

March of the Pandas: Imitation and Intelligent Design

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March of the Pandas: Imitation and Intelligent Design



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Charles Darwin wrote about his theory of evolution at a time when evidence was weak. In recent years, evidence of the complex circuits, miniature machines, sophisticated feedback loops, and digital information inside the cell has enabled scientists to poke holes in the principle evidence used to support evolution and therefore, more and more respected biologists are entering the debate as to the plausibility of evolution.

For these reasons, Darwin's theory of evolution should not be taught as absolute fact in the science classroom. Instead, it should be taught as the leading and dominant scientific theory explaining the origin of species, but also as a theory subject to significant limitations, failed predictions and important criticisms. We should encourage schools to teach better science and to teach more about evolution, including the gaps and controversies surrounding evolution. We should not be afraid to teach children what we know and what we have not yet discovered in science, and we should certainly not deny our children the truth about controversies surrounding science. By teaching the controversy, we remain true to science and yet sensitive to the ideas and interests of parents and children.

*— Rick Santorum, "A Balanced Approach to Teach Evolution."
The Morning Call. January 23, 2005*

With publicly controversial scientific issues like evolution, naysayers of status quo science have historically tried to poke holes in existing theories for the benefit of their skeptical audience. However, as Santorum's remarks demonstrate, it is likewise commonplace for naysayers to not only critique science, but to also offer competing, alternative theories as well. This strategy works effectively for publicity since fairplay and equal representation are commonplace values in journalism and the law that suffer from repeated exploitation.

One of the main texts that embodies this strategy is *Of Pandas and People: The Central Question of Biological Origins*, an alternative textbook supplement on biology and evolution (Davis and Kenyon, 1993). The Dover, Pennsylvania school board's push for the inclusion of this text

in high school biology curriculum led to the now famous *Kitzmiller v. Dover* case of 2005 in which the use of this textbook in public school biology classrooms was ruled a violation of the Establishment Clause¹ as the text appeared to imply a creationist view of the world (Jones, 2005). In this study, I offer an analysis of the rhetorical strategies used by Davis and Kenyon as they attempt to offer an alternative theory to compete with evolution. Specifically, I argue that Davis and Kenyon employ the strategy of *imitatio*, or imitation, in an attempt to establish ID as a viable scientific theory for the public school classroom. However, instead of acting as an agent of invention, imitation in this case serves to further alienate opponents of ID from both the creation science community and the scientific establishment.

The Origins of Intelligent Design

Forms of scientific creationism emerged in the United States in the early 1900s, but one could trace the lineage of this theory back through William Paley, Isaac Newton, and Medieval science more generally when the study of nature was often treated as a way in which to understand God. However, the scientific creationism of the 1960s and the work of Henry Morris is where our understanding of it is rooted today. Morris and others made scientific arguments for the accuracy of the literal interpretation of the Bible; they argued that the six-day creation, Noah's flood, the age of the earth and of humans, and the existence of dinosaurs could all be understood in terms that are simultaneously Biblical and scientific (Morris, 1977).

Since Morris' early writings, several creationist organizations around the United States gradually gained popularity with the public. By opening schools, universities and museums, creation scientists began to inhabit the public sphere in much more visible ways than any previous anti-evolutionists. By the early 1980s, creationists were no longer interested only in developing their own institutions; rather many sought to incorporate creation science into public school science curriculum. However, they had little success, as cases such as *McLean v. Arkansas* (1982) and *Edwards v. Aguillard* (1987) demonstrated.²

Responding to some of these legal blows, a new branch of creationism emerged in the 1990s – intelligent design (ID). While scientific creationism was admittedly creationist, ID reformulated itself as an argument for *design*, not for God, and deliberately resisted creationist labels. Rather than argue that public schools should include a religiously-

¹ The Establishment Clause in the First Amendment of the United States Constitution establishes the separation of church and state.

