



## From Scientific Method to Methodological Naturalism: The Evolution of an Idea

Harry Lee Poe and Chelsea Rose Mytyk

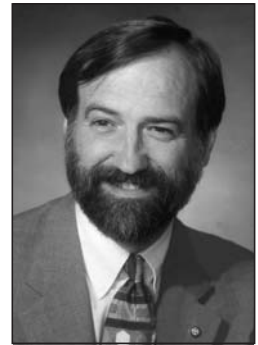
In response to the appearance of Scientific Creationism and its growing popularity in conservative Protestant circles in the 1960s, Paul de Vries proposed a way of thinking about the scientific enterprise that he named “methodological naturalism.” As a professor of philosophy at Wheaton College, de Vries found himself at the intellectual center of American evangelicalism and sought to offer his students an alternative to Scientific Creationism on the one hand and “evolutionistic scientism” on the other, both of which de Vries thought distorted science and manipulated faith.<sup>1</sup>

The term *methodological naturalism* first appeared in print in “Naturalism in the Natural Sciences,” an article written by de Vries that appeared in *Christian Scholars Review* in 1986. De Vries had used the term for many years in his classes and in conversation with his colleagues at Wheaton before publishing his article. Since the publication of the article, the term “methodological naturalism” has gained some acceptance in the scientific, theological, and philosophical communities that deal with science and religion. The term is used by physicist-theologian Robert Russell who approves of it, and mathematician-philosopher William Dembski who disapproves of it.<sup>2</sup> Karl Giberson and Donald Yerxa have argued that the term is the focus of a quarrel within the Christian community, but that “the quarrel over methodological naturalism and theistic science does not engage the average scientist in a lab coat ...”<sup>3</sup>

Partisans in favor of the concept include Richard H. Bube, Denis Lamoureux, Howard Van Till, Keith B. Miller, and Robert O'Connor.<sup>4</sup> Opponents include Alvin Plantinga, J. P. Moreland, and Stephen C. Meyer.<sup>5</sup> This group of opponents reject the concept primarily because it leaves no room for direct action by God in science. They would like

for science to include ultimate or final causality as well as immediate causality. They write as though the suggestion that science should only deal with immediate causality represents a modern innovation, when science, as Francis Bacon (1561–1626) defined it in *Novum Organum*, does not deal in final causes.

Technically speaking, the word “science,” coming from the Latin word *scientia*, originally meant “knowledge.” When the medieval scholastics spoke of theology as the “queen of the sciences,” they spoke of all the realms of knowledge. The meaning of words, however, changes over time under the influence of the forces of culture, including different philosophical understandings. For Plato, sensory knowledge was merely opinion, but for Aristotle it was the surest form of knowledge. Since the Middle Ages, under the influence of Aristotle’s view of knowledge filtered through the thought of Thomas Aquinas, the word “science” has come to mean sensory knowledge. Since the nineteenth century, the word has been used for what was once known as natural philosophy. Over time, natural philosophy came to be called natural science, and natural science was shortened simply to science.



Harry Lee Poe



Chelsea Rose Mytyk

ASA member **Harry Lee Poe** serves as Charles Colson Professor of Faith and Culture at Union University in Jackson, Tennessee. He has published several books on science and religion, including *Designer Universe and Science and Faith: An Evangelical Dialogue with Jimmy Davis* and *What God Knows: Time and the Question of Divine Knowledge with Stan Mattson*. In his spare time, Poe serves as president of the Edgar Allan Poe Museum of Richmond, Virginia.

**Chelsea Mytyk** graduated in 2006 with a BS in biology from Union University where she attended as a Provost Scholar. As an undergraduate, she was president of Sigma Zeta national science and mathematics society and was honored as outstanding biology student her senior year. She studies medicine at the University of Missouri School of Medicine and intends on pursuing her interests in surgery, studying the relationship between science and faith, and providing healthcare to the underserved.



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Science does not exclude other forms of knowledge, but science is only qualified to describe what it can learn through sensory observation. Even if God acts directly in the physical world, science is left to describe what it can physically observe, not what the scientist believes to be the ultimate cause of the observation. People may believe that God knitted them together in their mothers' wombs on the authority of Scripture. To be science, however, it is necessary to describe what that knitting looks like physically in the body. Oddly, those who debate the value of the term do so without reference to de Vries, the article in which he introduced the rationale for the term, or Bacon and his scientific method. Instead, they speak vaguely of "science."

