

**ANGELS, APES AND PANDAS;
AN ANALYSIS OF THE INTELLIGENT DESIGN MOVEMENT**

by

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Abstract

There exists a longstanding continuity between creationism and intelligent design. Proponents of intelligent design purport the idea to be a scientific theory. The scientific community criticizes intelligent design for being not only false, but also for lacking any scientific content.

I argue that intelligent design is the current argument advanced by the *anti-materialist* movement, which opposes the idea of explaining reality in materialist or natural terms.

Furthermore, I argue that intelligent design is best viewed not in terms of its truth or falsity, but in light of the objective of changing the nature of science to include the supernatural. It is this objective that defines *anti-materialists* and unites creationism, creation science and intelligent design, all of which are distinct but differ little substantively. The change in argumentation from creation science to intelligent design is a response to the 1987 Supreme Court ruling in *Edwards v. Aguillard*. I test this contention through qualitative analysis of a field test manuscript and its published version, entitled, “Biology and Creation” dated 1986, and, “Of Pandas and People,” dated 1989, respectively. The manuscripts are analyzed for their content, specifically for the presence of creationism and intelligent design. Findings of the analysis reveal that instances of creationism and its derivatives are simply replaced by intelligent design, though the ideas are substantively equivalent, in approximately half of all occurrences across the two manuscripts. Almost all occurrences of creationist concepts in the earlier manuscript are omitted from the published version.

Section I: Introduction

In crossing a heath, suppose I pitched my foot against a stone, and were asked how the stone came to be there; I might possibly answer, that, for anything I knew to the contrary, it had lain there forever: nor would it perhaps be very easy to show the absurdity of this answer. But suppose I had found a watch upon the ground, and it should be inquired how the watch happened to be in that place; I should hardly think of the answer I had before given, that for anything I knew, the watch might have always been there... There must have existed, at some time, and at some place or other, an artificer or artificers, who formed the watch for the purpose which we find it actually to answer; who comprehended its construction, and designed its use... Every indication of contrivance, every manifestation of design, which existed in the watch, exists in the works of nature; with the difference, on the side of nature, of being greater or more, and that in a degree which exceeds all computation (Paley, 1802).

In pursuit of their goals, social movements change over time in reaction to events and institutions. Those events and institutions provide the context in which a social movement defines itself as well as its goals. This paper will examine intelligent design as a tactical paradigm of the *anti-materialist* social movement. The *anti-materialist* movement can best be described as a rhetorical frame movement, which seeks to oppose materialism by redefining science to include the supernatural realm. The efforts of the *anti-materialist* movement often focus on evolution because of its wholly materialist explanation of biological origins, which they view as conflicting with their religious views as well as their conception of science.

Supreme Court rulings act as the impetus for paradigm shifts in the *anti-materialist* movement. Historically, there have been three major paradigms in the movement: 1-Creationism, 2-Creation Science, and 3-Intelligent Design. The three distinct paradigms have common underpinnings, and while they may sound very different, they are manifestations of the same underlying anti-materialist movement.

This paper will attempt to show that there is a temporal association between the Edwards v. Aguillard Supreme Court decision and the anti-materialist movement's argumentation against materialism. That is to say that the anti-materialist movement changed its argumentative framework or paradigm in response to the ruling. It is also the contention of this thesis that the paradigm changes are largely nominal. Intelligent design differs little substantively from creationism. This will be shown by comparing a science textbook manuscript drafted prior to Edwards, which promotes creationism, with the same manuscript dated after Edwards--yet it promotes intelligent design. The manuscripts will be evaluated for similarities as well as differences.

Proponents of intelligent design argue that intelligent design is not associated with creationism in any way. If this were the case, we would expect to find substantial differences between the two manuscripts. If there are similarities between creationism and intelligent design a systematic analysis of the manuscripts will likely reveal them.

The idea of design in the universe dates back as far as the gods. The most notably precursor to the modern idea of intelligent design surfaced as an apologetic in the theologian William Paley's *Natural Theology* cited above. Merriam-Webster defines intelligent design as, "the theory that matter, the various forms of life, and the world were created by a designing intelligence" (Merriam-Webster, 2010). Intelligent design is purported to be a scientific theory independent of any religious ideas or its creationist antecedents. It is the contention of this thesis that there exists a strong continuity between intelligent design and earlier iterations of creationism. I intend to show that the substantive arguments advanced for intelligent design are simply arguments by the *anti-materialist* movement (Peterson, 2002) loosely dating back to the turn of the twentieth century and that those arguments tactically change over time to advance the

movement's interests. A loosely allied constellation of actors and organizations form the *anti-materialist* movement. The underlying aim of the movement is to change the meaning of science.

I chose *anti-materialist* as the uniting theme for the movement as opposed to anti-evolution because a number of individuals in the movement accept evolution in some form or another. Some embrace the idea of the common ancestry of humans and apes (Forrest, 2007). Many modern intelligent design proponents distinguish between micro and macro evolution—accepting the former and rejecting the latter. So while evolution is at the core of the opposition, it is not necessarily evolution that they oppose but *materialist* science. They view the materialist world as one that excludes the possibility of God. Intelligent design proponents flatly reject a methodology that, from the onset, rejects the possibility of God. Viewing science as a method to empirically confirm or disconfirm a theory, they carry on to the immaterial realm. If a designer/creator/god did in fact create, we ought not exclude the possibility of empirically detecting it. Restricting ourselves to the material realm by the most intellectually, fruit-yielding methods humanity has, id est science, denies the possibility that God exists. The *anti-materialist* movement whole-heartedly accepts science--just not a science that isn't commensurate with their worldview. The movement constructs the meaning of science around its opposition to materialism. This contention with the existing meaning of science is generally characteristic of a social movement employing *framing* processes (Benford & Snow, 2000).

In historical terms, early anti-evolutionists had anti-materialism in common with their more modern brethren. Their opinions and understanding of evolution has changed over time, but *anti-materialism* is the commonality. Their view of evolution stems from their opinion of *materialism*. For our purposes, materialism will be defined as a perspective restricted to the material or natural realm. The *anti-materialist* movement feels restricting an explanation of

reality to the material realm has far-reaching implications for both religion and morality. It not only denies the possibility of God as a reality, it denies the possibility of a soul. Evolution operates exclusively within the material realm, hence the opposition to it as a scientific theory.

It would be inappropriate, and wrong I believe, to characterize the *anti-materialist* movement as a wholly religious movement. There clearly are religious implications and religion is central to the aims of the movement, but the argumentation put forth by the movement is not religious in nature. I would argue that while religious belief may be a sufficient justification for opposition to materialism, it is not a necessary condition in theory. The *anti-materialist* movement is a loosely allied constellation of individuals and organizations whose only connection is often an essentialist, shared interest--not particular to a religious group. Some formal connections and umbrella organizations exist but the specific interests of individual groups and organizations can often be divisive as opposed to uniting. It is for this reason that the movement exists within and across organizations and religious orientations. Manifestations of the *anti-materialist* movement are also broad, ranging from flood geologists and young-earth creationists to those who refer to themselves as intelligent design theorists. The subset of the *anti-materialist* movement that concerns us here are the proponents of intelligent design, which are currently the mainstay and most impactful of the *anti-materialist* movement.

The tactics of the *anti-materialist* movement change over time, often following synchronously with several key Supreme Court cases. In historical perspective, three distinct paradigms emerge from the *anti-materialist* movements' efforts. The first paradigm is creationism and the strategy toward evolution was an outright ban. The second is creation science, in which the idea of creationism was framed around some of the ideas of science. The third and current paradigm is intelligent design. Over time, each paradigmatic iteration becomes

further removed from religious or supernatural justification, that is, more commensurate with the institutions of science and this trajectory is fairly consistent over time.

Textbooks are the point of contention over which the argument about evolution often takes place (Larson, 1985). It is for this reason that I have selected to analyze a textbook promoting intelligent design. This textbook, *Of Pandas and People*, is particularly important because it was first drafted in 1983. A field test copy was printed in 1986 and its first edition was published in 1989. In 1987, the Supreme Court ruled that creation science was a religious concept and as such could not be taught in schools. If continuity exists between creation science and intelligent design it should be evident in the textbook. Also, if the strategies of the *anti-materialist* movement change in response to Supreme Court rulings, this should also be reflected in the textbook manuscripts, as the 1987 Supreme Court ruling in *Edwards v. Aguillard* is temporally situated in between the two versions of the textbook manuscripts. Before analyzing the texts, some historical context is necessary.

Section II: Creationism

The roots of intelligent design lay in Christian Protestant Fundamentalism (Forrest & Gross, 2005; Numbers, 2006; Padian, 2009; Scott, 1994). The history of American fundamentalism need not concern us here, but a few key ideas within fundamentalism are particularly relevant. There was a certain reverence among early fundamentalists for science, for they defined science as the discovery of physical laws and believed God to be the law-giver. Baconian methodology had a strong influence with the belief that science ought not to be speculative but purely classifying certainties. The initial reaction of fundamentalists to evolution was opposition largely because they felt it was too speculative to be valid science (Marsden, 2006). It is important to remember that the *anti-materialist* movement does not oppose science per se, but opposes materialism and what they view as science rooted in materialism. This is a key theme for *anti-materialism*.

