and all the several Parts of it, in his own Hand, and is the *first Mover*; but that without His *continual Influence* the whole Movement would soon fall to pieces" (Solberg 1994). Although he discussed the universality of physical laws earlier, his inclusion of providence comes from his need to keep God active in men's lives. Mather's god did not create the universe then absent himself; his god is an active god. Mather even included a pun in this essay on gravity (XXI): "My *way* shall be to improve this as a *weighty* Argument for the Being of God." Mather proves to be a good scientist by taking the information he has gained on gravity and planetary motions by extrapolating this knowledge into new realms when he speculates about the effect of that having two moons would have on the tides if the earth had two moons in Essay XXII. However, Mather again shows his alliance with theological meteorologists and geologists by discussing how lightning and earthquakes are justice from God's hand in several later essays. "It is no rare thing for the Children of Men to die by *Thunderbolt*: A *King* has been so slain in the midst of his Army." "But Mankind ought herein to tremble before the Justice of God. Particular *Cities* and *Countries*, what fearful Desolations have been by Earthquakes upon them" (Solberg 1994). At the end of his essay on water (XXII), Mather includes an essay (appendix) on fluids in which he expresses his ideas that matter is atomic in nature and how the different sizes of particles (atoms)

give fluids similar hydrodynamic properties but different densities. Although Mather may have been relaying information of other scientists, this appendix shows he is capable of taking others' writings and extending them in new directions of thought. Unfortunately, Mather and contemporary scientists misunderstood the nature of volcanoes and the Earth's interior and he conveys these misconceptions in Essays XXIII on the Earth. The nature of fossils gave many scientists difficulties in interpretation even after their meaning had been clearly stated by Steno in 1669, several decades before the writing of Mather's book. Mather aligns himself with those scientists who believe that fossils are the shed or sloughed off natural animal coverings, exuviae. The remainder of *The Christian Philosopher* includes seven more essays on Vegetables, Insects, Reptiles, Fishes, the Feathered, the Four-footed, and Man.

The Christian Philosopher does show Mather's limitations as a scientist. Mather had little interest in experimental methods and his lack of mathematical skills barred him from understanding mathematical descriptions of nature (Silverman 1984). There was a "dark side" to Mather writing this book. Mather's promotion of science tended to displace Christianity. In trying to prove God's existence from natural phenomena, it relegated Christian ideas to the background, especially losing sight of the Son (Silverman 1984). Mather himself feared that men would forget the Creator of each newly discovered wonder (Levy 1979). If the devotionary parts of his essays were excluded, *The Christian Philosopher* would have been reasonable science textbook to be used in the university at that time.

Proof of God

Mather uses science to glorify the greatness of God's creation, to validate biblical accounts and find evidence for the existence of God. In his last essay, Mather uses the human body as the climatic example of a superior creator. He uses the Great Chain of Being, which had

gained new prominence in the 17th and 18th Centuries, to show that "as we pass regularly and proportionably from a stone to a Man, the Faculties of the Creatures grow brighter and more capacious… with Man who is but the Equator of the Universe (Solberg 1994)." Mather delineates five evidences in humans to prove that God is the Creator. His first is "that the faces, voices and handwriting of individuals differ is a providence of God for avoiding confusion and disturbance. Had nature been a blind architect, the faces of humans might have been as much as eggs laid by the same hen" (Solberg 1994). Second is that design is also demonstrated by the benevolence of the Creator in providing specific defenses against diseases. Mather had studied medicine at Harvard, was keenly interested in disease and was an out-spoken proponent of the use of inoculations against smallpox in Boston. Third, Mather claims the "Eye is proof of design." The eye is so clever constructed, images seen by the eye are upright, and having two eyes does not cause us to see double is Mather's primary proof of the perfection of God's finest creation, Man. Man's superior, upright stance with our feet – especially to "trample Atheism underfoot" was his fourth line of evidence. Lastly, Mather says "in the Body of Man there is nothing deficient, nothing superfluous, and use for everything." "There is no sign of Chance in the whole structure of our Body" (Solberg 1994). To Mather, the work of God proves there is a God.