Perhaps of equal significance with those who disagree about the term are those who discuss the issues related to methodological naturalism, but who do not use the term. We have not found that John Polkinghorne, Arthur Peacocke, Stephen Jay Gould, Richard Dawkins, Russell Stannard, or Paul Davies use the term. Some use other terms. Peacocke speaks of "theistic naturalism" by which he means that God is actively "creating ... through what we call 'chance' ..." Giberson and Yerxa speak of "methodological agnosticism."<sup>7</sup> On the other hand, Plantinga, citing Basil Willey, characterizes methodological naturalism as "provisional atheism."<sup>8</sup>

In "Naturalism in the Natural Sciences," de Vries claims that methodological naturalism is only "a matter of disciplinary method" and is an entirely different entity than the metaphysical Darwinian naturalism.<sup>9</sup> He completely separates methodological naturalism from metaphysical naturalism:

Methodological naturalism is quite different from metaphysical naturalism. Metaphysical naturalism is a philosophical perspective that denies the existence of a transcendent God. Methodological naturalism does not deny the existence of God because this scientific methodology does not even raise the question of God's existence. Unfortunately, these two kinds of naturalism have often been confused. As a result, it has seemed to the philosophically careless as if the natural sciences under the guidance of methodological natu-

ralism have provided evidence for metaphysical naturalism. This confusion is regrettable and certainly inexcusable.<sup>10</sup>

De Vries goes on to warn us not to get caught up in "language games" and reminds us that contradictions or semantics should not detract from the essence of the idea. He insists that Christians need to be "enthusiastic supporters of the naturalistic methodology of the natural sciences."<sup>11</sup> Through this methodology, we can uncover many of God's mysteries and give him praise. However, de Vries cautions that while immersed in the natural sciences, we should not be distracted by "theological or philosophical speculation."<sup>12</sup> He emphasizes that, "a naturalism that is a matter of method still leaves all the philosophical and theological questions completely unanswered."<sup>13</sup> Methodological naturalism has its limits and will always fail to answer the big "Why?" questions, while it more readily answers the "How?" questions.

The natural sciences must be regulated by methodological naturalism, but outside of those disciplines methodological naturalism is "a disaster."<sup>14</sup> As much as de Vries is concerned by the approach of Scientific Creationism and evolutionistic scientism, he has an equal concern over the inappropriate efforts to apply the scientific method to disciplines outside the sciences. He believes that methodological naturalism will prevent the scientific method from being "pushed into fields in which it is not competent."<sup>15</sup>

### Francis Bacon's Scientific Method

In the science and religion dialog, the term "methodological naturalism" refers to the need for science to proceed as though God did not exist, or at least as though God has no part to play in the physical world. The term serves to remind scientists and theologians of the need for objectivity in research. The reason for using a term like "methodological naturalism" is to create a neutral mindset that leaves theological consideration out of science. But is "methodological naturalism" a neutral term that promotes objectivity? In fact, might the term actually undermine Bacon's aspirations of a scientific method free of metaphysical prejudices?

*Technically speaking, the word "science," coming from the Latin word scientia, originally meant "knowledge." ... Since the nineteenth century, the word has been used for what was once known as natural philosophy. Over time, natural philosophy came to be called natural science, and natural science was shortened simply to science.*

The great advance in knowledge of the physical world that has come to be called "science" came with a great explosion at the beginning of the seventeenth century. A trickle of ideas related to the motion of the planets had seeped out of the late Middle Ages through people like Copernicus and Kepler, but the great surge began with Bacon's proposal for a new disciplined method for the study of the physical world. Bacon recognized that the development of what we would now call scientific knowledge could not proceed as long as scientists continued to rely on the metaphysical foundation of the Greek philosophers. Though most of the sciences came from the Greeks, Bacon observed that Greek learning tended to be "rhetorical" rather than experimental, that the pursuit of truth involved disputation, and that the philosophers "were too susceptible to the ambition and vanity of founding a sect and winning popular favour."<sup>16</sup>

