

\*69 DARWIN, DOGMA, AND DEFINITIONS: A REPLY TO PROFESSOR MCCREARY

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I. Introduction: The Links in Professor McCreary's Argumentative Chain

Flawed definitions and faulty logic are fatal to an argument's soundness and persuasive effect. Unfortunately, the preceding article by Professor Jana R. McCreary, *This Is the Trap the Courts Built*, [FN1] is riddled with so many definitional and logical errors (and internal contradictions) that it will persuade few readers of the soundness of its argument that teaching the Darwinian theory of evolution in public-school biology classes, to the exclusion of competing theories of "the origin of life," violates the Establishment of Religion Clause of the First Amendment. [FN2]

In this brief Reply to Professor McCreary's article, I have no desire to denigrate her obvious sincerity or her laudable willingness to take a \*70 contrarian stance on an issue on which courts, over the past four decades, have consistently ruled against any legislative limits on the teaching of evolution. [FN3] Nonetheless, her article deserves a critical response, as a contribution to the ongoing dialogue over the teaching of evolution in public-school biology classes.

The central point and conclusion of Professor McCreary's article is that, in teaching evolution but not "allow[ing] the teaching of other theories, the government has shown a preference for one religious theory over another, thereby endorsing a religious view. And that directly violates the First Amendment." [FN4] Professor McCreary reaches this conclusion by constructing the following chain of assertions, extracted from her article (and quoted from her own words, to avoid any possible misinterpretation):

1. "[T]o believe that no supernatural being exists is to support the basic tenets and dogma of atheism." [FN5]
2. "[T]he atheistic view of the origin of life is evolution." [FN6]
3. "Evolution, as a concept used to teach the origin of life, represents religious dogma - an authoritative truth involving a theistic view." [FN7]
4. "[B]y endorsing the teaching of only evolution, the government is, in essence, endorsing . . . a particular religious belief - the belief that no supernatural being exists." [FN8]
5. "[W]hen a court approves the teaching of only evolution, [it is] showing preference for one religious dogma over another, for a particular theistic view over another." [FN9]

6. Such a preference “shows the utter failure of . . . the government's requisite neutrality involving religion and the government.” [FN10]
7. “It follows, then, that favoring an atheistic dogma [evolution] \*71 would . . . violate the Establishment Clause.” [FN11]
8. “Schools, then, must be allowed to share all theories of the origin of life.” [FN12]
9. Courts should allow schools “to have the origin of life explanations from a variety of views readily available for [their] teachings - monotheistic views, polytheistic views, and atheistic views.” [FN13]
10. “Even intelligent design has a place in such a lesson.” [FN14]

## II. Professor McCreary, Meet Dr. Watson and Humpty Dumpty

The fictional Dr. Watson once said that “no chain is stronger than its weakest link,” to which Sherlock Holmes replied, “Exactly, my dear Watson!” [FN15] In my opinion, Dr. Watson's perceptive comment applies exactly to Professor McCreary's chain of assertions, in which every single link, from the first to the last, is weak and easily broken.

Let me first note the glaring contradictions between links two, four, and seven, on the one hand, and links three and five, on the other. Professor McCreary's assertions that evolution is based upon an “atheistic” belief, in the former quotes from her article, simply cannot be squared with her claims in the latter quotes that evolution represents a “theistic view.” It has got to be one or the other, but certainly not both. But “Aha,” as Holmes often said. Turning words topsy-turvy, and citing no authority beyond her own ipse dixit, Professor McCreary claims that “[a]theism is . . . a theistic belief.” [FN16] With all due respect, this claim is absurd. Put in logical terms, Professor McCreary argues that “the negation of X is X.” Here is where the first links in her chain of assertions begin snapping. Professor McCreary correctly defines atheism as “the belief that any supernatural being does not exist.” [FN17] And she correctly defines theism as “a belief in one or more deities or gods.” [FN18] But to conflate the two terms, as she does, and to argue \*72 that they are conceptually and definitionally identical, strains credulity to the breaking point.