² In *McLean v. Arkansas* the Balanced Treatment for Creation Science and Evolution Act, which required the teaching of creation science and evolution side-by-side, was found to violate the Establishment Clause and was outlawed in the Eastern District of Arkansas in 1982. In 1987, *Edwards v. Aguillard* – a case regarding the legality of a Louisiana law requiring the teaching of creation science – went to the Supreme Court where creation science was ultimately deemed unconstitutional on a national level.

based theory in their classrooms, intelligent designers argued that ID was precisely *not* religious, meaning that the teaching of both ID and evolutionary theory would only lead to scientific pluralism and not a breach of the Establishment Clause. In doing so, IDers exist within a tension-filled space where they find allies neither with scientists (who reject ID as a wolf in sheep's clothing) nor with creationists (who view ID's omission of creation as decidedly antithetical to their own cause). With enemies in the scientific establishment and in the creation science movement, intelligent design found itself walking a rhetorical tightrope.

Several scholars have written about intelligent design theory, providing analysis and critique from scientific, philosophical, historical and even rhetorical perspectives. In Robert Pennock's collection of essays, *Intelligent Design Creationism and Its Critics: Philosophical, Theological, and Scientific Perspectives*, the editor assembles some of the most commonly cited work of intelligent design theorists along with the writings of their critics (Pennock, 2001a). John Angus Campbell and Stephen C. Meyer have done something similar in their book, *Darwinism, Design and Public Education*, although they, unlike Pennock, advocate teaching the theory (Campbell and Meyer, 2003). In both collections, several authors discuss intelligent design theory from a variety of epistemological and disciplinary perspectives. From a philosophical perspective, those critiquing the theory conclude that intelligent design violates the necessary boundary between naturalism and supernaturalism (Murphy, 2001; Pennock, 2001b; Ruse, 2001; Smith, 2001), while those in favor of intelligent design see the theory as a needed challenge to compulsory philosophical naturalism (Johnson, 2001). Additionally, intelligent design theory is critiqued for the lack of "scientific" work done by its proponents; it is described as both insignificant and primarily not peer-reviewed (Brauer and Brumbaugh, 2001; Fitelson, Stephens, and Sober, 2001). In response, promoters of the theory argue that significant scientific advances have demonstrated the viability of this theory (Dembski, 2001; Behe, 2001). Some of the literature on the theory deals specifically with the issue of teaching intelligent design in public schools (Pennock, 2001; DeWolf, Meyer, and DeForrest, 2003; Plantinga, 2001). Additionally, many rhetoricians have worked on intelligent design (Depew, 1998; Lyne, 1998; Condit, 1998; Campbell, 1998), discussing the theory's rhetorical, philosophical and pedagogical implications. However, not one of these scholarly essays, whether dealing with philosophy, science, education, or rhetoric, examines the text of *Pandas and People* directly.

This is interesting for two reasons. First, several of the anti-evolution bills proposed around the country have dealt specifically with the issue of "balanced treatment" of evolution and intelligent design in the classroom.³ *Pandas* is unique as an intelligent design text because it operates specifically within these educational parameters. Second, it is a

³ The bills are too many in number to list here. The more notable ones of the past few years were proposed in Pennsylvania, Kansas, Ohio, and Oklahoma, among many others. See The National Center for Science Education: <http://www.natcensci.ed.org/default.asp>.

text that has the potential to shape the public understanding of science if it were deemed legitimate for public school use. Since anti-evolution legislation primarily deals with education and textbooks in the public sphere, *Pandas* seems worthy of scholarly analysis as well, especially considering these high stakes.

This is not to say, however, that *Pandas* has not been critically examined at all. The National Center for Science Education (NCSE) has written extensive public criticism of the textbook; still this comprises nearly all of what has been written about the text. Since 1981, NCSE has served as a non-profit organization advising school boards and concerned citizens about how to handle the teaching of scientific creationism and, since 1993, intelligent design theory. As part of their efforts, NCSE has written several reviews of *Pandas*, demonstrating that using it in public school biology classrooms violates the Establishment Clause of the First Amendment. Additionally, they have established how the text does not teach accepted scientific beliefs about biology, but instead provides partisan and creationist interpretations of scientific data (Bennett, 2008; Gilchrist, 1997; Matzke, 2004; Scott, 1990; Sonleitner, 1994; Sonleitner, 2000; Thomas, 1990). In a lecture at the University of Washington, Eugenie Scott showed this explicitly in her report of the work done by NCSE (Scott, 2006). She illustrated how *Pandas* is essentially a re-vamped version of *Biology and Origins* – a scientific creationist textbook authored by Davis and Kenyon edited in the early 1980s.⁴ *Biology and Origins* was at first deemed “creation science” by most publishers and therefore editor Charles Thaxton had difficulty finding a scientifically legitimate outlet for the text. After creation science was ruled inadmissible in *Edwards v. Aguillard*, editors attempted to mask the apparent creationist implications of the text, replacing the word “creation” and all its derivatives with “intelligent design” and its variants, turning *Biology and Origins* into the publishable *Of Pandas and People*.