Through a process of logic based on philosophical premises, Aristotle and other Greek philosophers had explained how the physical world "works." Aristotle explained the absolute time, the infinite space, and the eternal matter of the world. He explained the perfect, spherical shape of the heavenly bodies and their perfect, circular orbits based on his understanding of the Unmoved Mover. Aristotle's god was Narcissus who spends eternity contemplating his own beauty while the whole universe revolves around him. In the late Middle Ages, science meant making one's observations fit the metaphysical system of Aristotle. Bacon did not propose his new method to rid science of God, because God had not caused any problems with the advance of knowledge. Rather, Bacon conceived an approach to the study of how the world works based on observation rather than metaphysical ideas. Space does not allow an examination of the related contemporary debate over whether a scientific method actually exists, but the existence of the debate illustrates how the philosophical debates of the humanities have filtered over to the natural and social sciences.

Bacon distinguished between categories of causes for phenomena. Metaphysics speaks to final or ultimate causes, but observations of the world itself tell us about the immediate causes within the world of experience. Metaphysical ideas were not seen as conflicting ideas so much as they were seen as ideas that touched on a different level of experience. On the other hand, Bacon clearly believed that some metaphysical ideas were wrong. Galileo came to this same conclusion about the same time with regard to Aristotle's account of the heavens. Yet, the scientific method rests on several huge metaphysical assumptions that derive from biblical faith: (1) a real world exists that can be known through the senses, and (2) this world has such an order about it that its patterns can be described and predicted in such a way that they might be called "laws." The distinction between Bacon's metaphysical assumptions and those of the scholastics is that Bacon's

assumptions did not contain specific explanations of how the world works. For Bacon, belief in the Creator in no way constricted what he might discover about how the world works.

## Metaphysical Connotations of Naturalism

Though de Vries would prefer that we not play word games over the use of the term "naturalism," words are the tools we have for communicating ideas, and they cannot be ignored. Can naturalism be described as a method for pursuing scientific understanding without involving the metaphysical connotations with which the word has always been associated? In fact, the word group nature/natural/naturalism represents a tradition of Western thought ripe with latent philosophical and theological implications.

The word "nature" is a poetic synonym or metaphor for the physical world of phenomenological experience with a number of metaphysical connotations not found in the more scientific term "physical." The habit of referring to physical reality or the material world as "nature" grew out of the allegorical poetry of the Chartres school of poets in the fourteenth century. In a period in which Aristotelian philosophy was on the rise, the Chartres school held to the Platonic view of the world that had dominated before the eleventh century. They reconciled Genesis and Plato's *Timaeus*, reverencing the material world and studying it. Thus, in the allegorical poetry of the Chartres poets, the created order of the physical world appears as Nature, the goddess who does God's bidding by correcting the unnatural. The Latin word *natura* does not refer to the physical world as such. Instead, it refers to birth, character, constitution, or the course of things.<sup>18</sup> Other related words to *natura* include natal, nativity, and native. By choosing *natura* as the name for the personification of the physical order, the poets imply that the character, the course of things, or the "nature" of the physical order is to do God's bidding.

In English, "nature" in its many uses has referred to the essential qualities of a thing, the powers of a thing, or the powers at work within a thing. The use of "nature" with respect to the physical world has a highly metaphysical definition in the *Oxford English Dictionary*: "The creative and regulative physical power which is conceived of as operating in the material world and as the immediate cause of all its phenomena."<sup>19</sup> Of course, Wittgenstein has taught us that the meaning of a word comes from how it is used rather than from how a dictionary may define it. The value of understanding how the word "nature" came to be used by scientists and others when speaking of the physical realm comes in appreciating that it brings with it a subliminal connotation that tends to think and speak of nature as doing things. Nature as the physical world, however, does nothing. It just is. Things happen within





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the realm of nature, but nature takes no initiative. It just is.