In 1925, the Tennessee state legislature passed a law banning the teaching of evolution in any form (see Appendix I). Anti-evolution legislation was pending in a number of other states but the Tennessee law was the most restrictive. Later that same year the law was challenged by John Scopes, a high school biology teacher living in Dayton, Tennessee (Marsden, 2006). The American Civil Liberties Union, among others, was interested in challenging the law since its passage. Scopes was approached by a group of concerned citizens from Dayton who were privy to the American Civil Liberties Union's desire to challenge the law. Scopes acquiesced to being prosecuted and the American Civil Liberties Union began assembling a defense team with three prominent defense attorneys, led by Clarence Darrow (Linder, 2008).

Leading up to the time of the Scopes trial, William Jennings Bryan became increasingly involved in the opposition to evolution. Bryan was a well known, public figure, having ran for as

the Democratic candidate for US president three times, and serving as Secretary of State under Woodrow Wilson. William Jennings Bryan's entry into the arena of anti-evolution produced a catalytic effect for the movement by adding an air of notoriety to it (Numbers, 1982).

Bryan volunteered to prosecute Scopes, bringing his notoriety along with him to the small town of Dayton. The modern world descended upon Dayton, and it was this fact, not the outcome of the case, that gives the Scopes trial its significance. The court found Scopes guilty of teaching evolution and he was ordered to pay a small fine. The verdict was later reversed on a technicality.

Much has been written about the personalities and drama that ensued in the courtroom, and rightly so, but our interest lay in the dynamics of the *anti-materialists* and those who accepted science in its materialist form. To the learned and modern world, an idea like evolution was readily accepted at the time. It posed little to no conflict for religion and science. This mentality greatly clashed with that of the fundamentalist-influenced legislation and small town values of many of the Dayton residents. Media reports poured out of the town during the trial, ridiculing not only the *small town folk* but more importantly their *small town ideas* regarding evolution. These ideas were rooted in theological concerns which allowed religion to act as a medium for opposition to evolution. Within this motivational framework, *anti-materialists* felt justified in usurping their cause at the state-level.

Anti-materialists pursued similar state-level cases, winning in Mississippi in 1926 and Arkansas in 1928 (Numbers, 1982). The Mississippi legislation forbade any school teacher, "to teach that mankind ascended or descended from a lower order of animals" (Larson, 1985, p. 76). The legislation also outlawed the use of any textbook that mentioned evolution. The Mississippi State Legislature did not endorse the legislation with full faith and credit. The introductory

legislation was met with little excitement from legislators. Though the proponents of the legislation were few, they were extremely well mobilized and vocal. The Mississippi populace joined the efforts advocating the bill's passage. The legislator's initial reluctance was largely due to fear of ridicule from outside the state. The Mississippi public did not share this fear and leaned heavily on the legislature to pass the bill. Legislators acquiesced, bowing to public pressure, and recognizing that though the bill may be wrong, it was in the public interest and that should be given credence. One legislator remarked, "though I am an evolutionist of a certain sort, I am going to vote for the bill in order to save our boys and girls from materialism" (Larson, 1985, p. 78). The bill was signed into law on March 11, 1926 (Larson, 1985).

Seeing that the teaching of science could be controlled by public opinion, religious figures in Arkansas poured their efforts into a ballot initiative in 1928. The ballot initiative mimicked the law passed in Mississippi. The political mobilization in favor of the initiative framed it in terms of the bible versus atheism. With the initiative framed in these terms, the public voted in favor of the initiative and it was passed that same year. After the Mississippi and Arkansas laws, state-level efforts to ban evolution died down, most likely in fear of negative national perception. In both states, the attorney generals did not give the laws enforceable interpretations, rendering them to a large extent, legally meaningless (Larson, 1985).

Around 1930, the *anti-materialists* shifted their focus from state legislatures to local communities. At the community level, the prime mechanism of the efforts was the textbook (Numbers, 1982). These tactics were extremely effective. "...school boards, textbook publishers and teachers...bowed to their pressure" (Numbers, 1982, p. 541). Evolution almost completely disappeared from high school textbooks and in 1941 around one third of teachers feared being

labeled an *evolutionist* (Grabiner & Miller, 1974). Focusing on local communities and textbooks attracted little to no national attention, which allowed the efforts to be quite successful.

According to Grabiner and Miller (1974), from the period after the Scopes trial until around 1960 the treatment of evolution in textbooks deteriorated. They compared the biology textbooks published before the Scopes trial to those published afterwards in how thoroughly they dealt with evolution. Prior to the Scopes trial there were three widely used biology textbooks in the United States: *A Civic Biology* (1914), *Elementary Biology* (1919), and *Biology for Beginners* (1921), all of which discussed the concept of evolution to varying degrees. In the 1920's, as legislatures in Florida, Oklahoma and Tennessee passed antievolution legislation, the prevalence of the concept of evolution in textbooks greatly diminished. Around this time, textbooks were not written by biologists but by high school educators and sometimes professors within the discipline of education. This fact made textbook publishers highly susceptible to public views on evolution, and those views, particularly in the south, tended to be negative. In tracking the three earlier mentioned widely used textbooks, Grabiner and Miller found that the presence of evolutionary concepts greatly diminished. The attitudes of the south toward evolution were particularly important. Religious fundamentalism was a salient feature of the geographic locale. This fact, coupled with the greater preeminence of biology in public education due to the high prevalence of the agricultural industry, meant the textbook publishing industry was particularly susceptible to southern public opinion. As opposed to publishing textbooks suited different regions, the textbook industry published texts that meet the expectations of the south, thus affecting the entire universe of textbooks. Around 1960, after the launch of the Sputnik satellite, the federal government took an interest in the quality of American science education in order for the country to remain globally competitive. This interest brought the

attention of biologists to public biology education and the resultant return of evolution as a pedagogical goal. In 1964, the American Institute of Biological Sciences, with the backing of the United States government, produced textbooks known as the Biological Sciences Curriculum Study texts, which, “completely transformed the profile of high school biology texts” (Grabiner & Miller, 1974, p. 836).

To bolster their efforts against evolution, the *anti-materialist* movement focused on building an institutional base. Existing scientific societies and associations would not publish creationist works so a number of creationist societies and organizations were created, many of which published journals. Book publishing became a centrally important strategy in the furtherance of *anti-materialist* ideas (Numbers, 1982).

In 1965, a new edition of *Modern Biology*, published that same year, was adopted by the Little Rock, Arkansas public school board. The 1965 edition of *Modern Biology* followed the standard set by the Biological Sciences Curriculum Study and incorporated evolutionary teachings. The Arkansas Education Association was the Arkansas affiliate of the National Education Association, which advocated for evolutionary education. The Arkansas Education Association had long been concerned with the 1928 law banning the teaching of evolution. The adoption of *Modern Biology* as the primary biology text, served as a catalyst for action against the law. The Arkansas Education Association approached Susan Epperson with its concerns. Epperson was a first year instructor in the district who agreed to act as plaintiff to challenge the 1928 law banning the teaching of evolution. It would be inaccurate to describe Epperson’s role in as one in which a high school instructor simply wanted to teach science. The actions taken against the ban were strategic. Epperson was an ideal candidate for plaintiff as she was well educated and her husband worked for the military so she had no permanent ties to the state. The

complaint was filed and the municipal court ruled in Epperson's favor. The decision was appealed to the state supreme court which reversed the municipal court's ruling (Larson, 1985). After the two lower court rulings, the case was appealed to the Supreme Court and the court ruled that with regard to evolution, "the overriding fact is that Arkansas' law selects from the body of knowledge a particular segment which it proscribes for the sole reason that it is deemed to conflict with a particular religious doctrine; that is, with a particular interpretation of the Book of Genesis by a particular religious group" (Wilson & Drakemen, 2003, p. 232).

From here the *anti-materialists* realized that they could not appeal to religious reasoning alone to advance their aims. Creationism was nominally rebranded as creation science and this constitutes a shift in the *anti-materialist* movement paradigm. A major shift in tactics also accompanied this paradigm change. Instead of trying to ban evolution, the movement sought equal time for "scientific creationism." Effort was put in to purging the paradigm of religious emphasis and relying on its scientific aspects (Numbers, 1982).

As the eighties approached, a shift in philosophical perspective surfaced. No longer were the ideas of Francis Bacon exclusively relied upon, but the ideas of Karl Popper and Thomas Kuhn were incorporated into the *anti-materialist's* argumentation. Baconian philosophy emphasized the factual and non-theoretical nature of science (Numbers, 1982). This conception of science is embraced by the *anti-materialists* by framing it in opposition to materialism. Accordingly, anti-materialists viewed evolution as purely speculative because it functioned as an explanation of past phenomena that could not be observed. Framing both science and evolution in this way was clearly strategic because the argumentation advanced according to this conception was only applied to the aspects of science in conflict with the supernatural worldview. The ideas of Karl Popper and Thomas Kuhn. Kuhn argued that scientific ideas

persisted due to a *shared commitment* to the idea among scientists. As the commitment of scientists change, so does the accepted scientific theory. If phenomena arise that a given theory cannot explain, the commitment to an explanatory theory wanes, giving way to an emergent theory to which scientists can commit. *Anti-materialists* seized upon this idea, arguing that there was little objective basis for acceptance of evolution, and that the idea only persisted because of a dogmatic commitment to it among the scientific establishment. The *anti-materialists* begin to pursue the line of argumentation that evolution is a theory in crisis, which can be supplanted by a more robust theory, lacking the short-comings of evolution. The *anti-materialists* also seized upon a statement made by Karl Popper characterizing evolution as metaphysical and the idea of falsificationism. They argued that there must be some circumstance would prove a scientific idea false and because evolution could not be observed it could not satisfy one of the core criteria of science. *Anti-materialists* satisfy the criteria of falsificationism, by arguing that one can detect evidence of creation, and that if it were undetectable, the idea of scientific creationism would be false. The Kuhnian and Popperian ideas begin to serve as a wedge to criticize the existing evolutionary science, and usurp scientific creationism.