NCSE’s criticism of *Pandas* is thoughtful, thorough, and is extremely useful for school boards’ and the public’s understanding of the implications of the text. However, these criticisms focus primarily on the scientific claims of *Pandas* and the legal events surrounding proposals for creationism. Because NCSE’s criticism of *Pandas* is grounded in scientific and legal arguments, NCSE has paid little attention to the strengths and weaknesses of the text as a persuasive, rhetorical artifact.

Since the ID movement and the text were received differently by creationists and the scientific community, an in-depth rhetorical analysis will illuminate the ways in which the authors employed strategies of *imitation* in attempts to make creationism seem more scientific while appealing to the teleological assumptions held by their creationist progenitors.

⁴ Earlier drafts of *Biology and Origins* were known as: *Unlocking the Secret’s: The Mystery of Life’s Origin*, *Creation Biology Textbook Supplements*, and *Biology and Creation*.

Inventive Imitation and the Rhetoric of Science

Since the classical period, the concept of imitation has taken on a variety of meanings and uses. In his foundational article on the concept, Richard McKeon identifies five different classical definitions of imitation. For the purposes of rhetorical criticism, I draw on his definition that deals with the pedagogical and rhetorical uses of imitation during the classical period. According to McKeon, students of rhetoric in the classical period learned how to give speeches by imitating speeches; that is, students imitated models of great speeches verbatim. This, however, was only the first step. By imitating speeches word for word, students were thought to learn and understand the stylistic and artistic principles embodied in the speech so that they could transfer these principles to their own speech writing and delivery. This is the second and more important step of imitation in this process. Students not only imitate models' speeches but they also invent or create their own speech based on what they learned from the model. According to Rita Copeland, inventive imitation is not a mere duplicate of a model. Instead, "...The copy produces, not conspicuous likeness of the original, but rather what is understood and revalued in the original" (Copeland, 1991, 27). This is what I will call creative invention. It is the type of imitation that does not just mimic or repeat superficial characteristics, but rather invents a rhetorical act based on an understanding of an original model. Rhetoricians have taken up this notion of copying and emulation for the purposes of understanding both texts and contexts (Leff, 1997; Murphy, 1997; Wilson, 2003), illustrating its usefulness as a concept in their work as rhetorical critics.

The consideration of imitation seems especially appropriate for rhetorically studying scientific practices and texts since science often incorporates the revaluing of models. Scientific discovery and dramatic paradigm shifts in research (such as the modern evolutionary synthesis of natural selection and population genetics) require not a simple replication of experiments, but instead a new perspective that embodies but transcends previous work. As imitation often takes place within scientific practice, the investigation of imitation in a textbook that purports to be scientific seems appropriate.

From this analysis, it appears that Davis and Kenyon in *Pandas* use imitation on at least three levels: they appear to imitate science so as to become part of the scientific enterprise; they appear to imitate the textbook genre; and they appear to imitate scientific creationism in spite of their attempts to *not* do so. Ultimately, this essay shows how we can better understand opponents of the status quo in science and how they attempt to offer alternatives through their imitative strategies.

Imitation of Science

One of the more obvious uses of imitation on the part of intelligent design theorists is the attempt to become a part of the scientific enterprise and community. Under the section on Heteroglossia in his Sourcebook on Rhetoric, James Jasinski describes this term as referring to the process in which "the author or advocate borrows a language and, in a sense, internalizes it or makes it his or her own. We see this most often in the

process of socialization where initiates to a new speech community (e.g., law student, new converts to a religion) learn to ‘speak the language’ of the community” (Jasinski, 2001, 297). Kirt Wilson provides an insightful example of how this type of imitation works in an article on nineteenth century racial politics as well (Wilson, 2003). Using imitation as a way of becoming part of a group is applicable in respect to Pandas. Heteroglossic assimilation to the scientific community is one of the authors’ main hopes driven by the desire that intelligent design theory be taught in science classrooms. Rather than being outsiders who propose a nonscientific theory about origins (as creation scientists were repeatedly accused of), intelligent design theorists imitate science to position themselves as insiders and to secure the legitimacy of their theory.

