

THE NEW PULPIT: MUSEUMS, AUTHORITY, AND THE CULTURAL
REPRODUCTION OF YOUNG-EARTH CREATIONISM

by

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ABSTRACT
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Since the mid-twentieth century there has been increasing concern among evangelical Christians over the depiction of human origins in American education. For young-Earth creationists, it has been a priority to replace scientific information which contradicts the six-day origin story reported in Genesis 1 with evidence they claim scientifically reinforces their narrative. As this has failed in public education, creationists have switched tactics, moving from “teach creationism” to “teach the controversy”. The struggle over evolution education in the classroom is well-documented, but less attention has been paid to how young-Earth creationists push their agenda in informal educational venues such as museums. Given the authoritative nature of museums and the ubiquity of these institutions in American life, museums have become targets for the creation message. This project was undertaken to critically analyze the use of the museum form as an authoritative source which facilitates the cultural reproduction of young-Earth creationism. I propose a tripartite model of authority and museums is the best way to understand the relationship between young-Earth creationism and American museums, with the creation, contestation, and subversion of authority all acting as critical components of the bid for cultural reproduction. Assessing the utility of this model requires visiting both creation museums alongside mainstream natural history, science,

and anthropology museums. Drawing from staff interviews, survey data, museum visits, and the collection of creation-based literature for secular museums, these sources combine to create a comprehensive picture of the relationship between young-Earth creationism and museums in the United States today.

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LIST OF ABBREVIATIONS

AAM	American Alliance of Museums
AFSC	Akron Fossils and Science Center
AMNH	American Museum of Natural History
ASA	American Scientific Affiliation
AiG	Answers in Genesis
AV	Authorized (King James) Version
B.C. Tour	Biblically-correct tour
CMNH	Cleveland Museum of Natural History
CEHM	Creation and Earth History Museum
CMI	Creation Ministries International
CM	Creation Museum
CMOTO	Creation Museum of the Ozarks
CSRC	Creation Science Research Center
CS	Creationist survey
DMNS	Denver Museum of Nature and Science
DIY	Do it yourself
GDFM	Glendive Dinosaur and Fossil Museum
ICC	International Conference on Creationism
ICOM	International Council of Museums
ICR	Institute for Creation Research
LWM	Lost World Museum
MS	Museum survey
NSRHO	National Study of Religion & Human Origins
SMM	Science Museum of Minnesota
YEC	Young-Earth Creationism

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CHAPTER 1

A YEAR IN THE MUSEUM

On a cool evening in August 2013, I found myself sitting in a crowded ballroom in Pittsburgh, Pennsylvania. Every five years, the Creation Science Fellowship of Pittsburgh hosts the International Conference on Creationism (ICC), arguably the largest gathering of young-Earth creation scholars in the world. The 2013 conference was no exception, hosting more than 350 people from 9 different countries over the five days of the meeting (International Conference on Creationism 2013). On this, the opening night of the conference, conference attendees were joined by members of the general public, traveling from all over to attend the keynote address that evening.

The talk was entitled “Genesis, Biblical Authority, and the Age of the Earth”—standard fare for individuals who adhere to a creation narrative which explicitly outlines six 24-hour days of creation and an earth that dates back only approximately 6,000 years. The topic, however, was not the draw. Rather, the crowd was in attendance primarily to hear the speaker for the evening: Ken Ham, director and co-founder of Answers in Genesis (AiG), one of the most vocal biblical apologist organizations in the United States. Upon taking the stage, Ham spent his first moments not talking about Genesis, challenges to biblical authority, or the evidence of a young earth, but instead focused on what he is most well-known for: the Creation Museum, a 70,000 square foot museum¹ located in the Cincinnati, Ohio metropolitan area.

For an outsider, Ham’s decision to start that evening with a ten-minute advertisement for his institution initially appeared strange as it took the form of a blatant

¹ By contrast, the Field Museum in Chicago, Illinois, one of the largest natural history museums in the United States, has 480,000 ft² of exhibit space.

sales pitch, encouraging visitors to attend if they hadn't and return if they had. This appeal epitomized the reason for the museum's existence: the exhibition and glorification of the ultimate authority of the Bible and the continuing transmission of what might be best described as the culture of young-Earth creationism (YEC). Indeed, when Ham asked the crowd who had visited the museum since its opening six years prior, nearly everyone in the room raised their hand.