Here it seems instructive to cite the words of another fictional character, Humpty Dumpty. In a colloquy with Alice (of Wonderland fame), Humpty said: “When I use a word . . . it means just what I choose it to mean - neither more nor less.” [FN19] To which Alice replied: “The question is . . . whether you can make words mean so many different things.” [FN20] To assert that “atheism is theism,” and to characterize evolution as both atheistic and theistic in nature, is nonsensical. A word simply cannot be defined and used in terms of its antonym, without falling off the definitional wall, so to speak, and winding up like Humpty Dumpty, shattered beyond repair.

I suspect, however, that Professor McCreary has an agenda (conscious or not) in portraying evolution as both atheistic and theistic in nature, and in her conflation of these words. Her intention, it seems to me, is to protect both of her exposed argumentative flanks in pressing for judicial approval of presenting “all theories of the origin of life” in public-school biology classes. [FN21] Let me quote here three sentences in the Supreme Court's opinion in the 1968 case of *Epperson v. Arkansas*, [FN22] the Court's first decision on the teaching of evolution in public schools. Speaking for a unanimous Court, Justice Abe Fortas wrote:

Government in our democracy, state and national, must be neutral in matters of religious theory, doctrine, and practice. It may not be hostile to any religion or to the advocacy of no[-]religion; and it may not aid, foster, or promote one religion or religious theory against another or even against the militant opposite. The First Amendment mandates governmental neutrality between religion and religion, and between religion and nonreligion. [FN23]

Here is where Professor McCreary's contradictory labeling of evolution as both atheistic and theistic serves her agenda of sneaking creationism (in whatever form) into public-school biology classes. If evolutionary theory is theistic in nature, and creationist theories (as she \*73 admits) [FN24] are also theistic, then teaching evolution to the exclusion of creationism prefers one religious theory over another, and thereby violates the “neutrality” principle of the *Epperson* case. However, if evolution is atheistic, and theistic creationism is excluded from biology classes, the government has preferred nonreligion over religion, and likewise violates the “neutrality” principle. Evolution cannot win under either of Professor McCreary's contradictory labels. In other words, she wants to have her cake and eat it too.

Professor McCreary may well disagree with my critical reading of her argument on this issue, but I do not think I have treated it unfairly, since I base my comments on her own words and her definitions of the crucial terms in this argument.

### III. Stretching Definitions Out of Shape

Additional evidence of the weakness of Professor McCreary's argumentative links stems from her choice of definitions of such terms as “religion,” “science,” and “dogma,” and her application of these definitions to her argument and its conclusions. Let me begin with her assertions, quoted above, that evolution is both a “religious belief” [FN25] and “represents religious dogma,” [FN26] which raises the question of Professor McCreary's definitions of these terms. Citing a book by Professor Warren Matthews, she paraphrases him as saying that “central to religion is a thought that humans all encounter a central problem. The religion, then, considers the identified central problem; the focus of that religion is about the solution of that problem.” [FN27] In a footnote, Professor McCreary again paraphrases Matthews as saying that the “central problems” of major religions “include sin for Judaism and Christianity, refusal to submit to God for Islam, recurring rebirth for Hinduism, suffering for Buddhism, living harmoniously with others for Confucianism, and living harmoniously with nature for Daoism.” [FN28] These may well be the “central problems” addressed by these religions, but they have nothing to do with

evolution, a scientific theory whose supporters (including Darwin) have made no “religious” claims in the sense identified by Matthews, as a “central problem” faced by all humans.

\*74 Professor McCreary then cites another definition of religion, quoting a Jewish scholar, Jacob Neusner, who defined religion as “something people do together to face urgent problems and to resolve them by appealing to truths that seem self-evident to them.” [FN29] Under this commodious definition, virtually any social or political movement would qualify as a religion (the “self-evident” truth of global warming as an “urgent problem” in the minds of Al Gore and other environmentalists certainly fits this definition). But there is no “urgent problem” faced by evolutionary theory, simply a slow and patient search for evidence to support the theory.

Science itself, of course, is not a “religious theory,” nor does it rest on “religious belief,” under any definitions of those terms. Nor are any of its various disciplines, such as physics or chemistry, based on religious theories or beliefs, as Professor McCreary would (I presume) concede. For example, the theory of gravity and the periodic table of elements are rooted in measurable evidence, not on “central problems” faced by all humans. Better definitions of religion, in my view, include “a strong belief in a supernatural power or powers that control human destiny” [FN30] and “an organized system of faith and worship.” [FN31] Neither of these definitions, of course, can be stretched far enough to make science a “religious theory.”