The Conclusion of *The Christian Philosopher*

The last dozen pages of *The Christian Philosopher* reflect on the religious significance of the scientific material Mather has included in his text. Here, at last, Mather largely freed himself from his sources (Solberg 1994). Mather concludes by saying: "To enkindle the *Dispositions* and the *Resolutions* of PIETY in my Brethren, is the *Intention* of all my ESSAYS, and must be

the *Conclusion* of them. Aethism is now for ever chased and hissed out of the World,…" "Thus from what occurs throughout the whole Creation, *Reason* forms an imperfect Idea of this incomprehensible Mystery". Mather proposed two positive steps to promote piety. First he says, "the works of God exhibited in nature demonstrate the power, wisdom and the goodness of God and humans should acknowledge these divine perfections." Secondly, the Christ of God, who is Lord of all, must not be forgotten (Solberg 1994). *The Christian Philosopher* delineates a minutely purposive universe, where lice exist to deter people from slovenliness, and teething is deferred to protect the nipples of wetnurses. "The Great God has contrived a mighty Engine, of an Extent that cannot be measured, and there is in it a Contrivance of wondrous Motions that cannot be numbered. He is infinitely gratified with the View of this Engine in all its Motions, infinitely grateful to Him so glorious a Spectacle" (Solberg 1994).

Effect of *The Christian Philosopher* on Cotton Mather

Levy states in *Cotton Mather*, 1979, that writing *The Christian Philosopher* had a profound effect on Mather. *The Christian Philosopher* changed his view of God the Great Creator. Mather's world is now based on Reason, Reason to be used in support of faith. *The Christian Philosopher* was readable summary of scientific thinking in early 18th Century and an indication of how men without abandoning beliefs could react to scientific knowledge about the universe in the Age of Reason. His scientific interest and knowledge gained in writing changed his way of preaching (Levy 1979). The Creator he depicts in the Christian Philosopher no longer seems the wrathful Jehovah of the jeremiads, but rather the smiling Diety of liberal 18th century Protestantism, ordering things so, that "whatever is natural is delightful, and has a tendency to do

Good" (Silverman 1984). Mather found nature to be so wondrous and beautiful as to suggest God's goodness and mercy rather than simply His dread power (Beall and Shyrock 1954).

Importance of *The Christian Philosopher*

Solberg (1994) delineates a six-fold argument about the significance of *The Christian Philosopher*. First of all, Mather's treatise represents a departure from earlier New England Puritanism. Secondly, *The Christian Philosopher* was a harbinger of Enlightenment in America. Puritan thought had always placed a high valuation on the rational faculty. The older tradition emphasized the connection between nature and divine wisdom. To Mather, reason is divinely implanted and permits discoveries and inventions, it allows for the greater progress that is yet to come. Thirdy, *The Christian Philosopher* contributed to understanding of curiosities in nature in America. In this book, Mather furthered his resolve to Do Good and glorify God. Solberg's fourth argument is *The Christian Philosopher* is a significant document in the transmission of the humanistic legacy to early America. The book is a bridge by which the learning of the ages passes from Old World to the New. His fifth argument is that *The Christian Philosopher* merits high consideration for its literary artistry. The medium is inseparable from the message. Finally, Solberg concludes his view of the significance of *The Christian Philosopher* by stating that the author's philosophical approach to his subject not only interprets nature but combines theological and scientific modes of explanation. This is the first attempt in Colonial America to do so, to promote a creation science – intelligent design argument.

Mather's book continues to be important today. Scientists and historians of science today could learn much from Mather's book. Mather's depiction in today's society often is that of a fire and brimstone evangelist. Although part of that is true, the rational, scientific side is not well known today. Mather was not just a Puritan evangelist; he was a scientist of his time. *The*

Christian Philosopher is the science book of the early 18th Century. This book was written for the Common Man in Colonial America. Mather attempts to make this seemingly primeval New World understandable in terms of the new understandings of science. Six years after the publication of this text in 1721, a science program was started at Harvard University (Beall and Shyrock, 1954). With only three universities in the colonies at the time of publication, *The Christian Philosopher* was an important source for scientific information. Mather popularized for American audiences the language, discoveries, and habits of thought of the new science (Silverman, 1984). It is an interesting, critical and perhaps, first chapter in the development of science in the United States.

Scientists and creationists both should be familiar with this book because the design argument has deep roots in American consciousness. Mather's book is important beyond that it is the first statement of the design argument written by an American (Solberg, 1994). In order to fully appreciate and understand the design argument or creation science arguments, one must be familiar with its roots. If scientists hope to persuade creationists, they must understand how creationists think. This book shows how creationist thinking started in the United States and it contains many examples of the same types of thinking that continues to persist. Many of the creationist arguments that Mather used in his book almost 300 years ago are the same ones being used today. Both sides of the Creation Science/Intelligent Design argument could learn from Mather's book.

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Published by the Forum on Public Policy