The modern tendency to think of nature in a more animated way does not come directly from the medieval allegorical poets who first personified creation as Natura. Rather, it comes from the Enlightenment, reinforced with modern rationality by metaphysical philosophers like Hegel, Marx, Nietzsche, Spinoza, and Leibniz who infused Nature with a driving force and goal. The nineteenth century filled Nature with a "principle" which Gregory Thornbury says served as a "God substitute."<sup>20</sup>

The word "naturalism" takes the concept of nature one step further. On the surface, it may appear to suggest the idea of objectivity when, in fact, it suggests something quite different. Naturalism is the philosophical view that all phenomena can be explained entirely by "natural" or physical causes without reference to any metaphysical explanations. Note that naturalism does not help at all with the examination of the physical world. To speak of the "natural" state of things is to speak of the "normal constitution of things" or things as they are. The constitution of something, however, does not limit a thing to the physical. One must add another way of speaking which separates the "natural" from the "spiritual" in order to get to the notion that a "natural" explanation exhausts all that can be said about a thing.

The scientific method had long since established that science is concerned only with the examination of the physical world and what can be learned from observing physical phenomena. Naturalism does not contribute to the scientific method which already restricts science to the examination of physical phenomena. Instead, it tells us that "natural" or physical causes explain all phenomena. It tells us that only scientific analysis of a question leads to legitimate answers. It tells us that empiricism (knowledge through sensory experience) is the only valid form of knowledge. The problem with naturalism is that it contributes nothing to enhance scientific knowledge but discourages the exploration of other kinds of knowledge.

Bacon saw that metaphysical explanations of how the world works stifles further inquiry. The concept of "chance" is just such

a metaphysical explanation in the modern world, but "chance" is not the language of science. It is the language of Las Vegas and Monte Carlo. Within naturalism, "chance" is the great explanation. It covers every situation. It is an all embracing explanation for everything. If we know that something happens by chance, we have no need to explore the matter further. We have no need to look for a mechanism as yet unknown. A chance event has no cause. Science, however, is in the business of discovering causes, even the causes behind random events. In this regard, presupposing the existence of God does much more to advance science than presupposing chance. God provides a basis for order and pattern that may be discovered in the physical world. Chance, on the other hand, is a final cause that also functions as an efficient cause—a metaphysical explanation for a physical occurrence!

Methodological naturalism suggests that scientific study should be conducted with the perspective that God plays no part in the physical world. If the scientific method is only concerned with observation and description of the physical world, why raise the issue of God at all? With methodological naturalism, the scientist uses a philosophical position as a methodology that incorporates metaphysical ideas not germane to the scientific question under examination.

## An Experiment

Consider a simple scientific experiment. We want to know how heavy a loaf of bread is that sits on a table. A boy tells us that his mother placed the bread on the table. Another child tells us that the next door neighbor placed the bread on the table. Someone else tells us that the bread has always been on the table. None of these possible statements of origin affects the weight of the bread. It is not necessary to assume that someone placed the bread on the table (theism or deism) or that the bread has always been there (naturalism) or even to believe that someone placed the bread on the table but that the bread should be weighed as though it has always been there (methodological naturalism). To weigh the bread as though it has always been there (even when we believe it was placed there by someone) contributes nothing to the results of weighing the bread.

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The word "nature" is a poetic synonym or metaphor for the physical world of phenomenological experience. The word "nature" has also served as an allegorical personification of the physical world through the identification of physical reality with the feminine deity, Natura. The personification meant nothing metaphysical or religious when it came into popular usage in the eighteenth and nineteenth centuries, because many people in the West no longer believed in a spiritual or divine aspect to the physical world. In the twentieth century, however, we have observed the re-sacralization of the physical world through the intersection of the ecological movement, radical feminist theology with its renewed interest in the mother goddess, and the tendency to ascribe thought and decision and will to the process of evolution.

Ironically, this re-sacralization has occurred during a period that has witnessed the death of poetry within the broad culture of the West. People who write poetry for themselves and a small elite still inhabit the fringes of society, but the masses no longer read or listen to poetry for pleasure. They no longer understand it. It no longer speaks to them. The ability to count and the ability to observe, "Its fleece was white as snow ...," are two aspects of a single piece. Science depends upon symbolic representation and analogy. The death of the poetic imagination into a dry, factual literalism does not enhance science.

Naturalism dominated liberal theology in the late nineteenth and early twentieth centuries as scholars sought "natural" explanations for religious phenomena. The trend in biblical studies was to propose natural explanations for miracles, prophecy, revelation, the incarnation of Christ, and the full range of faith convictions held by the Christian church. Naturalism denies that any transcendent reality operates within the physical world of phenomenal experience. For this reason, naturalism is closely related to the philosophical concept of materialism which states that only the material world exists.