#### IV. Sneaking the “Supernatural” Into Science

So what makes the evolution a “religious theory” in Professor McCreary's mind? On this crucial question, and without citing or quoting any references, she contrasts a “narrow view” of science, based on measurable evidence from the natural world, with a “broader” definition that allows supernatural explanations of natural phenomena. She puts it this way in discussing evolution: the “narrow view of science discounts too much the other explanations for the origin of life and chooses one explanation - a nontheistic one - over others.” [FN32] Note, again, that Professor McCreary here labels evolution as a “nontheistic” view, despite her claim, quoted above, that evolution is a “theistic view.” [FN33] Her broader (and \*75 preferred) definition of science “take[s] into account both what is today considered to be known along with what could be considered supernatural - concepts that could provide possible answers to questions we cannot answer otherwise.” [FN34]

Why, one might ask, does Professor McCreary argue that evolution is a “religious theory,” when evolutionary scientists reject any claims that it is based on religious belief or doctrine? There are, to be sure, scientists in this field who believe in God, most prominently Professor Kenneth Miller, a Roman Catholic who teaches biology at Brown University. Professor Miller and other “theistic evolutionists,” [FN35] however, sharply separate their personal religious views from their scientific endeavors. Testifying in 2005 as the plaintiffs' lead scientific expert in the Kitzmiller “intelligent design” case, [FN36] which Professor McCreary discusses in her article, [FN37] Professor Miller said that

“science tries to provide natural explanations for natural phenomena. So one of the most basic rules is that practitioners of science seek their explanations in the world around us, in things we can test, we can observe, and we can verify.” [FN38] He then stated that “[i]f you invoke a non-natural cause, a spirit force or something like that[,] . . . your explanations in that respect, even if they were correct, are not something I could test or replicate, and therefore they wouldn't really be part of science.” [FN39] This common-sense view, accepted by virtually every evolutionary biologist, excludes the expanded “supernatural” definition of science on which Professor McCreary bases her argument.

If Professor McCreary's definitions of “religion” and “science” are overly broad, clearly intended - in my opinion - to sneak the “supernatural” into science, her uses of the terms “atheism” and “dogma” are truly bizarre. To be fair, she correctly defines “atheism” as “the belief that any supernatural being does not exist.” [FN40] So far, so good. However, she also claims, as quoted above, that “to believe that no supernatural being exists is to support the basic tenets and dogma of atheism.” [FN41] Wait just a minute! Why bring the term “dogma” into a discussion of teaching evolution in \*76 public-school biology classes? And why does Professor McCreary assert that “[e]volution, as a concept used to teach the origin of life, represents religious dogma . . . “? [FN42]

In labeling evolution as religious dogma, Professor McCreary, citing The American Heritage Dictionary of the English Language for authority, defines “dogma” as “some sort of belief held as a principle or truth that is authoritative and that is to be neither disputed nor doubted.” [FN43] One might well ask, what qualifies evolution as religious dogma, either atheist or theist in nature? Nothing, in fact. Let me quote here two definitions of “dogma” from the Merriam-Webster online dictionary: the “strong” version defines “dogma” as “a doctrine or body of doctrines concerning faith or morals formally stated and authoritatively proclaimed by a church.” [FN44] Most versions of theism, of course, do have dogmas, which vary (and are often contradictory) between one religion and another. As Professor McCreary states, “for the Christian and Jewish religions, the existence of a single God is the dogma of the religions.” [FN45] But atheism, which has no church and no “body of doctrines concerning faith or morals,” clearly falls outside this definition. The “weak” definition of “dogma” - closer to Professor McCreary's - defines the term as “something held as an established opinion; esp [ecially]: a definite authoritative tenet.” [FN46] It does not take an etymologist (or rocket scientist) to conclude that atheism is not a religious dogma under this definition, since no atheist body or hierarchy exists to proclaim such “authoritative” tenets, or to compel creedal adherence to them.