The exact number of young-Earth creationists attending that evening was unclear, but what was obvious was that the vast majority of the audience was excited to hear Ham's message of biblical inerrancy and supremacy. This excitement and overwhelming support, while prevalent at Ham's speech, is not reflective of the overall beliefs of the American public at large. The exact number of young-Earth creationists² in America today is unknown, but a recent Gallup poll indicates that 42% of Americans believe that God created humans in their present form within the last 10,000 years – a timeline which is in accordance with a young-Earth belief system (Newport 2014).

Implied within the Gallup poll's question is a belief in the concept of special creation. Special creation is a theological position which positions God as an omnipotent creator, capable of creating species in their fully-developed forms (Scott 2009). In this view, humans are seen as exceptional creations as they are created in God's image, separate from other members of the animal kingdom (Institute for Creation Research n.d.). It is the combination of a young date of creation (less than 10,000 years) and the specific creation by a supreme Deity which tends to indicate beliefs in accordance with young-Earth creationism in the United States.

² Young-Earth creationists adhere to a literal interpretation of the Genesis creation story, deny that the Earth is billions of years old, and reject natural selection as a driving mechanism for macroevolutionary change. This worldview will be explored in-depth in Chapter 2.

The Gallup data indicate, broadly, that there is a large proportion of YECs in the United States today. However, much of the nuance in creationist beliefs is lost in the broad nature of the questions asked by the Gallup poll. To rectify this, the National Study of Religion and Human Origins (NSRHO) was undertaken to facilitate an in-depth look at the public's beliefs about human origins. The NSRHO finds that “substantially smaller proportions of the population should be classified in each than the frequently cited Gallup findings suggest,” and argues that the Gallup numbers may be inflated by the forced-choice nature of the question (Hill 2014:2). Hill (2014) concludes that only 8% of Americans can truly be classified as young-Earth creationists, as opposed to the 42% figure cited by Gallup in 2014.

An important finding of the NSRHO pertains to the social factors which influence belief about evolution and creation. The NSRHO finds that among individuals who consider themselves creationists, roughly 35% anticipate conflicts with their family and friends if they were to change their personal outlook on creationism (Hill 2014). This is notable, as it illuminates more culturally-situated arguments regarding young-Earth creationism. Critically, the argument that young-Earth creationism is a movement primarily focused on cultural reproduction (Eve and Harrold 1991) is supported by this finding.

Eve and Harrold (1991) argue that the modern creationist movement is primarily about cultural reproduction – that is, the transmission of cultural forms from one generation into the next (Franklin 2007). With respect to YEC, understanding the issue of cultural reproduction requires understanding the associated cultural and religious identities in a broader social context. The antievolution identity is shaped in part by the

perceived challenge to religious beliefs being presented in both formal and informal education. There are more than 200 creationist groups in the United States today³ which emphasize the promotion of biblical supremacy and antievolutionary ideology in American public life.

The relationship between young-Earth creationism and the overall outlook on human origins espoused by the American public at large was a recurring theme as I conducted my research. At the ICC and in other venues, I was constantly hearing messages of isolation; of the perception of being a persecuted minority in the United States. One employee of a creationist museum told me in no uncertain terms that he was confident homeschooling, museums, and other intellectual activities of a young-Earth bent would not only be illegal in fifty years' time, but would fall prey to "the homosexual agenda". His mission, as he saw it, was to build something that like-minded individuals could use to educate their children.

For young-Earth creationists, anything perceived as undermining biblical authority is considered invalid. In secular educational centers such as public schools and museums, these individuals are constantly encountering scientific doctrine which opposes the young-Earth worldview. As a small proportion of Americans faced with a scientific doctrine which is diametrically opposed to their own world view, young-Earth creationists perceive a direct threat to the cultural reproduction of their belief structure coming from both the formal and informal educational landscape.