In 1981, the Louisiana legislature passed the “Balanced Treatment for Creation-Science and Evolution-Science Act” which required equal time to be given to both evolution and creation science. The law did not mandate that either should be taught or evolution banned; only that if one was taught the other must be taught as well. The law was challenged and brought to the Supreme Court. In the 1987, *Edwards v. Aguillard* decision, the court found that, “the term ‘creation science’ as contemplated by the legislature that adopted this Act, embodies the religious belief that a supernatural creator was responsible for the creation of humankind” (Wilson & Drakeman, 2003, p. 245). The act was ruled unconstitutional (Wilson & Drakeman,

2003). This Supreme Court ruling marks the most recent paradigm shift in the *anti-materialist* movement. It is at this stage that the intelligent design paradigm emerged. Some scholars view intelligent design as a direct strategic response to the decision (Haarscher, 2009).

The intelligent design movement officially arose in the 1990's (Padian, 2009). As with most movements, its seeds started long before. The idea of intelligent design, as it is understood currently, surfaced in the late 1970's and early 1980's. It became widely used as the *anti-materialist's* primary paradigm after the Edwards v. Aguillard decision in 1987. The incarnation of intelligent design is largely the brainchild of Philip E. Johnson. Johnson is a retired law professor who experienced a religious conversion late in life. Johnson was on a crusade against *naturalism* and *materialism* (Padian, 2009). In 1993, Johnson organized a meeting in Parajo Dunes, California. Fourteen scientists and philosophers critical of evolution were invited to a beach house in the small, central California town. Parajo Dunes constitutes It was at this meeting that the design efforts were organized (Flank, 2007). Parajo Dunes formed the current cadre of the intelligent design movement.

The intelligent design paradigm utilizes all knowledge gained from the previous attempts of creationism and creation science. In 1990, the Discovery Institute was founded which is an organization that plays a central role in the advancement of intelligent design through its Center for Science and Culture (Padian, 2007). Intelligent design asserts that, "life is too complex to have evolved without the direction of a purposeful creator" (Gropp, 2003, p. 700). According to the Discovery Institute, intelligent design:

“refers to a scientific research program as well as a community of scientists, philosophers and other scholars who seek evidence of design in nature. The

theory of intelligent design holds that certain features of the universe and of living things are best explained by an intelligent cause, not an undirected process such as natural selection. Through the study and analysis of a system's components, a design theorist is able to determine whether various natural structures are the product of chance, natural law, intelligent design, or some combination thereof. Such research is conducted by observing the types of information produced when intelligent agents act. Scientists then seek to find objects which have those same types of informational properties which we commonly know come from intelligence. Intelligent design has applied these scientific methods to detect design in irreducibly complex biological structures, the complex and specified information content in DNA, the life-sustaining physical architecture of the universe, and the geologically rapid origin of biological diversity in the fossil record during the Cambrian explosion approximately 530 million years ago” (Discovery Institute, 2009).

The idea of intelligent design is attempting to distinguish itself from creationism through its filtration of anti-materialism under the guise of science. This is markedly clear from a Discovery Institute document known as “The Wedge.”

The Wedge is a strategic document which outlines steps in the attempt to gain the widespread acceptance of intelligent design. The Wedge was intended as an internal document but was unintentionally leaked to the public. It outlines specific and actionable goals and means to achieve God playing a central role in all aspects of western civilization through design theory and views evolution and materialism as responsible for abandoning God. Specifically it aims to achieve this by seeing “intelligent design theory as the dominant perspective in science”

(Discovery Institute, 1998). This will be accomplished in three phases, the first of which is ‘Scientific Research, Writing and Publication’. The document acknowledges that this will be essential for intelligent design’s acceptance. The second phase is ‘Publicity and Opinion-making’ to prepare the public for reception of the ideas of intelligent design. The second phase is specially targeted at intelligent design’s natural constituency: Christians, and to equip those believers with scientific evidence that supports their faith. The third phase is ‘Cultural Confrontation and Renewal’ which seeks to confront materialist science after building up intelligent design’s base in the first two phases. The third phase also entails integrating intelligent design into school classrooms and addressing the resultant legal challenges (Discovery Institute, 1998). The Wedge strategy clearly demonstrates that for the Discovery Institute intelligent design is not a scientific theory whose validity is contingent upon experimentation and confirmation but simply a strategic tactic in the *anti-materialist* movement.

Around this time, the Foundation for Thought and Ethics was preparing to publish an intelligent design textbook. “The Foundation for Thought and Ethics advances initiatives for young people in important matters of world view, offering a scientific—not religious—rationale for the intelligent design (ID) of living systems” (FTE, 2009). The Foundation for Thought and Ethics began work on a creation science text in 1983. It was titled, “Biology and Creation.” It was published in its first edition in 1989, under the title, “Of Pandas and People.” The textbook was involved in a 2005 legal case (*Kitzmiller et al v. Dover Area School Board*) and all manuscripts of the text were subpoenaed and entered into the court as public documents. Manuscripts of the text will be analyzed for both creationism and intelligent design.

Section III: Methodology for Textbook Examination

Manuscripts used in the Kitzmiller trial were obtained from the National Center for Science Education. The manuscripts were provided as Adobe Portable Document Format image files. To allow for comparison both before and after the Edwards v. Aguillard trial, two manuscripts were chosen. The first manuscript is a field test copy entitled, “Biology and Creation.” It was reviewed by Walter Bradley. The manuscript is dated 1986 and is the earliest version available. It is a second edition of a 1983 manuscript which was titled, “Creation Biology.” The second manuscript utilized in the analysis is the 1989 publication version, “Of Pandas and People.”

The image files were processed with Adobe Acrobat’s optical character recognition function to create textual data. The 1986 Biology and Creation manuscript is of poor image quality. Proofreading marks and handwritten comments were found throughout the manuscript, which severely impeded the optical character recognition’s ability to accurately transcribe the textual data. The 1989 Of Pandas and People manuscript was in excellent condition and lent itself nicely to the creation of textual data via optical character recognition. Images were excluded from the manuscripts.

In the creation of textual data, unrecognizable characters from the manuscripts were indicated with the “~” symbol. Portable Document Format files with embedded text were created for each manuscript. The data were then transferred to Microsoft Notepad to remove formatting. Individual pages were pasted into Notepad one at a time, allowing for page by page data cleansing. Because text was embedded with the image files, each page could be visually referenced to ensure consistency between the text and the image. The Find feature in Notepad was first used to locate “~” symbols. For each occurrence, the page image was referenced and the symbol was replaced by manually entering the text.

The text was then pasted into Microsoft Word 2007. The spell check feature was used for another iteration of data cleansing, again referencing the original image files as problems were encountered. Line breaks were inserted for each section, and the titles of those sections were bolded. No other formatting is applied to the manuscripts. The texts were saved as Rich Text Documents.

There were noticeable differences in the two manuscripts. Most notably the sequence of chapters had changed. In *Biology and Creation* the chapters were as follows:

- Introduction
- Chapter 1: The Origin of Life
- Chapter 2: The Fossil Record
- Chapter 3: Biochemical Similarities of Organisms: Evolution or Design?
- Chapter 4: Homology
- Chapter 5: Genetics and Evolution
- Chapter 6: Origin of Species

Whereas the chapter sequence of *Of Pandas and People* was:

- Introduction
- *Of Pandas and People*: An Overview
- Excursion Chapter One: The Origin of Life
- Excursion Chapter Two: Genetics and Evolution
- Excursion Chapter Three: The Origin of Species
- Excursion Chapter Four: The Fossil Record
- Excursion Chapter Five: Homology
- Excursion Chapter Six: Biochemical Similarities

At face value it is easy to see how the chapters were rearranged based on the chapter names.

Because of the rearranged sequence, it would not suffice to compare each whole manuscript. The manuscripts were segmented by chapters, where each chapter constituted a text, or unit of analysis for comparison between the two manuscripts. A naming convention was created where texts were named based on their manuscript, sequence in the manuscript and chapter name. For example, the Introduction chapter in *Biology and Creation* was named *Biology01-Introduction*;

Chapter 1 was named Biology02-Chapter 1-The Origin of Life and so on. This segmentation led to seven texts for Biology and Creation:

Biology and Creation

Biology01-Introduction
Biology02-Chapter 1 The Origin of Life
Biology03-Chapter 2-The Fossil Record
Biology04-Chapter 3-Biochemical Similarities of Organisms
Biology05-Chapter 4-Homology
Biology06-Chapter 5-Genetics and Evolution
Biology07-Chapter 6-The Origin of Species

The Of Pandas and People manuscript has a number of extra sections. Each chapter is given an overview section and what is referred to as an *Excursion Chapter*. A postscript is also added. Segmenting Of Pandas and People leads to fourteen texts.