One might wonder, as I do, why Professor McCreary felt it necessary to employ the term “dogma” in her article. After all, as she argues, if evolution is a “religious theory,” whether atheistic or theistic in nature, teaching it in public-school biology classes, to the exclusion of other theories of the “origin of life,” violates the Establishment Clause. That should close her case. I suspect, however, that labeling evolution as “religious dogma” is intended to paint its supporters as “dogmatists,” in the pejorative sense of that term, used to describe “a person of rigid beliefs who \*77 is not open to rational argument.” [FN47]

One might, of course, more accurately label the religious fundamentalists who subscribe to Biblical creationism as dogmatists. But that use of the term, I think, was not what Professor McCreary intended in using it.

Carried to its logical conclusion, her argument that evolution (whether theistic or atheistic in nature) rests on “religious dogma” and thus violates the Supreme Court's long-established “neutrality” doctrine, [FN48] would require courts to rule that evolution cannot be taught at all in public schools, as a violation of the Establishment Clause. She wisely shrinks from this draconian prospect, however, retreating to the fall-back argument, noted above, that “[s]chools . . . must be allowed to share all theories of the origin of life.” [FN49]

These theories, as discussed by Professor McCreary, include “young-earth creationism,” the belief of Biblical literalists that “God created the earth and all life forms” in just six days of twenty-four hours, based solely on the Genesis account of creation, with no reference to scientific evidence. [FN50] Another creationist theory, known as “creation science,” similarly accepts the “six-day” theory but argues, that “scientific techniques” (based on the “fossil remains” from the “great flood” described in Genesis) “prove that the Genesis account of creation occurred.” [FN51] Oddly, Professor McCreary does not mention the “old-earth” creationists (also known as “progressive creationists”) who accept the consensus of scientists that the universe is some thirteen to fifteen billion years old, but who still argue that God created all living organisms and species (including humans) in their present form. [FN52]

#### V. “Intelligent Design” Is Nothing More Than Christian “God-Talk”

The preceding sections of this Reply to Professor McCreary's article have exposed what I see as the flawed definitions, faulty logic, and internal \*78 contradictions in the first seven links (in my listing above) [FN53] of her argumentative chain. Let me turn now to her proposals, in the final three links, [FN54] for dealing with the “neutrality . . . required by the Supreme Court” in teaching about “theories regarding the origin of life” in public-school biology classes. [FN55] She first argues that courts should allow schools “to have the origin of life explanations from a variety of views readily available for [their] teachings - monotheistic views, polytheistic views, and atheistic views.” [FN56]

Among the many dishes on her “origins of life” menu, Professor McCreary clearly prefers “intelligent design” (“ID”) as the best alternative to the Darwinian theory of evolution that biology teachers ladle out to their students, saying that ID “has a place in such a lesson.” [FN57] She defines the “essential concept of intelligent design” as the notion that “life and life systems are so complex that an intelligent force or being must have been involved in their origin.” [FN58] An “intelligent force or being” sounds, at least to me, a lot like a religious concept.

Professor McCreary poses a rhetorical question about ID: “Is it God-Talk?” Her answer is “no,” based on her claim that “intelligent design does not require a belief in any particular deity.” [FN59] She adds that, in contrast to “creationist” notions that are based

on “the story told in Genesis” and that share a belief in “the Jewish or Christian God” (I presume, with the “or” in her statement, that she thinks they are different gods), such a specific theistic belief “is not required” by ID theory. [FN60] Professor McCreary argues that this asserted difference “distinctly separates intelligent design from any creationistic viewpoint,” [FN61] which presumably immunizes it from any Establishment Clause challenge. Logically, then, only ID could be taught as an alternative to the “religious dogma” of evolution.

But the correct answer to Professor McCreary's rhetorical question, I submit, is clearly “yes,” and the “particular deity” to which ID's leading proponents consistently refer is the Christian God. Her efforts to distance ID from Christian creationism (the Genesis story) are belied by voluminous evidence - which she does not address - of ID's roots in Christian theology \*79 and apologetics. Much of this evidence was presented in the 2005 Kitzmiller trial [FN62] in the words of ID's most prominent advocates, including Phillip Johnson, an emeritus law professor (and not a scientist) at the University of California, Berkeley, who is cited by Professor McCreary as claiming that “science now is associated with ‘materialists’ who believe that God is nothing more than an idea that humans have created.” [FN63] Johnson's 1991 book, *Darwin on Trial*, [FN64] sparked the ID movement of which he became (and remains) its guru and guiding force. In writing that “God is objectively real as Creator and recorded in the biological evidence,” Johnson explicitly linked theology and biology. [FN65] Johnson went further in claiming that the “Darwinian theory of evolution contradicts not just the Book of Genesis, but every word in the Bible from beginning to end. It contradicts the idea that [humans] are here because a creator brought about our existence for a purpose.” [FN66]