In *Pandas*, Davis and Kenyon attempt to position their work as part the scientific community through imitation of standardized sciences. Superficially, they imitate the language of science, using terms and argument types that sound typical of scientific work. They describe intelligent design theory as “based on sound inferences from the experience of our senses” (25), suggesting that the theory deals with only the material, sensory world, like ‘real science.’ Throughout the entire textbook, the authors package intelligent design through the negative arguments they provide against evolutionary theory on origins, genetics, speciation, the fossil record, homology, and biochemistry. These scientific subjects are discussed in language and argumentation style that appears similar to *status quo* science simply because of their content. For example, Davis and Kenyon use the specialized vocabulary of trained scientists to describe the process of intelligent design: “The need to function within a common universe puts common physical and chemical requirements on all organisms. It would be both logical and efficient for an intelligent agent to design living things with a common biochemical base” (36). These language choices emphasize ‘physical and chemical requirements,’ ‘organisms’ and ‘a common biochemical base’ and so make the proposal of intelligent design seem similar to other scientific proposals that likewise discuss biology and chemistry. They describe their arguments as ‘logical,’ similar to standard scientific arguments. By characterizing intelligent design theory as science and as similar to other scientific theories, Davis and Kenyon imitate the stylistic qualities of the model of *status quo* science to legitimate intelligent design.

The authors are likewise consistent with their appeals to established theories in biology specifically, suggesting that intelligent design proponents operate through similar assumptions as other biologists. They borrow the ethos of Darwinians by highlighting similarities: “The occurrence of microevolution is little debated between Darwinists and intelligent design proponents; it can be observed, and nearly every scientist of either view acknowledges it” (61). The authors emphasize this shared belief in microevolution in order to establish their credibility and advance a theory of their own. Davis and Kenyon also try to demonstrate the close proximity of evolutionary theory and intelligent design by highlighting others aspects that are agreed upon, such as data: “...proponents of intelligent design and Darwinists are divided over perspective or viewpoint of interpretation, not data” (79). In relying on

the same data as Darwinians, intelligent design theorists make the disparity between the two theories seem less, which in turn makes intelligent design more easily legitimized.

Davis and Kenyon also establish intelligent design as science through its supposed revolutionary status. The authors imply that the movement of intelligent design is part of a scientific revolution, suggesting their credibility through their role in a Kuhnian paradigm. In Thomas Kuhn's terms, scientific revolutions occur when shifts take place in scientific thinking and understanding, moving from an old interpretive framework to a new one. This is what both Copernicus and Darwin did, among others. To place themselves in this camp, Davis and Kenyon write: "Though many defenders of orthodox theories remain, some observers now describe these theories as having entered paradigm breakdown – a state where a once-dominant theory encounters conceptual problems or can no longer explain many important data" (153). They go on to suggest that intelligent design theory is part of this paradigm shift. By being scientific revolutionaries and imitating successful revolutions of the past, intelligent design forcefully hopes to acquire the same status as other scientific theories; it is just at a different stage in the revolutionary cycle.

To reinforce the suggestion of a paradigm shift away from Darwinian evolutionary theory, Davis and Kenyon draw attention to the eminent scientists within the Darwinian paradigm who have expressed doubt about evolutionary theory. This allows intelligent design proponents to claim alignment with this dissent among established scientists so that intelligent design may appear more credible. Throughout the text, they cite Theodosius Dobzhansky, an eminent geneticist and biologist. They quote him on the issue of speciation, suggesting their camaraderie with him: "It is no exaggeration to say that if no instances of uncompleted speciation were discovered the whole theory of evolution would be in doubt..." (Davis and Kenyon, 79, quoting Dobzhansky, 1958, 48). Even though Dobzhansky shows himself that this if-statement is not true given the number of cases of speciation he cites, Davis and Kenyon still attempt to borrow his trusted words as leverage to show how the doubts of Dobzhansky are suggestive of a paradigm-shift and are worth imitation for the creative invention of intelligent design. Davis and Kenyon imitate this statement of Dobzhansky's so that they may make an argument against Darwinian speciation that supports intelligent design. They imitate his idea of the centrality of speciation to evolution in an attempt to show the lack of proof of speciation, and thus evolution – an idea Dobzhansky would have argued strongly against.⁵