Of Pandas and People

Pandas01-Introduction
Pandas02-Overview of Section 1-The Origin of Life
Pandas03-Overview of Section 2-Genetics and Evolution
Pandas04-Overview of Section 3-The Origin of Species
Pandas05-Overview of Section 4-The Fossil Record
Pandas06-Overview of Section 5-Homology
Pandas07-Overview of Section 6-Biochemical Similarities
Pandas08-Excursion Chapter 1-The Origin of Life
Pandas09-Excursion Chapter 2-Genetics and Evolution
Pandas10-Excursion Chapter 3-The Origin of Species
Pandas11-Excursion Chapter 4-The Fossil Record
Pandas12-Excursion Chapter 5-Homology
Pandas13-Excursion Chapter 6-Biochemical Similarities
Pandas14-A Word to the Teacher

Each segmented text is saved as a separate Rich Text Format file. With the manuscripts segmented in this way, it allows for a more direct comparison while at the same time allowing the possibility to aggregate the texts for a manuscript to manuscript comparison.

MAXQDA2007 is used for all analysis. It is a standard program utilized for text analysis with qualitative, quantitative and graphic functions. TextPortraits were created for each text analyzed. A TextPortrait is a colorful, graphic model of a text which can be used for assessment and theory confirmation as Humble (2009) has shown. The graphic consists of a grid comprised by thirty columns and forty rows which create a total of 1,200 little squares, the whole of the text content represented by those squares. A TextPortrait is read starting in the top left corner and ending with the bottommost right square (Marburg, 2007). For a text that contains 10,000 words, each square within a TextPortrait would represent approximately 8.3 words. The colors of a TextPortrait are based on the codes assigned to the content of the text.

For the texts analyzed here, creation is represented by the color red, and intelligent design is represented by green. A lexical search was used for all texts to establish the presence of creation and intelligent design concepts. The stem word “creation” was used for creation concepts. Searching for the stem word allowed for all inflections of the concept, including creation, creationism and creationist. Search terms and phrases for the intelligent design concept included, “intelligent design,” “design theorist,” and “design proponent”. After performing a lexical search, content was autocoded for creation or intelligent design. All coded content was checked for validity and in the event that coded content did not match the concept, the code was removed. For example, the presence of the word “creation” was coded as creation but if the word was used for a purpose not having to do with the concept of creationism (ie the *creation* of a new theory), the code was removed. Code frequencies were documented by text.

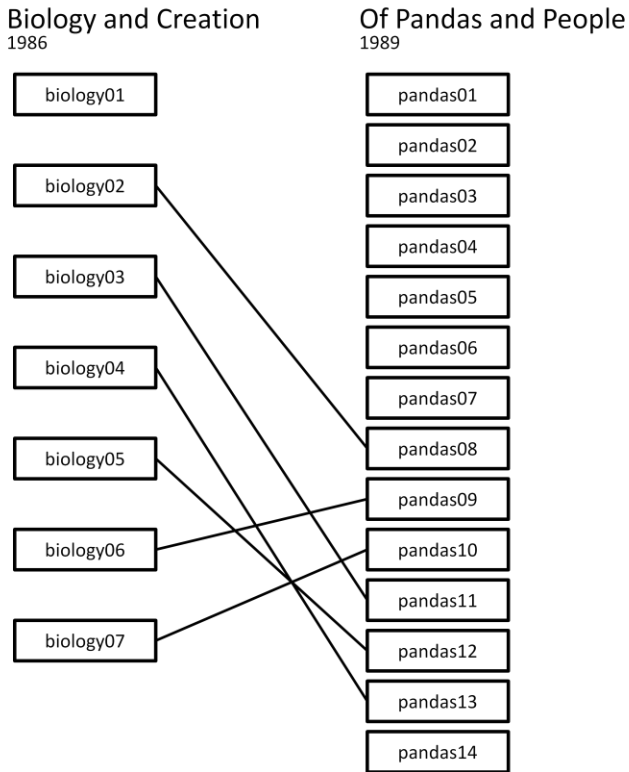
To ensure proper TextPortrait representation, the entire sentences which contained creation or intelligent design concepts were coded. This is because if a TextPortrait is created for a text that contains 10,000 words, a code would need to be applied to at least eight consecutive

words in order to be displayed in the TextPortrait. Because the lexical search autocoding was applied to two words at most, the coding would not be represented in the TextPortrait. By aggregating codes to the sentence level, it increases the likelihood that a TextPortrait will represent the coding within each text. If the coded sentence contains fewer words than the per-square threshold, the TextPortrait will not display the code and it is for this reason that not all codes are reflected in the TextPortraits.

Section IV: Text Analysis

A thorough examination of the Biology and Creation texts and the Of Pandas and People texts led to the links between manuscripts displayed in the figure below.

Figure 1-Text Links



A number of the texts did not display continuity between the manuscripts. Those texts are biology01, pandas01, pandas02, pandas03, pandas04, pandas05, pandas06 and pandas07. They were excluded from any further analysis.

The table below shows the texts included in the analysis with their respective linking text across the two manuscripts.

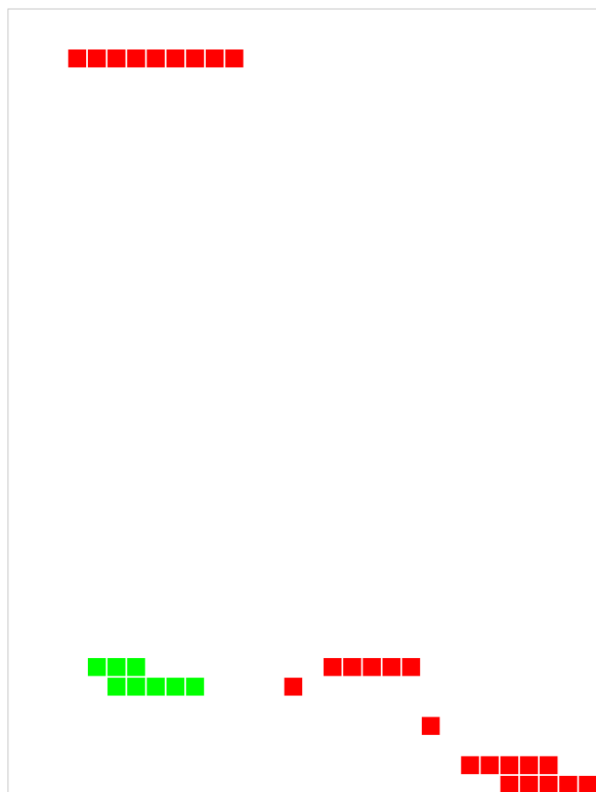
Biology and Creation	Of Pandas and People
Biology02	Pandas08
Biology03	Pandas11

Biology04	Pandas13
Biology05	Pandas12
Biology06	Pandas09
Biology07	Pandas10

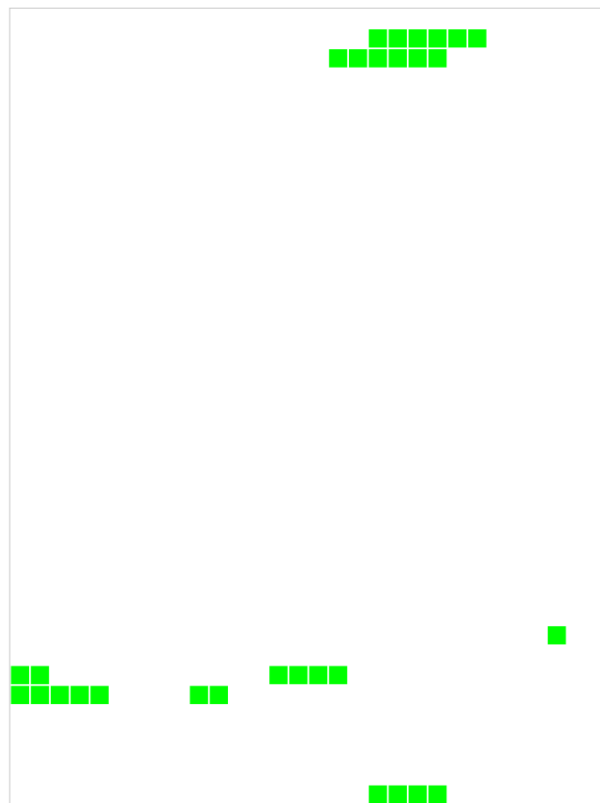
For each occurrence of a creation concept in the Biology and Creation texts, the same sentence is sought out in the linked Of Pandas and People text. If an intelligent design concept is coded as such in the matching sentence, the two sentences across the linked texts are considered a replacement. In other words, the sentence remained the same, but the creation concept is *replaced* by an intelligent design concept. Each sentence that constitutes a replacement is documented.