But there's a problem here, one that Professor McCreary admits. “[T]he core of intelligent design is not only design, but also purpose,” she writes in echoing Johnson's words. [FN67] “Because life is seen as so complex and involved, the adaptations of life forms must have some purpose--a ‘means to an end.’” [FN68] But she then gives away the farm, locating the “purpose” behind life's origins in “some supernatural being's design and guidance.” [FN69] That is religion, under any strong or weak definition.

Professor McCreary also cites the writings of another leading ID proponent, William A. Dembski, for the proposition, in her words, that “intelligent design [is based upon] the study of the patterns and of the signs that indicate design.” [FN70] Dembski, who currently teaches at the Southwestern Baptist Theological Seminary in Texas, makes even less effort than Johnson to conceal the Christian roots that support ID theory. In the book cited by Professor McCreary, *Intelligent Design: The Bridge Between Science and Theology*, [FN71] Dembski wrote that “[t]he conceptual \*80 soundings of the [ID] theory can in the end only be located in Christ.” [FN72] Echoing Phillip Johnson's attacks on “materialism” as the basis of evolutionary theory, Dembski has written that “[d]ismantling materialism is a good thing. Not only does intelligent design rid us of this ideology, which suffocates the human spirit, but, in my personal experience, I [ha]ve found that it opens the path for people to come to Christ.” [FN73] Dembski concludes that “intelligent design should be viewed as a ground-clearing operation that gets rid of

the intellectual rubbish [materialism and evolution] that for generations has kept Christianity from receiving serious consideration.” [FN74]

Contrary to Professor McCreary's claim that ID does not rest on “a belief in any particular deity,” [FN75] the statements quoted above, from ID's most prominent advocates, leave no doubt - at least in my mind - that the deity (or creator) to which Johnson and Dembski both refer is the Christian God. These are not, I should note, the purely personal religious views of Johnson and Dembski, separated from their support for ID as a purportedly “scientific” theory, but rather - as Dembski makes clear - the “conceptual soundings” of ID in Christian theology. It may be that Professor McCreary was fooled by the protestations of ID supporters that “design” theory is simply a scientific concept that belongs in biology classes along with evolution. Phillip Johnson has admitted his role as the Wizard of Oz behind this ploy: “Our strategy has been to change the subject a bit[,] so that we can get the issue of intelligent design, which really means the reality of God, before the academic world and into the schools.” [FN76] Johnson has also written: “Get the Bible and the Book of Genesis out of the debate because you do not want to raise the so-called Bible-science dichotomy.” [FN77] As noted above, [FN78] Johnson himself brought the book of Genesis into this debate. With his “change the subject” strategy, Professor Johnson sounds much like Professor Marvel in the Wizard of Oz, who (after being unmasked by Toto) cried out: “Pay no attention to that man behind the \*81 curtain.” [FN79]

Unlike Professor McCreary, Judge John E. Jones III, who presided at the Kitzmiller trial, was not fooled by the efforts of ID's proponents to conceal God as the “man behind the curtain” of their purportedly scientific concept. Citing the statements of both Phillip Johnson and William Dembski, Judge Jones found that “the writings of leading ID proponents reveal that the designer postulated by their argument is the God of Christianity,” [FN80] leading to his holding that “ID is a religious view, a mere re-labeling of creationism, and not a scientific theory.” [FN81] In his exhaustive opinion, which covers sixty pages of the Federal Supplement and reviewed twenty-six days of trial testimony and hundreds of exhibits, Judge Jones concluded that “it is unconstitutional to teach ID as an alternative to evolution in a public school science classroom.” [FN82]