Davis and Kenyon likewise cite Charles Darwin's uncertainty about conclusions drawn from the fossil record when he writes about "the extreme imperfection of the fossil record" in *On the Origin of Species* (Davis and Kenyon, 86, quoting Darwin, 1859, 292). They use Darwin's concern about the fossil record's incompleteness as support for their own

⁵ It is interesting to note that Dobzhansky was likely using a style of imitation as well – both his language and argument largely adopt from Darwin in a variety of ways as we see in works like *Genetics and the Origin of Species*.

position, arguing that the continued absence of some fossils “has caused a growing number to question Darwin” (86). This allows them in some respects to imitate Darwin as they use his own words to support intelligent design. Darwin, the founder of natural selection theory, is painted as casting doubt on his own theory because of the fossil record. Davis and Kenyon imitate Darwin’s doubt so that they can establish and bolster the revolutionary status of ID.

Additionally, the authors associate themselves with Ernst Mayr, one of the most eminent biologists of the twentieth century, and with George Gaylord Simpson, an extremely influential paleontologist of the twentieth century. They write:

Ernst Mayr of Harvard once remarked, ‘the book called *The Origin of Species* is not really on that subject.’ His colleague George Gaylord Simpson also stated: ‘Darwin failed to solve the problem indicated by the title of his work.’ Darwinists still have not solved the fundamental problem of how life originated (88).

Again, Davis and Kenyon borrow established evolutionists, or at least their authority, and their qualified comments about Darwinism to bolster intelligent design’s revolutionary status and its argument against evolution. They situate these and other scientists as the starters of a paradigm-shift which IDers are continuing.

These exemplary scientists are good models for invention. At first sight they might seem to move ID theory away from deviant status into apparently credible ground. Dobzhansky, Mayr and Simpson were in most respects Darwinian evolutionists; their work is considered remarkable for having adjusted and added onto Darwin’s theory. But this did not make them anti-evolutionists or skeptics of Darwinism; on the contrary they were strong supporters of it. In light of this misuse, Davis and Kenyon and the intelligent design camp appear much less revolutionary than they suggest. The manipulation of these scientists as models for ID reveals that Davis and Kenyon are *not* imitating for the purposes of creative invention, but instead are imitating models of what the authors of *Pandas* want these scientists to have said so that they appear to support intelligent design theory. Intelligent design then becomes an imitation of itself, and the self as a model of imitation unlikely yields creative invention.

In imitating science, however, Davis and Kenyon not only attempt to look like both credible and revolutionary science; they also *reverse* the imitative process, characterizing evolutionary theory as imitative of intelligent design. We see this explicitly when Davis and Kenyon make comparisons between evolutionary theory and intelligent design theory:

But Darwin’s theory that all living things evolved by natural selection is very different from most other scientific theories. It is a theory about unique past events, events that have come and gone....A biological origin by intelligent design would also be unique, unrepeatable, and irreversible. So theories of origins can’t be tested by direct empirical test like the theories mentioned

earlier. This fact leaves origins theories open to subjectivity and to the interpretive elements of individual viewpoints and values (91).

Davis and Kenyon here at first appear to be copying the well-supported model of evolutionary theory, but upon closer examination they have actually made evolutionary theory imitate characteristics of intelligent design. They have taken some of intelligent design theory's features – that it is a historical theory, that the past events of the theory are unrepeatably, and that it involves subjective interpretation – and attempted to demonstrate how these are actually characteristics of evolutionary theory.