To combat this threat, young-Earth creationists rely heavily on the doctrine of creation science. The crystallization of creation science in the mid-twentieth century was an attempt to reclaim science from secular life while seeking academic credibility by

³ A comprehensive list of these groups can be found in Appendix A.

reinterpreting scientific knowledge to reinforce the Genesis creation narrative and the concept of a 6,000 year old earth (Kehoe 1987, Numbers 2006). As a discipline, creation science strives for academic parity with the conventional scientific establishment (Scott 2007). Creation scientists, in trying to apply scientific research methods to support the book of Genesis, have taken religious concepts and converted them into a pseudo-scientific discipline (Kehoe 1987). When these concepts are excluded from secular education, individuals who believe in the young-earth narrative often struggle with how to respond to the perceived threat to biblical authority.

For many fervent believers, eliminating evolution from public school curricula and replacing it with a creation-based viewpoint has been a priority (Berkman and Plutzer 2010, Numbers 2006). Creation science has created a sense of academic legitimacy that believers use to press for the inclusion of creationism in science education. Extensive research has been conducted on the relationship between young-Earth creationism and formal education (Berkman et al. 2008, Berkman and Plutzer 2010).

However, formal schooling is only one aspect of education in the United States today. More than a quarter of Americans report having visited a natural history museum within the last year (National Science Board 2014), indicating that museums are a central piece of the informal educational landscape. As Settelmaier (2010) notes, those that oppose the teaching of evolution in school are similarly opposed to having those same concepts presented in the museum context.

Since the opening of the Creation Museum in 2007, scholars have focused on that museum as the epicenter of informal creationist education (Asma 2011, Duncan 2009, Stevenson 2012). In contrast, little is known about the efforts of creation activists to

inject their ideologies into mainstream natural history museums (Fraser 2006, Wendel 2008). The ultimate purpose of this project, therefore, is to explore how issues of biblical supremacy and cultural reproduction play out in museums in the United States. The appropriate place to begin this exploration of creationism and the creation science movement in American museums is not with the history of American creationism (for a good overview of this topic, consult Numbers 2006). Rather, because of the peculiar challenges that museums face with controversial topics (like evolution) in both administrative and educational arenas, it is best to begin by delving into the history of the creation museum concept in the United States.

The American Creationist Museum

For the most part, creation museums are a uniquely American phenomenon. Although a select few countries also host these museums (listed in Table 1), the vast majority are located within the contiguous 48 states (see Table 2 for a list of American museums).

Table 1: International Creation Museums

Creation-Based Museum	Location
Bible Museum (Creation Wing)	Wuppertal, Germany
Big Valley Creation Science Museum	Big Valley, Alberta, Canada
Creation Bible Center	Bow Island, Alberta, Canada
Creation Science Centre	Ontario, Canada
Creation Science Museum of Canada (Traveling)	Ontario, Canada
Dinosaur Discovery Zone	Winnipeg, Manitoba, Canada
Genesis Expo	Portsmouth Harbour, United Kingdom
Jurassic Ark: Outdoor Creation Museum	Gympie, Australia
Noah's Ark Museum	Uzengeli Village, Turkey
Parque Discovery	Mafra, Portugal
The Secrets of Creation Traveling Museum	Red Deer, Alberta, Canada