Professor McCreary is free, of course, to differ with Judge Jones on this holding. But she goes beyond the bounds of reasonable disagreement, I think, in charging that he “looked at things in a one-sided manner” in his Kitzmiller opinion, [FN83] another way of saying “biased.” It is totally unfair of Professor McCreary to insinuate that Judge Jones's discussion of the trial evidence in his opinion, and his conclusions about that evidence, were limited to one side (presumably the plaintiffs' side) or biased in any way. Under the heading “Whether ID is Science,” Judge Jones devoted more than ten pages of his opinion [FN84] to a careful examination of the testimony and exhibits presented by the expert scientific witnesses on both sides of the case, reaching from this “voluminous” record what he called “the inescapable conclusion that ID is an interesting theological argument, but that it is not science.” [FN85]



If Professor McCreary truly believes that Judge Jones's opinion was “one-sided” or biased, I think the onus is on her to support that conclusory judgment with some reasonable argument or evidence, both of which are lacking in her article. Let me urge readers of her article, and this Reply, to read Judge Jones's opinion, and also to consult a recent law review article, [FN86]\*82 in which the authors (a scientist, a philosopher, and a law professor) thoroughly canvass - in almost 150 pages - the arguments for and against presenting “intelligent design” in public-school biology classes, concluding that ID “cannot survive scrutiny under the constitutional framework used by the [Supreme] Court to invalidate earlier creationism mandates.” [FN87] In my opinion, *Is it Science Yet?*, (which Professor McCreary does not cite) persuasively refutes her argument that ID “has a place” [FN88] in biology classes, and supports Judge Jones's conclusion that ID does not belong in these classes.

My own conclusion, after a careful and respectful reading of Professor McCreary's article, is that Judge Jones was right and she is wrong. Evolution is neither an atheistic or theistic concept (take your pick), or any form of “religious dogma,” but is rather a well-documented scientific theory, purely secular in nature. Creationism of any variety, including “intelligent design,” is a theistic concept, rooted in Christian theology, and does not belong in public-school biology classes. [FN89] Readers of Professor McCreary's article, and this Reply, of course, are free to decide which is more persuasive on these questions. Both, I think, are contributions to the ongoing dialogue on this important topic, and I thank Professor McCreary for initiating our part in this dialogue.

[FN1]. Professor of Political Science, Emeritus, University of California, San Diego. B.A., Antioch College; M.A. and Ph.D., Boston University; J.D., Harvard Law School. Over the past two decades, the author has written extensively on the evolution/creationism controversy; his publications include a chapter on *Epperson v. Arkansas*, 393 U.S. 97 (1968) in *The Courage of Their Convictions*, Peter Irons, *The Courage of Their Convictions* 205-30 (1988) (Chapter 9, “Susan Epperson v. Arkansas”); a chapter on *Kitzmiller v. Dover Area School Board*, 400 F. Supp. 2d 707 (M.D. Pa. 2005), the 2005 “intelligent design” case, in *God on Trial: Dispatches From America's Religious Battlefields*, Peter Irons, *God on Trial: Dispatches from America's Religious Battlefields* 281-338 (2007) (Chapter 8, “In the Beginning”) [hereinafter Irons, *God on Trial*]; and an article on *Kitzmiller*, *Disaster in Dover: The Trials (and Tribulations) of Intelligent Design*, Peter Irons, *Disaster in Dover: The Trials (and Tribulations) of Intelligent Design*, 68 *Mont. L. Rev.* 59, 59-87 (2007).

I would like to thank the editors of the *Southwestern University Law Review* for inviting this Reply to Professor McCreary's article, and her Rebuttal to my Reply.

[FN1]. Jana R. McCreary, *This is the Trap the Courts Built: Dealing With the Entanglement of Religion and the Origin of Life in American Public Schools*, 37 *Sw. U. L. Rev.* 1 (2008).

[FN2]. “Congress shall make no law respecting an establishment of religion....” U.S. Const. amend. I.

[FN3]. Let me note that my Reply to Professor McCreary's article does not address her discussion of the judicial tests applied in Establishment Clause cases, or her discussion of evolution/creationism cases, in Part III of her article (“Origin of Life as Taught in Public Schools: Courts' Analysis”). McCreary, *supra* note 1, at 27-58. She does a competent job in this Section, which comprises about half of her article, and any comments by me would not rise above the level of nit picking.

[FN4]. McCreary, *supra* note 1, at 59.