The problems with this reversal are many. While evolutionary theory is historical, it is not *only* historical, as intelligent design appears to be. It rather deals with the past, present and future, whereas intelligent design is fixed in the past. Evolutionary theory is repeatable in many ways as well, particularly since the theory deals with the present. However, as intelligent design is *not* repeatable, Davis and Kenyon focus on the difficulty in recreating the *past* processes of evolution. Additionally, Davis and Kenyon highlight the subjective interpretation involved in evolutionary theory. While true, they highlight evolutionary theory as if it is the *only* established scientific theory that involves subjective interpretation. Human design and interpretation are involved in geology, physics, astronomy, and other sciences as well. Davis and Kenyon, aware that their own theory involves subjective interpretation, focus on the subjective elements of evolutionary theory, suggesting that bias is found in both theories, thus making them equal. What they neglect to discuss is the *degree* to which subjectivity is present in either of these theoretical perspectives.

In identifying these characteristics of evolutionary theory, Davis and Kenyon do not just imitate them to invent intelligent design. Rather, they reverse the process of imitation so that evolutionary theory appears to be imitative of the potentially detrimental qualities of intelligent design. As evolutionary theory is an established science, Davis and Kenyon's demonstration of its similarity to their own theory and intelligent design's revolutionary status are moves to legitimate intelligent design. However, Davis and Kenyon imitate in a way that only *replicates* language and revolutionary status, leaving them with a textbook that merely copies characteristics of other texts.

Imitation of the Textbook Genre

While imitation of science and scientists are perhaps more obvious inventive strategies of Davis and Kenyon, the imitation of the textbook genre is also an aspect of the authors' rhetorical strategy. By looking at this text generically as a scientific textbook, one can expect to understand not only how Pandas fits into the textbook genre but also how it imitates the textbook genre in ways that reveal aspects of its complicated reception.

One of the main conventions Pandas shares with other high school biology textbooks is its appearance and the way scientific language is used. Not only does Pandas imitate the physical appearance of a

textbook, with its typical textbook binding, inside the book one is also struck by how the placement of text and graphics indicates the artifact's imitation of a genre. The text is printed in two columns per page and is interspersed with key words in bold, graphics, drawings, pictures, side-bar explanations of figures, and a glossary. In addition to these more superficial characteristics of a science textbook, the authors imitate standard textbook prose by explaining particular concepts through definitions and analogies, and referring to the work of others with little citation.

Nonetheless, the text still exhibits characteristics that render its textual genre somewhat ambiguous. *Pandas* fails to meet the evaluation criteria for textbooks used by the American Association for the Advancement of Science, which uses several criteria in textbook evaluation (AAAS, 2005). Among other standards, the organization requests that science textbooks discuss *relevant phenomena*, *provide a sense of purpose*, and *provide assessment of student progress*. While Davis and Kenyon do discuss *relevant phenomena* and *provide a sense of purpose* they incorporate no elements of *assessing student understanding or progress*, causing them to diverge from standards commonly expected of biology textbooks. At first appearance, then, *Pandas* seems to share some of the generic affinities with other scientific textbooks. But it likewise fails to imitate some key standards.

Aside from appearance and standards, *Pandas* is unique in how it operates as a textbook. At the beginning of the text, the authors write, "The authors and publisher want you to use this book as a supplement, not a substitute, for your biology text; it cannot replace the main textbook...Your textbook provides a lighter treatment of a broader range of topics. Wander back and forth between the two, using each to enrich the other" (ix). This is interesting in that the authors also argue that *Pandas* serves as an adequate textbook for understanding intelligent design theory (ix) and that the larger controversy over the use of this text for teaching intelligent design commonly refers to *Pandas* itself as an alternative textbook and not just a supplement. Additionally, their use of the term "lighter" in describing traditional textbooks indicates that they regard *Pandas* as deeper and textbooks as more supplementary. This fact leaves the book shifting between operating as a supplement and as a self-sufficient textbook for intelligent design theory, making its generic placement unclear and ambiguous. This ambiguity allows the authors to address scientific concepts of their choosing in full, as a standard textbook might, but also allows them to avoid explaining other concepts: "Oparin thought of this competition as a kind of Darwinian natural selection (see your biology text)..." (46). By maintaining supplementary text status, the text is allowed deviance from imitating the necessary standards of the genre since it operates only as an addendum. Users of the text can both argue that *Pandas* is a legitimate textbook to be used in schools (with detailed attention to historical causes), but they can also maintain that its shortcomings as a textbook are because it is intended to be supplementary and not exhaustive.