Figure 2-Biology02-Pandas08

Biology02



Pandas08

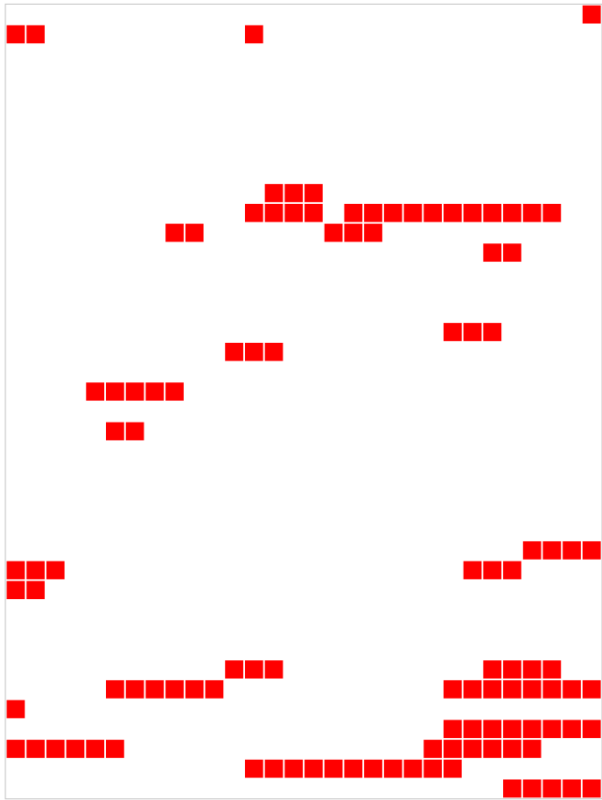


Word Count: 7696	Word Count: 7967
Creation freq: 9	Creation freq: 0
Intelligent design freq: 2	Intelligent design freq: 9
Many who accept creation as the best theory of life origins also believe that observations point to the abrupt appearance of all major types of living things such as invertebrates, fish, amphibians, reptiles, birds, and mammals.	Many who accept intelligent design as the best theory of life origins also believe that observations point to the appearance of major types of living things, such as invertebrates, fishes, amphibians, reptiles, birds, and mammals, without evolutionary ancestors.
In this chapter we will study the two main explanations of origins (creation and evolution) beginning with an early form of spontaneous generation.	In the remainder of this chapter we will study the two main explanations of origins-evolution and intelligent design -beginning with an early form of spontaneous generation.
What scientific evidence exists in support of a creation view?	What scientific evidence exists in support of the view of intelligent design ?

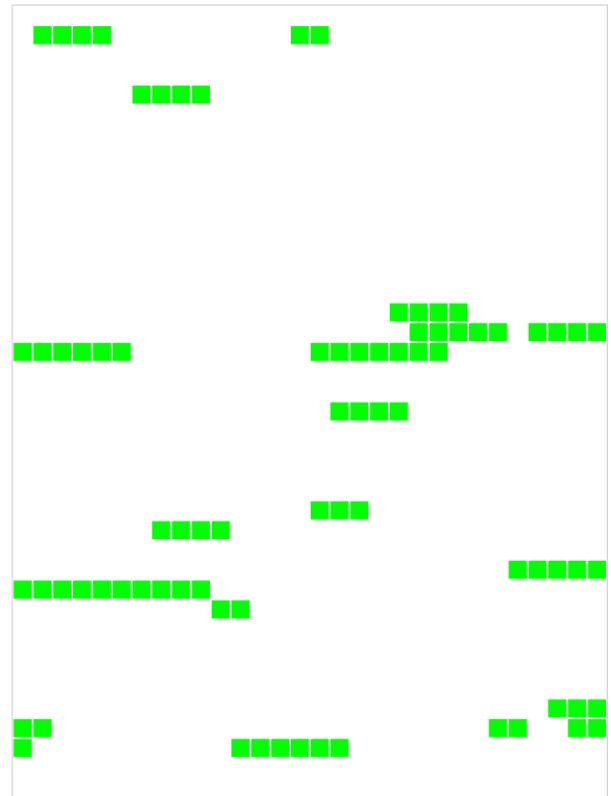
<p>First of all, the experimental tests of the Oparin hypothesis produced results which actually support the creation view.</p>	<p>First of all, the experimental tests of the Oparin hypothesis produced results which actually support the intelligent design view.</p>
<p>The case for the creation origin of life can be clarified by an analogy.</p>	<p>The case for the intelligent design of life can be clarified by an analogy.</p>
<p>In conclusion, a careful analysis of the experimental work of the origin of life and the molecular biology of living cells shows that the hypothesis of intelligent creation is a most reasonable one.</p>	<p>On the other hand, the experimental work on the origin of life and the molecular biology of living cells is consistent with the hypothesis of intelligent design.</p>

Figure 3-Biology03-Pandas11

Biology03



Pandas11



Word Count: 8238

Creation freq: 32

Intelligent design freq: 0

However life originated in the first place, by **creation** or evolution, or however the giraffe or the aardvark originated, they are not "re-originating."

An origin by **creation** is also unique, unrepeatable, and irreversible.

The **creation** hypothesis is in agreement with the face value interpretation, and accepts the gaps as a true reflection of biology.

The **creation** view is also consistent with the observation that some forms of life have not changed for tens or hundreds of millions of years (assuming the conventional timetable).

Word Count: 8099

Creation freq: 1

Intelligent design freq: 23

However life originated in the first place, by **intelligent design** or evolution, or however the giraffe or the aardvark originated, they are not "re-originating."

A biological origin by **intelligent design** would also be unique, unrepeatable, and irreversible.

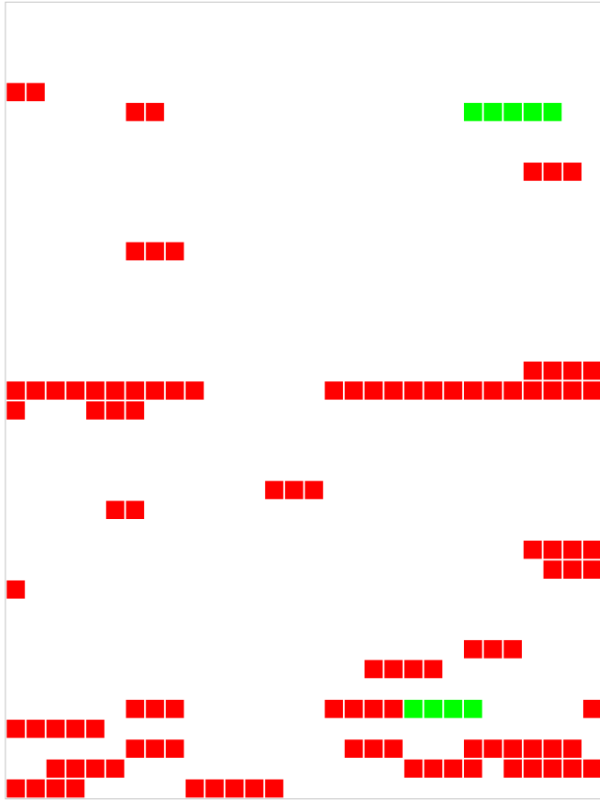
The **intelligent design** hypothesis is in agreement with the face value interpretation and accepts the gaps as a generally true reflection of biology and natural history.

The **intelligent design** view is also consistent with Feature No.3-the observation that some forms of life have not changed for tens or hundreds of millions of years (assuming the conventional timetable).

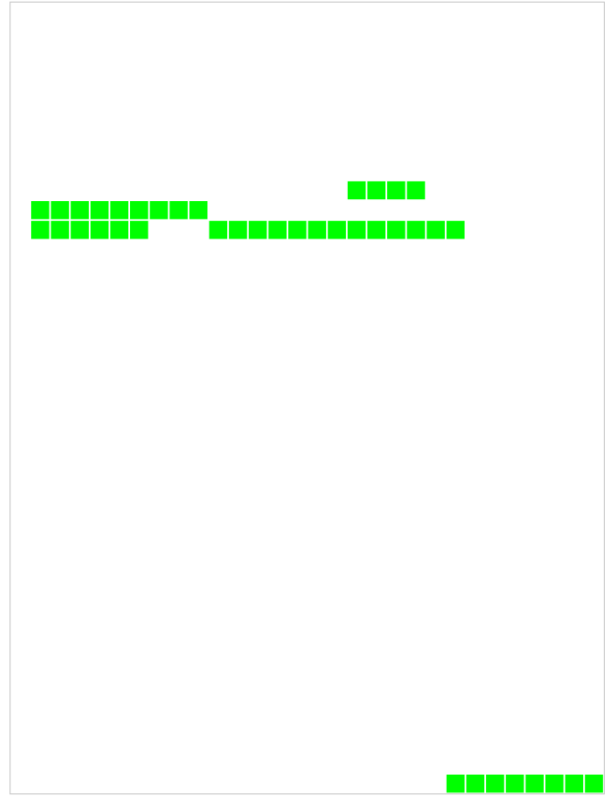
Evolutionists object to the creation view because it does not give a naturalistic explanation of how the various forms of life started in the first place.	Evolutionists object to the view of intelligent design because it does not give a natural cause explanation of how the various forms of life started in the first place.
Creation means that the various forms of life began abruptly through the agency of an intelligent creator with their distinctive features already intact--fish with fins and scales, birds with feathers, beaks, and wings, etc.	Intelligent design means that various forms of life began abruptly through an intelligent agency, with their distinctive features already intact--fish with fins and scales, birds with feathers, beaks, and wings, etc.
The creation alternative is not based on gaps or ignorance. That is basically the chief criticism of punctuated equilibrium.	Notice that the intelligent design alternative is not based on gaps or lack of data, which is a basic criticism of punctuated equilibrium.
You will remember that in Chapter 1 we saw that it is reasonable to hold that information resulted from intelligent creation .	Chapters 1 and 2 presented a line of reasoning to show that this DNA-based information resulted from intelligent design .
If we are to accept the existence of transitional species, say creationists , we must do so entirely without evidence.	If we are to accept the existence of transitional species leading to the whale, say design proponents , we must do so without clear evidence.
Most creationists and some evolutionists believe that Archaeopteryx was a true bird, probably capable of powered flight.	Many design proponents and some evolutionists believe that Archaeopteryx was a true bird, capable of powered flight.
Creationists believe Archaeopteryx fails to fill the gap between reptiles and birds because it is a true bird.	Similarly, some design proponents believe Archaeopteryx fails to fill the gap between reptiles and birds because it appears to be a true bird that is intermediate, not transitional.
Does the fossil record provide any evidence for either the evolution or the creation view of man?	Does the fossil record provide any evidence for either the evolution or the intelligent design view of man?
Some creationists point out that its brain case, while larger than most Australopithecines, is really too small for it to be classified as human (650 cc compared to about 1400 cc for modern man).	Some design proponents point out that its brain case, while larger than most australopithecines, is really too small for it to be classified as human (650 cc compared to about 1400 cc for modern man).
Creationists on the other hand stress the fact that the brain size of some specimens reach up to 1200 cc, well within the range for modern man.	Not all design proponents reject the humanness of Homo erectus. The brain size of some specimens reach up to 1200 cc, well within the range for modern man.
Some creationists interpret this data as suggesting that Homo Erectus was a type, or race, of modern man.	These design proponents interpret this data as suggesting that Homo erectus was a type, or race, of modern man.