Does the use of the term methodological naturalism advance science? Should atheists be expected to adopt methodological agnosticism in order to be objective in their scientific work? We do not think so, because it brings God into the method in an inappropriate way, just as methodological naturalism does.

In the thought of Richard Dawkins and others like him, we see the view that once a phenomenon has been described, it has been explained. They move beyond methodological naturalism to methodological materialism, which is even more removed from the scientific method. While the scientific method restricts itself to a discussion of what can be empirically observed within the realm of nature, methodological naturalism assumes that what occurs in the empirically observable world exhausts all that can be known or all that can contribute to an understanding of a phenomenon. Furthermore, it gives the

impression to the philosophically uninitiated that naturalism is true and that science is based on naturalism.

Dawkins commits this error in *The God Delusion* and predetermines what can be understood about the world because of the theory he imposes upon the data before it is examined. This was the same method displayed by Galileo's opponents who imposed Aristotle's theories upon all data related to observations of the heavens. This was the very error in method that Bacon attacked in *Novum Organum* when he proposed the scientific method. Bacon understood that the great threat to scientific understanding did not lie in theology which had its focus elsewhere, but with philosophy which established the very thought patterns by which people unconsciously view their world.

The proposal by de Vries to consider the work of science as methodological naturalism was well intended and addressed a serious problem arising from Scientific Creationism on the one hand and what he has called evolutionistic scientism on the other. To those Christians who make literal interpretations of some biblical texts as immediate causes, de Vries' approach argues that science is only concerned with what it can discover through examination of the physical world. To those who argue from immediate causes that only the physical world exists, de Vries' approach argues that naturalism is only a method of research. Unfortunately, neither camp pays attention to the points de Vries intends by his term. The Scientific Creationists have a hermeneutical commitment that is coterminous with their faith, and they will not be likely to give up their position to methodological naturalism unless they can be shown that their understanding of the Bible is wrong. People like Dawkins who have a commitment to naturalism (and to materialism and atheism) will not restrict naturalism simply to a method when they believe it is the best view of reality.

Rather than freeing science from the restrictive explanations of metaphysics, methodological naturalism tends to enforce naturalism as the proper metaphysical explanation. If the method of science is based on naturalism, then naturalism must be true. Barbara Forrest has drawn out the lines of this train of thought. She suggests that de Vries' naturalism is also an epistemology, while philosophical naturalism is purely a metaphysical idea. She goes on to say that if supernatural causality exists in a situation, then methodological naturalism is plausible. On the other hand, if nature is the ultimate cause, then an independent method is unnecessary because only philosophical naturalism is logically sound. Furthermore, since empirical evidence for supernatural phenomena or influences has evaded scientists, the most logical conclusion is that philosophical naturalism is the more legitimate idea.<sup>21</sup>

Of course, the method of science is not based on naturalism or any other metaphysic. It is based on metaphysical neutralism. It is important for the scientific enterprise



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to maintain this distinction, precisely because a wide unbreachable gulf does not exist between the physical and the metaphysical as the Enlightenment ideal supposed. The two are so easily confused and intermingled by both theists and atheists. Unfortunately, we tread the metaphysical only clumsily. We are more conscious of our own physical identity even though most human experience is mental. We tend to define the physical in terms of our metaphysical commitments, but only after we have first defined the metaphysical in terms of our physical prejudices. Thus, we need the discipline of the scientific method. A different project for the philosophers in collaboration with scientists would be to examine the relationship, if any, between the physical and the metaphysical.

In an essay reviewing several books on science and religion that ranged from the faith position of Owen Gingrich and Francis Collins to the atheism of Daniel Dennett and Richard Dawkins, Cornelia Dean rightly observed:

This is where the scientific method comes in. If scientists are prepared to state their hypotheses, describe how they tested them, lay out their data, explain how they analyze their data and the conclusions they draw from their analyses—then it should not matter if they pray to Zeus, Jehovah, the Tooth Fairy, or nobody.

Their work will speak for itself.<sup>22</sup> ■

## Notes

<sup>1</sup>E-mail correspondence from Paul de Vries to Chelsea Mytyk, April 28, 2006; Paul de Vries, "Naturalism in the Natural Sciences: A Christian Perspective," in *Christian Scholars Review* 15, no. 4 (Summer 1986): 390.