Pandas not only maintains a dual-identity by imitating both a textbook and textbook supplement, but also provides meta-commentary

on standard biology textbook materials – something not commonly expected of scientific textbooks (AAAS in their evaluation standards mentions nothing of expecting textbooks to offer criticism of others). When arguing for the failings of scientific arguments that support Darwinian evolutionary theory, Davis and Kenyon often dismissively refer to standard biology textbooks as biased or incomplete, claiming, “Unfortunately, high school biology textbooks fail to mention the direction that recent studies of the early atmosphere have taken” (48) or “Few, if any, biology textbooks inform students of this fact” (50). This commentary on other biology textbooks moves Davis and Kenyon’s language and purpose into the political. Because the authors and many proponents of intelligent design feel that negative evidence against evolutionary theory needs to be taught in schools, they use their textbook as a political occasion to demonstrate the supposed inadequacies of their opponents. While highly atypical of a high school biology textbook, these comments reinforce for supporters of intelligent design theory the supposed legitimacy of *Pandas* as a text that will help “teach the controversy.” For skeptics of intelligent design, however, the politically-charged language will be seen as a violation of the textbook genre.

By imitating some of the conventions of standard science textbooks while simultaneously diverging from others, *Pandas* exists in hazy generic territory. This generic ambiguity informs our understanding of *Pandas*’ imitative qualities. While *Pandas*’ superficial and ambiguous characteristics might seem generically legitimizing in some ways, the absence of the important elements of generic imitation suggests a larger rhetorical misstep on the part of the authors if they aim to persuade opponents that the text should be used in public schools.

Imitation of Creationism

While attempting to mask the creationist implications of intelligent design theory, the authors reveal a political component of their theory that very much depends on scientific creationism. While they attempt to imitate science, scientists, and the textbook genre, they also imitate scientific creationism.

Instead of advancing a new scientific theory, Davis and Kenyon provide negative evidence against evolutionary theory and imply a Creator *outside of nature* as part of their theory. Both of these characteristics are imitations of scientific creationism. While hoping, for legal reasons, to not be identified as a creationist text – *Pandas* still betrays the qualities of scientific creationism. To Judge John E. Jones, who ruled against ID proponents in the Dover Trial, and to the remainder of the scientific community, this is precisely the problem with ID.

Davis and Kenyon first imitate scientific creationism through their emphasis on non-material explanations for natural phenomenon. They argue that “a reasonable natural cause explanation for origins may never be found” and that their alternative, intelligent design theory, “best fits the data” (100). They also repeatedly emphasize ‘purpose’ as part of their theory, once again giving away their imitative commitments: “The design proponent assumes that the similarity of features can be accounted for on

the basis of *design requirements*...We call this idea *teleology*; an organism is designed for certain functions or purposes” (122). This movement into arguments that deal with matters beyond nature is very characteristic of scientific creationism.

The work done by the National Center for Science Education, which I have already mentioned, reveals how *Pandas* is merely an updated version of a previous overtly scientific creationism textbook – *Biology and Origins* (1987) – shows how *Pandas* merely imitates scientific creationism as well. Davis and Kenyon’s cosmetic vocabulary change shows how *Pandas* is successfully imitative of scientific creationism in a basic sense: it is flatly repetitive of the original model.⁶ By finding and replacing all of the derivatives of ‘creation,’ Davis and Kenyon make only a cosmetic change to *Biology and Origins*. Following a classical model, *Pandas* misses the second step of imitation; the authors do not complete the step of genesis, or creative invention. They instead replicate the original textbook and only add some cosmetic changes in vocabulary to appear inventive.

What is further problematic about the imitation of scientific creationism is the imitative qualities of scientific creationism itself. Scientific creationism is itself an imitation – it is an attempt to imitate science. Since this imitation has been deemed methodologically inadmissible (*Edwards v. Aguilliard*, 1987), imitating it might not serve the authors’ rhetorical purposes well. Intelligent design imitates an imitation, and this perhaps is a contributing factor to the diluted scientific arguments found in the text.

Conclusion

Davis and Kenyon appear to imitate science in their proposal of intelligent design theory so that the theory may become part of legitimate scientific discussion. They do this by imitating both status quo science and by claiming the existence of a paradigm shift within the study of biology. Additionally, *Pandas* is an imitation of a textbook, demonstrating some of the expected traits but likewise inventing through a lack of other essential characteristics of this genre. Lastly, *Pandas* imitates scientific creationism by making claims about the nonmaterial.