Figure 4-Biology04-Pandas13

Biology04



Pandas13



Word Count: 8199

Creation freq: 32

Intelligent design freq: 2

no replacements found

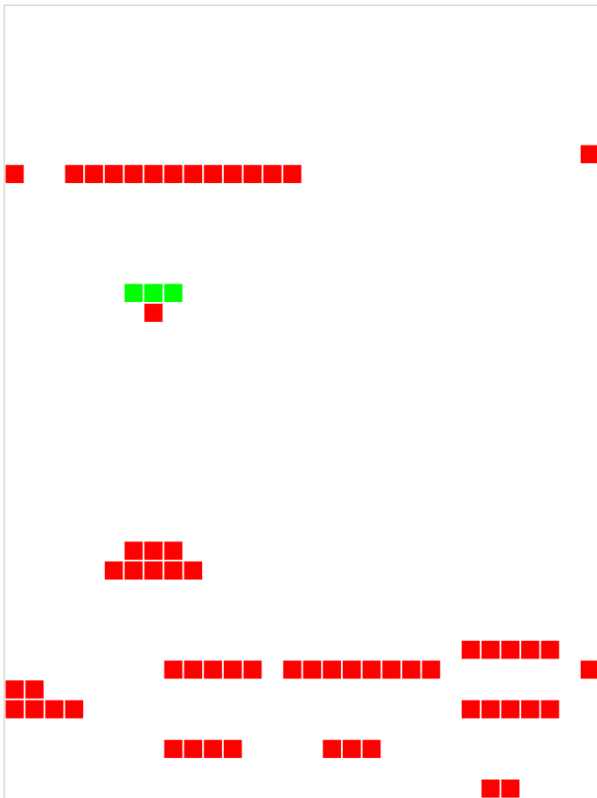
Word Count: 4556

Creation freq: 0

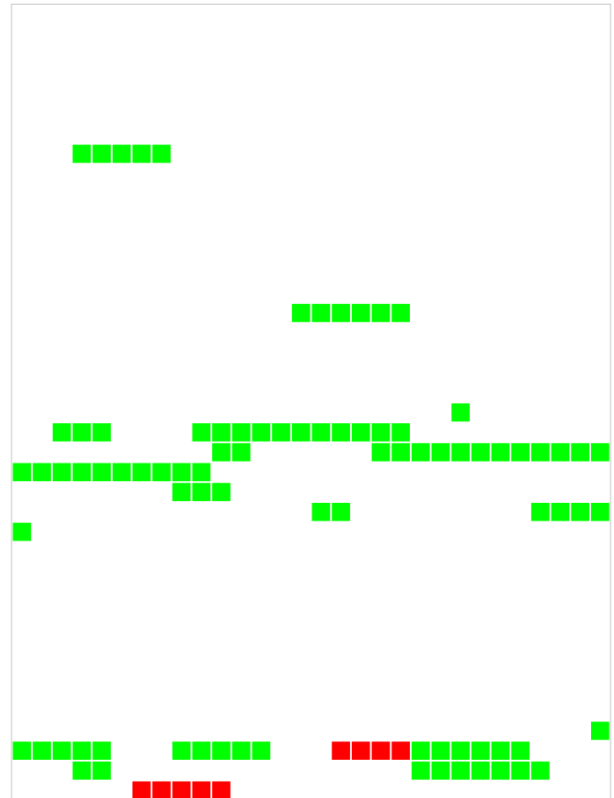
Intelligent design freq: 8

Figure 5-Biology05-Pandas12

Biology05



Pandas12



Word Count: 7693

Creation freq: 20

Intelligent design freq: 1

Evolutionists and **creationists** alike agree that such clues should be sought. But far too often, we don't have such information.

The **creationist** assumes that the similarity of features can be accounted for on the basis of design requirements.

Surely the **creation** explanation has unanswered questions of its own.

Creationists reject the concept of homology.

Word Count: 7169

Creation freq: 2

Intelligent design freq: 18

Evolutionists and **proponents of intelligent design** alike agree that such clues should be sought, recognizing that finding and evaluating this information is extremely difficult.

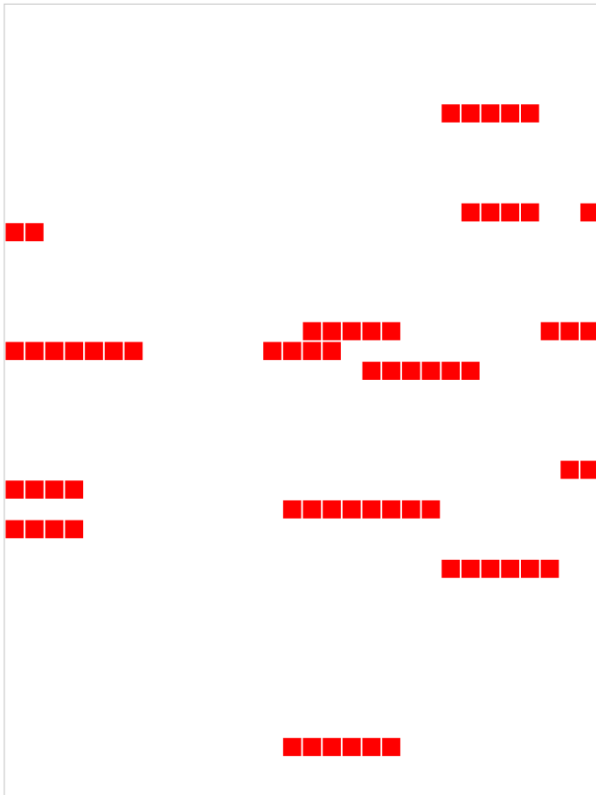
The **design proponent** assumes that the similarity of features can be accounted for on the basis of design requirements.

Surely the **intelligent design** explanation has unanswered questions of its own.

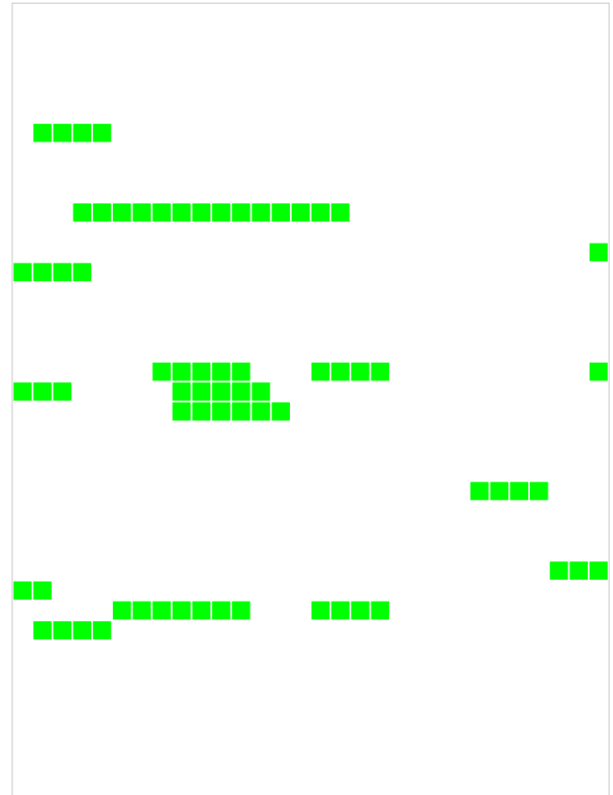
Design proponents reject the concept of homology.

Figure 6-Biology06-Pandas09

Biology06



Pandas09



Word Count: 6209

Creation freq: 14

Intelligent design freq: 0

One of the most important questions for both **creationists** and evolutionists concerns the behavior of the "genetic world" we live in.

Creationists assume that at creation all basic types of organisms were given a set of essentially stable genetic instructions.

Edward Blythe, one of Darwin's predecessors and a **creationist**, saw natural selection as a conservative force--the force which maintained the fixity of created kinds.

Word Count: 7416

Creation freq: 0

Intelligent design freq: 18

One of the most important questions for both **proponents of intelligent design** and evolutionists concerns the behavior of the genetic world over time.