Table 2: American Creation Museums

Creation-Based Museum	Location
7 Wonders Creation Museum	Silverlake, Washington
Adventure Safaris Dinosaur Warehouse and Exploratorium	Santa Monica, California
Akron Fossils and Science Center	Copley, Ohio
Biblical Archaeology and Anthropology Museum	Ridgecrest, California
Boneyard Creation Museum	Broken Bow, Nebraska
Camp Sunrise Museum	Fairmount, Georgia
Cook's Natural Science Museum +	Decatur, Alabama
Creation and Earth History Museum	Santee, California
Creation Adventures Museum	Arcadia, Florida
Creation Discovery Museum	Ft. Lauderdale, Florida
Creation Evidence Museum	Glen Rose, Texas
Creation Experience Museum (1 st branch)	Strafford, Missouri
Creation Experience Museum (2 nd branch)	Branson, Missouri
Creation Family Ministries (Traveling)	Hickory, North Carolina
Creation Museum	Petersburg, Kentucky
Creation Museum, Taxidermy Hall of Fame of North Carolina, and Antique Tool Museum	Southern Pines, North Carolina
Creation Orlando! +	Winter Park, Florida
Creation Research of the North Coast +	Bayside, California
Dino Creation Museum	Carmichael, California
The Dinosaur Encounter	Bridgton, Maine
Discovery Center	Abeline, Texas
Glendive Dinosaur and Fossil Museum	Glendive, Montana
God's World Exploration Station +	Peshastin, Washington
Grand River Museum*	Lemmon, South Dakota
Greater Ancestors World Museum ~	Jacksonville, Florida
Heart of America Science Resource Center	Haviland, Kansas
Lost World Museum^+~	Phoenix, New York
Mt. Blanco Fossil Museum	Crosbyton, Texas
Museum of Creation Truth	Bokchito, Oklahoma
Museum of Earth History +	Dallas, Texas
Museum of Origins and Earth History +	Dallas, Texas
Northwest Science Museum +	Nampa, Idaho
The Stone's True Story (Traveling)	Gladwin, Michigan
Susquehanna Valley Biblical Creation Center +	Watsonstown, Pennsylvania

Table 2: A list of museums which can be considered creation museums in the United States. Note that the museums marked with an asterisk (*) are not strictly creation-focused but contain at least one exhibit which discusses Biblical creationism as a viable explanation for life on Earth. Those marked with a plus sign (+) are currently under construction or major renovation. Those marked with a carrot (^) are museums which are no longer open. Those marked with a tilde (~) currently only have an online presence.

There is a common misconception that the idea of exhibiting creationism in museums began in 2007 with the opening of the Answers in Genesis Creation Museum in Petersburg, Kentucky. The Creation Museum certainly receives the most international publicity – most recently in the wake of the creation/evolution debate between science educator Bill Nye and Answers in Genesis CEO Ken Ham – but it is merely the best-funded and largest example of such an institution.

The crystallization of museums as a tool for communicating creationist ideas is not only seen in the establishment of the first creationist museum in 1976 – the Creation and Earth History Museum, beginning simply as a trailer on the campus of the Christian Heritage College (now known as the San Diego Christian College) in El Cajon, California – but can be traced to the establishment of creationism as a scientific concept (referred to as scientific creationism or creation science), an effort spearheaded by Henry M. Morris.

The work of Morris and colleagues was largely responsible for the intellectual revival of antievolutionism in the 1960s. Morris, a professor of civil engineering at Virginia Polytechnic Institute, founded two research institutes dedicated to creation science called the Institute for Creation Research (ICR) and the Creation-Science Research Center (CSRC). Although ICR and CSRC exist as separate institutions today, they began in 1970 as a single organization called the Creation-Science Research Center (Numbers 2009). Founded in 1970, the organization began as the research arm of the former Christian Heritage College (Creation and Earth History Museum n.d.) with the ultimate mission of equipping “believers with evidence of the Bible’s accuracy and

authority through scientific research, educational programs, and media presentations,” (Creation and Earth History Museum n.d.).

In 1972, there was a division among the board of directors, and Henry Morris spun off his organization, now renamed the Institute for Creation Research (Toumey 1994). Six years after the initial founding of ICR, the first American creation museum opened on the southern California campus of Christian Heritage College in a small trailer and featured an exhibition focused on the Middle East archaeology collection of Clifford Wilson (Creation and Earth History Museum n.d.). This initial exhibit, with a focus on biblical archaeology, was a precursor for what was to come. Indeed, by 1977 the museum had relocated into a larger space, featured exhibits which emphasized a creationist perspective (including exhibits on the origins of man, the origins of birds and horses, and the origins of the universe) and was officially christened the ICR Museum of Creation and Earth History.

In 1981, ICR parted ways with Christian Heritage College, allowing for not only the establishment of a graduate school focused on creation science, but an expansion of the museum facility. By 1992, the museum had expanded into the 4,000 square foot facility it currently inhabits in Santee, California. The exhibits have remained relatively constant in the intervening twenty-two years even as the museum officially changed hands in 2008. No longer a part of ICR (which relocated to Dallas, Texas in order to be more centrally located (Branch 2008)); the oldest creation museum in the country is now known as the Creation and Earth History Museum.