[FN5]. *Id.* at 62.

[FN6]. *Id.* at 66.

[FN7]. *Id.* at 62.

[FN8]. *Id.* at 3.

[FN9]. *Id.* at 63.

[FN10]. McCreary, *supra* note 1, at 3.

[FN11]. *Id.* at 61.

[FN12]. *Id.* at 67 (emphasis added).

[FN13]. *Id.* at 65.

[FN14]. *Id.*

[FN15]. Sir Arthur Conan Doyle, *The Valley of Fear* 9 (1st World Library's Classic Books 2004) (1914), available at [http://www.4literature.net/Arthur\\_Conan\\_Doyle/Valley\\_of\\_Fear/2.html](http://www.4literature.net/Arthur_Conan_Doyle/Valley_of_Fear/2.html).

[FN16]. E-mail from Professor McCreary to author (Oct. 18, 2007) (on file with Southwestern University Law Review).

[FN17]. McCreary, *supra* note 1, at 8.

[FN18]. *Id.* at 7.

[FN19]. Lewis Carroll, *Through the Looking Glass and What Alice Found There* 117 (1914). To be accurate, this colloquy appears, not in Lewis Carroll's book, *Alice's Adventures in Wonderland*, but in its sequel, *Through the Looking-Glass and What Alice Found There*. First published in 1871, this book is available in many editions; the quote above can be found at <http://quotations.about.com/od/moretotypes/a/alice3.htm>.

[FN20]. Id.

[FN21]. McCreary, *supra* note 1, at 67 (emphasis added)

[FN22]. 393 U.S. 97 (1968).

[FN23]. Id. at 103-04.

[FN24]. McCreary, *supra* note 1, at 12-27.

[FN25]. Id. at 3.

[FN26]. Id. at 62.

[FN27]. Id. at 6-7 (quoting Warren Matthews, *World Religions* 11 (3d ed. 1999)).

[FN28]. Id. at 23 n.23 (paraphrasing Matthews, *supra* note 27, at 11).

[FN29]. Id. at 7 (quoting Jacob Neusner, *Judaism, in Our Religions* 291, 306 (Arvind Sharma ed., 1993)).

[FN30]. WordNet (2006), <http://wordnet.princeton.edu/perl/webwn?s=religion&o2=&o0=1&o7=&o5=&o1=1&o6=&o4=&o3=&h=>.

[FN31]. Pennsylvania Historical and Museum Commission, *Joseph Priestley Vocabulary*, <http://www.phmc.state.pa.us/bah/priestly/vocab.asp?secid=31>.

[FN32]. McCreary, *supra* note 1, at 11.

[FN33]. Id. at 62.

[FN34]. Id. at 6.

[FN35]. See *Answers in Creation, Old Earth Belief*, [http:// answersincreation.org/old/html](http://answersincreation.org/old/html) (last visited Nov. 11, 2007) (web site of an “old-earth” creationist group, *Answers in Creation*). “Theistic evolution states that God used evolution to develop the species on our planet, including man.” Id.

[FN36]. *Kitzmiller*, 400 F. Supp. 2d 707.

[FN37]. See McCreary, *supra* note 1, at 56-58.

[FN38]. *Irons, God on Trial*, *supra* note ? at 304-05.

[FN39]. Id. at 305 (quoting Professor Miller's testimony from the *Kitzmiller* trial transcript).

[FN40]. McCreary, *supra* note 1, at 8.

[FN41]. *Id.* at 62.

[FN42]. *Id.*

[FN43]. *Id.* at 60 (citing to *The American Heritage Dictionary of the English Language* 532 (Joseph P. Pickett ed., 4th ed. 2000), available at <http://www.bartleby.com/61/35/D0323500.html>).

[FN44]. See *Merriam-Webster's Collegiate Dictionary* 369 (11th ed. 2003), available at <http://m-w.com/dictionary/dogma>.

[FN45]. McCreary, *supra* note 1, at 60.

[FN46]. See *Merriam-Webster's Collegiate Dictionary*, *supra* note 42, at 369, available at <http://m-w.com/dictionary/dogma>.

[FN47]. See *Wikipedia: The Free Encyclopedia*, [http:// en.wikipedia.org/wiki/Dogma](http://en.wikipedia.org/wiki/Dogma).