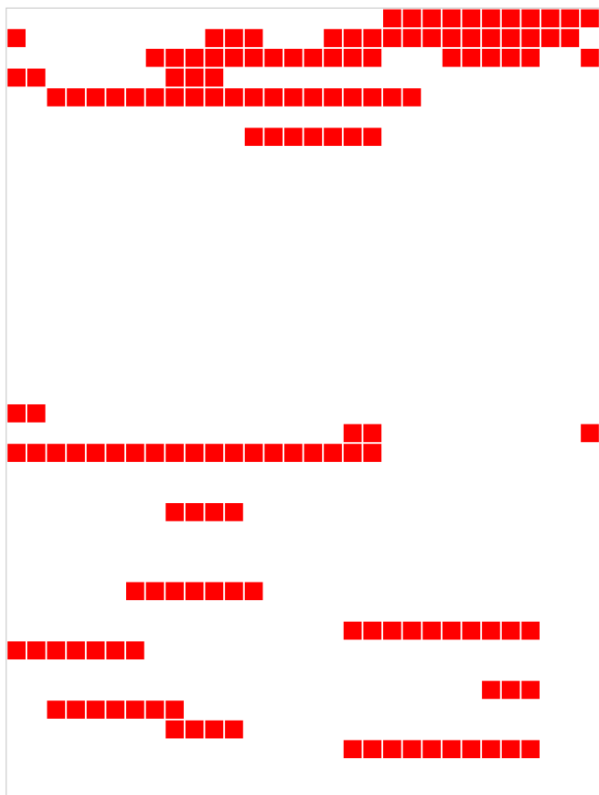
Intelligent design proponents assume that in the beginning, all basic types of organisms were given a set of genetic instructions that were predominantly (though not absolutely) stable.

Edward Blythe, one of Darwin's predecessors and a **proponent of intelligent design**, saw natural selection as a conservative force for maintaining the fixity of designed species.

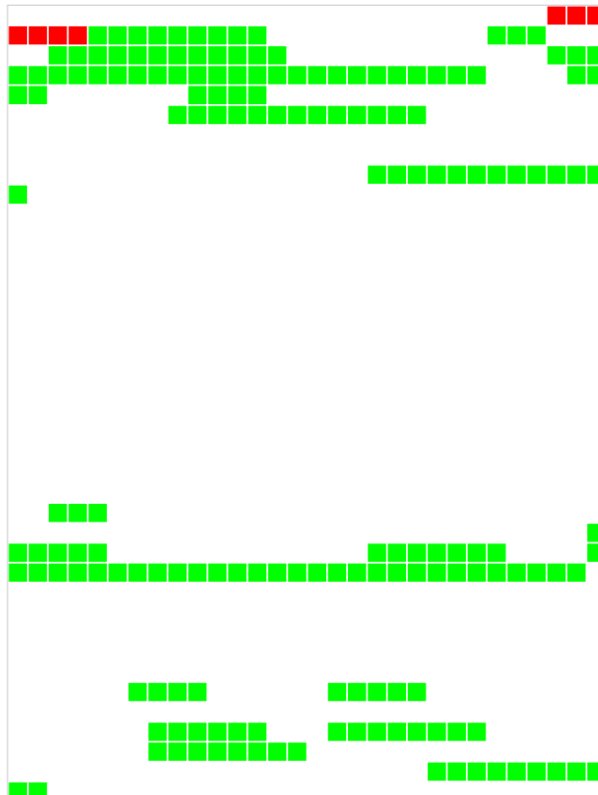
<p>Thus for Blythe natural selection maintained the fixity of species postulated by virtually all creationists including the great taxonomist, Carolinus Linnaeus.</p>	<p>Thus for Blythe, natural selection maintained the fixity of species postulated by virtually all proponents of intelligent design, including the father of taxonomy, Carolus Linnaeus.</p>
<p>Creationists interpret Bumpus' observations as support for their idea that every organism has been given an ideal body form which allows it to function optimally in a particular habitat.</p>	<p>Proponents of intelligent design interpret Bumpus' observations as support for their idea that every organism has been given an ideal body form which allows it to function optimally in a particular habitat</p>
<p>But creationists maintain that only a consummate engineer could plan ahead 50 effectively to meet the total engineering requirements of an organism like the giraffe!</p>	<p>But proponents of intelligent design maintain that only a consummate engineer could anticipate so effectively to meet the total engineering requirements of an organism like the giraffe.</p>
<p>The existence of such a sophisticated adaptational package is further confirmation to the creationist of the theory of design.</p>	<p>The existence of such a sophisticated adaptational package is taken as evidence by the proponents of intelligent design of their theory.</p>
<p>Only a creator as postulated by creationists would have the ability to design multifunctional adaptational packages.</p>	<p>In our experience, only an intelligent designer has the ability to coordinate the design requirements of multifunctional adaptational packages.</p>
<p>If this is true, asks the creationist, how can the blind, chance forces of evolution produce what distinguishes such intelligent human minds?</p>	<p>If this is true, asks the design proponent, how can the blind, chance forces of nature produce what distinguishes such intelligent human beings?</p>

Figure 7-Biology07-Pandas10

Biology07



Pandas10



Word Count: 5960

Creation freq: 44

Intelligent design freq: 0

So in the same data from antiquity both **creationists** and evolutionists find their ancient roots.

Creationists point to the role of an intelligent **creator** in shaping clay into living form.

It is important that we have in mind what today's view of **creation** or evolution is.

For example, it is unfair criticism to say **creationists** don't believe species change, or to say that evolutionists believe a monkey evolved into man.

Whatever **creationists** and evolutionists might have held in the past, it is clear that modern proponents do not hold such views.

Word Count: 4933

Creation freq: 2

Intelligent design freq: 30

Even so, in the same data from antiquity, both **proponents of intelligent design** and evolutionists find their ancient roots.

Design proponents point to the role of an **intelligent designer** in shaping clay into living form.

It is important that we have in mind today's view of **intelligent design** and evolution.

For example, it is unfair criticism to say **proponents of intelligent design** don't believe that species change, or to say that evolutionists believe a monkey evolved into man.

Whatever past proponents of **intelligent design** and evolution might have held, it is clear that modern proponents do not hold such views.

However, there is a central core idea that modern creationists and evolutionists hold in common with their forbears.	There is, however, a central core idea that modern proponents of each view hold in common with their forebears.
Likewise creationists throughout history have shared the concept that life is like a manufactured object, the result of intelligent shaping of matter.	Likewise, proponents of intelligent design throughout history have shared the concept that life is like a manufactured object, the result of intelligent shaping of matter.
With respect to the existence of one unified theory of creation , creationists point out that while many details need to be worked out, all creationists adhere to the same fundamental aspects of creationist theory .	With respect to the existence of a single, unified modern theory of intelligent design , proponents of this theory point out that, while there are difficulties that need to be worked out, all adhere to the same fundamental aspects.
In fact, there is probably more diversity among evolutionists with respect to evolutionary theory than among creationists .	While there is diversity among design proponents , it is not unlike the diversity among evolutionists with respect to modern evolutionary theory.
What was the original unit of creation ?	What unit of classification was originally designed ?
Evolutionists feel that creationists must be able to answer this question.	Some evolutionists insist that design proponents must be able to answer this question.
Both creationists and evolutionists have had difficulty giving a consistent definition of species.	Both design proponents and evolutionists have had difficulty giving a consistent definition of species.
Influenced by the Platonic concept of unchanging essences, or types, some early creationists believed that not only were species unchangeable, but they were inextinguishable as well.	Influenced by Plato's concept of unchanging essences, or types, some 18th and 19th century proponents of intelligent design believed that not only were species unchangeable, they were also inextinguishable.
Today, creationists accept the idea that species can change and recognize that many species have become extinct, too.	Today, design proponents accept the idea that species can change within limits and recognize that many species have become extinct, too.
This illustrates well the fact that creationists and evolutionists are divided over perspective or viewpoint, not data.	This illustrates well the fact that proponents of intelligent design and evolutionists are divided over perspective or viewpoint of interpretation, not data.
For creationists the above results are clear support for their view of limited change.	Design proponents agree that research should continue, but maintain that empirical observations like those above presently provide clear support for their view of limited change.
Creationists view reproductive isolation in a different light.	Design proponents view reproductive isolation in a different light.
One can talk about adding innumerable random mutations, but creationists still wonder. How were such impressive gains in information consolidated?	One can talk about adding innumerable random mutations, but proponents of intelligent design still wonder: How were such impressive gains in functional information consolidated?
If creation is true there may be species on the face of the earth that have undergone no substantial change since their creation.	If the intelligent design explanation is true, there may be species on the face of the earth that have undergone no substantial change since their beginning.