The current iteration of ICR and the Creation and Earth History Museum represents just one chapter in a forty year history. Within ten years of the first museum

opening on the CHC campus, additional museums began springing up in other areas of the country. Texas became a new center for creation museums, with the 1980 opening of the Discovery Center in Abilene, Texas. Founded by Tommy and Carolyn Walden, the Discovery Center “exists primarily to provide scientific and historic evidence for the truthfulness of God’s word, especially as it relates to the creation/evolution issue. Our secondary mission is to expose the myth of evolution as anti-science and atheistic in nature,” (Discovery Center 2014). Four years later, the Discovery Center was joined in Texas by the Creation Evidence Museum of Glen Rose, Texas.

The city of Glen Rose, Texas figures prominently in the catalog of creationist evidence for the coexistence of dinosaurs and humans. On the outskirts of Glen Rose lies the Paluxy River, and on the banks of this river, embedded in Cretaceous limestone, a series of fossilized footprints allegedly demonstrating the coexistence of dinosaurs and humans were excavated (Weber 1981). Dinosaur Valley State Park is the site of many dinosaur tracks (including sauropods and theropods), but the evidence for human tracks is non-existent; instead, these footprints are due to erosion, forgery, or elongated metatarsal imprints of the tridactyl dinosaurs in the region (Farlow et al. 2012). Even among creationists there is no consensus regarding the true nature of the “man tracks” on the bank of the Paluxy River (Moore 2014). Nonetheless, the Glen Rose “man tracks” remain a staple of creation museums across the United States.

As the 1980s drew to a close, creation museums were still quite rare, with only the ICR Creation and Earth History Museum, the Discovery Center, and the Creation Evidence Museum actively welcoming visitors. However, the twenty-five year period between 1990 and 2015 marked an explosive period of growth in the creationist museum

industry. Interestingly, several of these museums took the approach including creationist exhibits within the scope of a larger museum (the Grand River Museum of Lemmon, South Dakota is a notable example of this type of creation museum). During this period, there existed a “do-it-yourself” (DIY) attitude among many creationists. Joe Taylor (of the Mt. Blanco Fossil Museum in Crosbyton, Texas), began offering seminars for individuals to make their own fossil museums (Gaudian 2001). This DIY approach necessitates further examination, as it is an incredibly common-and increasingly popular-method of constructing creation museums.

The DIY Museum A visit to the Creation Museum, Taxidermy Hall of Fame of North Carolina, and Antique Tool Museum in Southern Pines is a unique experience. The visitor enters through a Christian bookstore and is immediately greeted with a barrage of artifacts – primarily tools and taxidermied animals, with a dose of proselytizing added in. Visitors are presented with exhibits on local animals, NASA and the moon landing, politics (including tributes to past Republican presidents), and a variety of antievolution exhibits. The museum features few exhibit cases exclusively dedicated to debunking evolution, but antievolution arguments are sprinkled throughout the museum. These include several dual interpretation labels which attempt to provide the “evolutionist” perspective contrasted against the word of God. Small stickers proclaim “In the beginning, GOD created the heavens and the earth”, and mirrors are labeled with “The evolutionist claims you are an animal – an accident of nature!” and “You are not an accident of nature – you are God’s unique creation – do you know your Creator?”

Founded in the 1990s, the combination museum and bookstore was created as a way for local pastor Kent Kelly to proclaim his faith following a stroke which rendered

him unable to continue his normal activities (Wilkins 2004). His collection became a form of outreach for his church (Cavalry Memorial Church in Southern Pines, NC). This approach – a combination of museum and another attraction - is demonstrated in a much larger form 2400 miles away, in the small California town of Cabazon. On the side of Interstate 10 loom two dinosaurs: an *Apatosaurus* named Dinny and a *Tyrannosaurus rex* named Mr. Rex. The Cabazon dinosaurs were the brainchild of Claude K. Bell, a sculptor for Knott’s Berry Farm amusement park (Powers 2005). Construction on the twin dinosaurs began in the 1960s and was completed in the 1980s, just prior to the death of Bell. Although not initially constructed to be a creation museum, in the mid-1990s the property was purchased with the intention of turning the internal part of the dinosaurs into a creation and cryptozoology museum (Powers 2005).