This imitation has served the ID movement in a variety of ways. Perhaps surprisingly, to secular people especially, much of the creation science community has rejected ID. Since it takes a non-literal approach to Biblical accounts of creation, creation scientists see ID as a step away from a belief in the inerrancy of the Bible. For example, Answers in Genesis, a creation science organization founded by Ken Ham, has publicly dismissed ID in several forums. In 2006, the organization published an article in their magazine *Answers: Building a Biblical Worldview* by Georgia Purdom. There she writes: “Proponents of ID fail

⁶ William Dembski and Jonathan Wells, two ID proponents, repackaged a third version of the text in 2007 again, now called *The Design of Life: Discovering Signs of Intelligence in Biological Systems*. This new version has received little public attention.

to understand that a belief in long ages for the earth formed the foundation of Darwinism. If God's Word is not true concerning the age of the earth, then maybe it's not true concerning other events of the Creation Week; and maybe God was not a necessary part of the equation for life after all" (Purdom, 2006). The imitative leanings that ID and Pandas exhibit prove problematic for the very premises of creation science. If the Biblical account in essence is not read literally, then its stories will be relegated to the category of myth and allegory. In cases like this, we are seeing creation scientists themselves dismiss ID on the grounds that it shares too much in common with Darwinism. Rather than serving as a source of persuasion, ID's imitation for this audience indicates the theory's outsider status.

Less surprisingly, the scientific establishment and the law have critiqued the imitative qualities of ID and Pandas. Judge John E. Jones III in the conclusion of his Memorandum Opinion at the Dover School Board Trial stated: "...the facts of this case makes it abundantly clear that the Board's ID Policy violates the Establishment Clause. In making this determination, we have addressed the seminal question of whether ID is science. We have concluded that it is not, and moreover that ID cannot uncouple itself from its creationist, and thus religious, antecedents" (Jones, 2005, 136). Scientific experts who testified for the prosecution supported this view as well, indicating that ID did not properly embody the characteristics of science that it claims. One expert witness, Brown University biologist Kenneth Miller, remarked: "My opinion is that intelligent design is not a testable theory in any sense, and that as such, it is not generally accepted by the scientific community...My opinion is that intelligent design is not science, and therefore it cannot be construed as a scientific theory in any sense whatsoever" (Miller, 2005, 57). Jones' legal decision and Miller's scientific critique illustrate that ID made few, if any, inroads into the scientific establishment through their imitative appeals.

Lastly, members of the public who identify with neither the creationist position nor the scientific establishment naturally responded in a variety of ways. One customer on Amazon.com reviewed the book, claiming: "This is NOT a young-earth creationist book! This is a solid biology text (old-earth) that doesn't ignore or change the facts of nature. Fills in the details for those whom have read Behe, Johnson and Denton...Never even brings the bible in to it, this book is strictly from science [sic]" ("Best Biology Book," 1999). Another customer goes on the attack, finding the book a disgrace to science education claiming that the book's discussion of examples in evolution "...have been mangled by the authors' biases. I would urge readers to learn the facts of biology before consulting this purposefully misleading propaganda disguised as a textbook" ("Grossly Misleading," 1999). While it is difficult to determine whether this type of testimony comes from IDers padding customer review pages or evolutionists publicly decrying it, one can nonetheless imagine this degree of variety in lay audience responses. While criticism would still abound in the public arena, it remains the space where arguments via imitation show the most potential for gaining traction.

By identifying imitation as a common rhetorical strategy used by naysayers of science, rhetorical scholars can better understand how

alternative texts like *Pandas* seek legitimation by a public who values fairness and balance in the public sphere. While the creationist argument for integration of ID into public school classrooms is fairly easy to identify because of its inferences about the supernatural and its non-scientific arguments, the imitative qualities of creationism might also allow us to investigate future arguments as well and critique them with more thoroughness and effectiveness. As Ronald Numbers has argued (Numbers, 2006), creationism does not appear to be going away anytime soon. Honing our analytical abilities through rhetorical criticism will heighten our awareness and understanding of its persistent arguments.

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