On the other hand, the idea of creation does not preclude the possibility that variation within species occurs, or even that “new” species are formed from existing populations (as illustrated by the previous discussion of hares).	On the other hand, the experimental work on the origin of life and the molecular biology of living cells is consistent with the hypothesis of intelligent design .
The theory of creation does suggest that there are limits to the amount of variation that natural selection and random change mechanisms can produce.	The theory of intelligent design does suggest that there are limits to the amount of variation that natural selection and random change mechanisms can produce.
Creationists are interested in research that will answer questions such as what limits of change exist, how original species that still exist can be identified, and what the exact biological definition of an original species should be.	Design proponents are interested in research that will answer questions such as the limits of change that exist, how we can identify original species, if any, alive today, and what the exact biological definition of a species should be.
Creationists have asserted that gaps in the fossil record are evidence for creation .	Design proponents have long asserted that gaps in the fossil record are evidence for intelligent design .
From their perspective creationists recognize that a tremendous amount of research still needs to be done on the fossil record.	From their perspective, design proponents recognize that a tremendous amount of research still needs to be done on the fossil record.
In the years to come, creationists hope to provide satisfactory answers to questions such as why organisms become extinct, and what limits of biological change are reflected in the fossil record	In the years to come, design proponents hope satisfactory answers will emerge to questions such as why organisms become extinct, and what limits of biological change are reflected in the fossil record
The origin of the species, or new life forms, is implicit in the creationists interpretation; they originated by creation .	The origin of the species, or new life forms, is evident in the design proponent interpretation: they were intelligently designed by some informative selection of the material for their genotypes.
In fact, the world corresponds much more closely to what can be expected from the creation point of view: it is filled with distinct and stable species that retain their identity over long periods of time, and intermediate forms are missing	In fact, the world corresponds much more closely to what can be expected from the intelligent design point of view: it is filled with distinct and stable species that retain their identity over long periods of time, and intermediate forms expected by evolutionists are missing.

Section V: Conclusions

Five of the six text pairs, Biology02-Pandas08, Biology03-Pandas11, Biology05-Pandas12, Biology06-Pandas09 and Biology07-Pandas10, displayed multiple replacements of creationist concepts with intelligent design concepts. In replacement instances, creationism, and its inflected forms, are simply replaced by the intelligent design counterpart or the creationism term was omitted and the idea substantively remained equivalent. These results have been tabulated and summarized in the table below.

	Creation freq	Replacement count	Proportion
Biology02	9	6	0.67
Biology03	32	15	0.47
Biology04	32	0	0.00
Biology05	20	4	0.20
Biology06	14	10	0.71
Biology07	44	31	0.70
		mean	0.46

In the six linked texts analyzed, forty-six percent of the occurrences of creationist concepts were simply replaced by intelligent design. If adjusted for the presence of creationist concepts in the Pandas texts, that number is forty-seven percent. If the weakest text pair¹ is excluded (Biology04-Pandas13, which underwent extensive revision as evidenced by a word count of 8199 for Biology04 and 4556 for Pandas12, and is the greatest difference of all text pairs) then fifty-seven percent of the occurrences of creationist concepts in the Biology and Creation manuscript were simply replaced by intelligent design concepts in the Of Pandas and People manuscript. This is a significant finding, especially given that the replacements survived

¹ Though this text pair did not display occurrences of replacements as I have defined them, all creationist concepts have been omitted from the later manuscript, and the chapter name remained the same. Despite the extensive revision to the later text, a more in depth content analysis would likely reveal a substantive equivalence.

an unknown number of peer revisions before publication of the Of Pandas and People manuscript.

The links between the texts are also supported by the TextPortraits. With the exception of the Biology04-Pandas13 link, the TextPortraits demonstrate a fairly consistent structure between the two manuscripts' texts. The occurrences of creationist and intelligent design concepts appear in the relatively same position across the manuscripts. This finding, coupled with the documented replacements, adds a high degree of credence to the argument that a strong continuity exists between creationism and intelligent design. The similarity in structure of the texts and the replacements, are indicative that the ideas of creationism and intelligent design are substantively equivalent, the difference is plainly a substitution of nouns in approximately fifty percent of the cases.

Members of the movement vehemently deny any association of intelligent design with creationism. On the website of the Foundation for Thought and Ethics, which published the Of Pandas and People book, it reads, "Early drafts of Pandas did not in fact advocate creationism as it has been defined by the Supreme Court" (FTE, 2009). This sentiment is shared by many proponents of intelligent design, including William Dembski, "despite its constant repetition, the charge that intelligent design is a form of creationism is false" (Dembski, 2006, p. 719). After the Dover trial and work by Forrest (2005) the Foundation for Thought and Ethics was forced to publically confront the replacements in the manuscripts. The organization's statement is quoted at length:

While certain early drafts of Pandas and other writings *may have* used the terms "creation" and "creationists," it is clear that these terms were defined to mean something quite different from "creationism" as later defined by the Supreme Court. As noted earlier, from the beginning Pandas specifically rejected the view

that science could detect whether the intelligent cause identified was supernatural. Although the process by which an intelligent agent produces a designed object can loosely be called a “creation” (as in stating that this brief was the “creation” of several lawyers), the authors of *Pandas* clearly understood that this was a “placeholder” for a more sophisticated expression of this concept. A pre-Edwards draft from early 1987 emphatically stated that “observable instances of information cannot tell us if the intellect behind them is natural or supernatural. This is not a question that science can answer.” The same early draft rejected the eighteenth century design argument from William Paley because it illegitimately tried “to extrapolate to the supernatural” from the empirical data of science. Paley was wrong because “there is no basis in uniform experience for going from nature to the supernatural, for inferring an unobserved supernatural cause from an observed effect.” Similarly, another early draft (also from when the manuscript was still titled “Biology and Origins”) stated: “[T]here are two things about which we cannot learn through uniform sensory experience. One is the supernatural, and so to teach it in science classes would be out of place . . . [S]cience can identify an intellect, but is powerless to tell us if that intellect is within the universe or beyond it.” By unequivocally affirming that the empirical evidence of science “cannot tell us if the intellect behind [the information in life] was natural or supernatural” it should be clear that the early drafts of *Pandas* meant something very different by “creation” than did the Supreme Court in *Edwards*. The decision to use the term “intelligent design” in the final draft to express the emerging theory of origins was not an attempt to evade a court decision, as Plaintiffs have alleged, but rather to furnish a more precise description of the emerging scientific theory [emphasis added] (FTE, 2009).

It seems altogether unlikely that some form of creationism was simply used as a “placeholder” for a concept which is purported to be wholly independent of it. It is akin to arguing that the word “did” in the statement, “I did kill him,” was simply a placeholder for “didn’t.” Intelligent design is, in the words of Forrest and Gross, “a new title for an old argument” (Forrest & Gross, 2005, p. 275) and this textual analysis of the manuscripts is clear evidence that this is the case.

Twenty-five years ago, when the *Aguillard* case was in the appeal process, Edward Larson wrote the following words, which ring true now, and will more than likely be applicable for years to come:

The 60-year-old creation-evolution legal controversy would continue in some form whatever the outcome of the *Aguillard* appeal—because its impetus comes

from social forces lying far beyond the reach of the courts. A movement that survived Scopes, Epperson, Daniel, McLean, and all the skirmishes in between, will endure Aguillard as well (Larson, 1985, pp. 166-167).

The trajectory of the *anti-materialist* movement has consistently been to tone down its message. For a movement to achieve acceptance it must become institutionalized (Meyer, 2006). For the *anti-materialist* movement this means embracing the normative ideals of science. Binder (2007) suggests not compromising science but addressing some of the broader, social and moral issues perceived by the *anti-materialist* movement because the institution of science is too strong to be swayed by something unscientific but perhaps by addressing some of the tertiary sociopolitical concerns, the *anti-materialist* fervor may wane. There may be some validity to this idea.

As the Supreme Court rules a given *anti-materialist* argument unconstitutional, the efforts do not cease, but rather, the movement adopts a new argumentative framework to navigate the newly created institutional barriers and advance its interests. The underlying motivation of the frameworks remains consistent, with little substantive variation. This is clearly evidenced by the creationist and intelligent design manuscripts evaluated here, in that approximately half of every occurrence of a creationist term in the earlier manuscript was nominally replaced by an intelligent design phrase in the later manuscript and remaining creationist terms were omitted.

The *anti-materialist* movement argumentation paradigms are punctuated by Supreme Court rulings. The current iteration of intelligent design dates back to the early twentieth century. Despite the vehement denial by proponents of intelligent design, qualitative analysis of the science textbook supplement manuscripts reveals a substantial equivalence between creationism and intelligent design.

Appendix I

PUBLIC ACTS OF THE STATE OF TENNESSEE PASSED BY THE SIXTY - FOURTH GENERAL ASSEMBLY 1925

CHAPTER NO. 27

House Bill No. 185

(By Mr. Butler)

AN ACT prohibiting the teaching of the Evolution Theory in all the Universities, Normals and all other public schools of Tennessee, which are supported in whole or in part by the public school funds of the State, and to provide penalties for the violations thereof.

Section 1. *Be it enacted by the General Assembly of the State of Tennessee*, That it shall be unlawful for any teacher in any of the Universities, Normals and all other public schools of the State which are supported in whole or in part by the public school funds of the State, to teach any theory that denies the story of the Divine Creation of man as taught in the Bible, and to teach instead that man has descended from a lower order of animals.

Section 2. *Be it further enacted*, That any teacher found guilty of the violation of this Act, Shall be guilty of a misdemeanor and upon conviction, shall be fined not less than One Hundred \$ (100.00) Dollars nor more than Five Hundred (\$ 500.00) Dollars for each offense.

Section 3. *Be it further enacted*, That this Act take effect from and after its passage, the public welfare requiring it.

Passed March 13, 1925

W. F. Barry,

Speaker of the House of Representatives

L. D. Hill,

Speaker of the Senate

Approved March 21, 1925.

Austin Peay,

Governor.

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