<sup>2</sup>See, Robert John Russell, "Eschatology and Scientific Cosmology: From Conflict to Interaction," in *What God Knows: Time and the Question of Divine Knowledge*, ed. Harry Lee Poe and J. Stanley Mattson (Waco, TX: Baylor University Press, 2005), 107; William A. Dembski, *Intelligent Design: The Bridge Between Science & Theology* (Downers Grove, IL: InterVarsity Press, 1999), 19, 67, 69, 119, 223–4, 257.

<sup>3</sup>Karl W. Giberson and Donald A. Yerxa, *Species of Origins* (Lanham, MD: Rowman & Littlefield, 2002), 2008.

<sup>4</sup>Ibid., 210.

<sup>5</sup>Ibid., 208. Plantinga, Moreland, and Meyer are particularly concerned that a place for God be made

in science. If one believes in God and creation, then this belief ought to affect how one goes about one's scientific research. These three appear to be more concerned with how faith might frame a program of research in terms of what one pursues. They focus on God as final cause rather than God as immediate cause, but they are concerned for a view of science that allows God to act directly in the world. This focus appears to be an issue of philosophy rather than a question of scientific methodology. They are legitimately concerned about the basic presuppositions about reality that guide scientific research. Their position would probably not be so strident if de Vries had not proposed a method of science that assumed naturalism as its starting point. See, Alvin Plantinga, "Methodological Naturalism?" *Perspectives on Science and Faith*, 49 (September 1997): 143–54, available on line at [www.asa3.org/ASA/PSCF/1997/PSCF9-97Plantiga.html](http://www.asa3.org/ASA/PSCF/1997/PSCF9-97Plantiga.html).

<sup>6</sup>Arthur Peacocke, *Paths from Science towards God* (Oxford: Oneworld, 2002), 136, 51, 135–8, 159, 161, 163, 165, 186.

<sup>7</sup>Giberson and Yerxa, *Species of Origins*, 10.

<sup>8</sup>Plantinga, "Methodological Naturalism?"

<sup>9</sup>De Vries, "Naturalism in the Natural Sciences," 389.

<sup>10</sup>Ibid.

<sup>11</sup>Ibid., 394.

<sup>12</sup>Ibid.

<sup>13</sup>E-mail correspondence from Paul de Vries to Chelsea Mytyk, April 25, 2006.

<sup>14</sup>De Vries, "Naturalism in the Natural Sciences," 394.

<sup>15</sup>E-mail correspondence from Paul de Vries to Chelsea Mytyk, April 28, 2006.

<sup>16</sup>Francis Bacon, *The New Organum*, ed. Lisa Jardine and Michael Silverthorne (Cambridge, UK: Cambridge University Press, 2000), 59.

<sup>17</sup>C. S. Lewis, *The Allegory of Love: A Study in Medieval Tradition* (New York: Oxford University Press, 1958), 88. The most important of the Chartres poets and their works are Bernardus Sylvesteris (*De Mundi Universitate sive Magacocosmos et Microcosmos*), Alanus ab Insulis (*Anticlaudianus* and *De Planctu Naturae*), and Johannes de Altavilla (*Architrenius*).

<sup>18</sup>See the derivation given by *The Compact Edition of the Oxford English Dictionary* I (New York: Oxford University Press, 1971), 1900.

<sup>19</sup>Ibid.

<sup>20</sup>Harry Lee Poe is indebted to Gregory Thornbury, with whom he regularly dialogues, for this insight.

<sup>21</sup>Barbara Forrest, "Methodological Naturalism and Philosophical Naturalism: Clarifying the Connection," *Philosophy* 3, no. 2 (Winter 2000): 7–29.

<sup>22</sup>Cornelia Dean, "Faith, Reason, God and Other Imponderables," *Books on Science*, *The New York Times*, July 25, 2006, available at [www.nytimes.com/2006/07/25/science/25books.html](http://www.nytimes.com/2006/07/25/science/25books.html).

## Upcoming ASA Conferences

Aug. 1–4, 2008: George Fox University,  
Newberg, Oregon

July 31–Aug. 3, 2009: Baylor University  
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