[FN48]. See *Epperson*, 393 U.S. at 103-04.

[FN49]. McCreary, *supra* note 1, at 67 (emphasis added).

[FN50]. *Id.* at 13-15.

[FN51]. *Id.* at 15-16.

[FN52]. See *Answers in Creation*, *supra* note 35. “Even though Progressive Creationists believe in an old earth, they do not believe in evolution, but rather that each species was created a unique creation, from nothing, without evolving from an earlier species.” *Id.*

[FN53]. *Supra* notes 5-11 and accompanying text.

[FN54]. *Supra* notes 12-14 and accompanying text.

[FN55]. McCreary, *supra* note 1, at 65.

[FN56]. *Id.*

[FN57]. *Id.*

[FN58]. *Id.* at 21.

[FN59]. *Id.* at 23.

[FN60]. *Id.* at 22.

[FN61]. McCreary, *supra* note 1, at 22.

[FN62]. Kitzmiller, 400 F. Supp. 2d 707.

[FN63]. *Id.*.

[FN64]. Phillip E. Johnson, *Darwin on Trial* (1991).

[FN65]. Kitzmiller, 400 F. Supp. 2d at 719 (quoting trial transcript) (internal quotation marks omitted).

[FN66]. *Id.* (quoting trial transcript) (internal quotation marks omitted).

[FN67]. McCreary, *supra* note 1, at 24.

[FN68]. *Id.* at 24 (citing William A. Dembski, *Intelligent Design: The Bridge Between Science & Theology* 105-06 (InterVarsity Press 1999) (1973)).

[FN69]. *Id.*

[FN70]. *Id.* at 21-22 (citing Dembski, *supra* note 68, at 153-83).

[FN71]. *Id.* at 22, note 122 (citing Dembski, *supra* note 68).

[FN72]. Dembski, *supra* note 68, at 210 (emphasis added).

[FN73]. William A. Dembski, *Intelligent Design's Contribution to the Debate Over Evolution: A Reply to Henry Morris* (Feb. 1, 2005), available at [http://www.designinference.com/documents/2005.2/Reply\\_to\\_Henry-Morris.htm](http://www.designinference.com/documents/2005.2/Reply_to_Henry-Morris.htm).

[FN74]. *Id.*

[FN75]. McCreary, *supra* note 1, at 23.

[FN76]. See Wikipedia: The Free Encyclopedia, *Intelligent Designer*, [http://en.wikipedia.org/wiki/Intelligent\\_designer](http://en.wikipedia.org/wiki/Intelligent_designer) (quoting American Family Radio broadcast Jan. 10, 2003).

[FN77]. Wikipedia: The Free Encyclopedia, *Intelligent Design*, [http://en.wikipedia.org/wiki/Intelligent\\_design](http://en.wikipedia.org/wiki/Intelligent_design), at n.47.

[FN78]. Kitzmiller, 400 F. Supp. 2d at 719.

[FN79]. See *The Wizard of Oz* (Metro-Goldwyn-Mayer 1939), quote available at <http://imdb.com/title/tt0032138/quotes>.

[FN80]. Kitzmiller, 400 F. Supp. 2d at 719.

[FN81]. *Id.* at 726.

[FN82]. *Id.* at 765.

[FN83]. McCreary, *supra* note 1, at 58.

[FN84]. Kitzmiller, 400 F. Supp. 2d at 735-46.

[FN85]. *Id.* at 745-46.

[FN86]. Matthew J. Brauer, Barbara Forrest, and Steven G. Gey, *Is It Science Yet?: Intelligent Design Creationism and the Constitution*, 83 Wash. U.L.Q. 1, 1-149 (2005).

[FN87]. *Id.* at 3.

[FN88]. McCreary, *supra* note 1, at 65.

[FN89]. This does not, in my view, preclude study and discussion of various “origin of life” theories, presented neutrally and objectively, in public-school classes on philosophy or comparative religions. However, few high schools, to my knowledge, offer such classes, and I have seen no textbook or curriculum that offers a balanced treatment of these issues. The point of Professor McCreary's article, of course, is that the multitudinous “origin of life” theories she discusses (or at least “intelligent design”) belong in biology classes. On this point, she and I disagree completely.