Large roadside signs for the dinosaurs proclaim “By design, not by chance!” a phrase that is printed on admission receipts and repeated throughout the exhibits. Debunking human evolution is the focus of the displays inside of “Dinny”, while the back portion of the grounds is devoted to exploring the relationship between dinosaurs, dragons, and the Bible. Dioramas depict dinosaurs being ridden by a chimpanzee as a knight on a horse prepares for attack. These dioramas are accompanied by a discussion of Mary Schweitzer’s *T. rex* blood cell discovery⁴ (Schweitzer et al. 2005) – a favorite creation museum talking point. The remainder of the park is filled with dinosaur models and discussions about the coexistence of humans and dinosaurs, including discussions of the Ica stones and whether or not Nessie (the Loch Ness monster) is evidence for dinosaurs still living on earth.

⁴ In 2005, Schweitzer’s team reported on the discovery of soft tissue structures in a *T. rex* fossil. While scientists have argued that the tissue remained intact due to high iron content in the area at the time of deposition (Schweitzer et al 2013), creationists have used this discovery as proof of a young earth.

The DIY creation museum also takes on a less permanent form. Mary Weigand, a nurse from West Bend, Wisconsin has dedicated her summers to creating an ersatz creation museum in the form of a booth at various Wisconsin county fairs (Erickson 2011). Visitors to the fair are greeted with a banner asking “Why do thousands of scientists believe Darwin was wrong?” and a variety of displays about dinosaurs and Noah’s flood.

In a brochure available on the booth’s website, Weigand (2010) explains the existence of the booth, noting:

It is our opinion that our neighbors should see and hear evidences for Biblical Creationism so they can decide for themselves what to believe. We are confident you will walk away with much to consider.....Our desire is to help you in your search for truth. We will try our best to answer your questions, have respectful discussions with you and point you to resources to help further your research.

Weigand’s brochure highlights a very important aspect of the YECs use of museums: presenting creationism so that the public can judge the veracity of the information for themselves. Indeed, all three of the exhibitions mentioned above highlight the fact that creation museums trade on the inherent authority that comes with the museum form. The larger permanent (and more professional) creation museums tend to be affiliated with larger creationist organizations, but many of the smaller institutions are the product of local creationist groups or even individuals. Many of the creation museums in the United States today actually have roots in this form – several are born out of a combination of factors, including a local ministry and an individual’s extensive interest or collection on a specific creation-related topic.

This DIY approach to museum creation is reminiscent of various points in the historical development of museums. Duncan (1995) notes that between the sixteenth and

eighteenth centuries in France, the personal collections of the wealthy were frequently put on display as a way to dazzle visitors and reinforce the individual's legitimate claim to power. These original displays are arguably the first public museums, and the concept of transforming personal collections into public museums is central to many creationist museums. Likewise, the enthusiasm for exalting God's creation that is found in these museums can be seen in the nineteenth century tendency towards natural theology in British collecting (Yanni 1999). Finally, as with many modern science museums, creation museums aim to facilitate interpretation of information rather than simply displaying objects (MacDonald 1998). Thus, while modern museums project a position of academic authority (Cameron 1971; Colati and Colati 2009), many DIY creation museums represent earlier traditions in museum making and public exhibitions.

Foucault and Miskowiec (1986:26) describe modern museums and libraries as heterotopias, linked to the indefinite accumulation of time. These slices in time represent various epistemes which are responsible for producing and grounding knowledge in the unconscious biases of an era (Foucault [1970] 1994). Creation museums represent perfect examples of Foucault's heterotopia. Heterotopias are described as being "capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible," (Foucault and Miskowiec 1986:25). This can be observed in a creation museum. Visitors encounter elements of science and religion – two ways of knowing which are frequently viewed as incompatible. Yet within the museum, the visitor is immersed in Scripture alongside science, being confronted with what may be described as incompatible compatibility: that is, the forced agreement between disparate ways of knowing. Yanni (1999:162) observed the importance of museum structure for exhibiting

creation science, writing, “The display strategies of natural history museums speak a language separate from content: science displays speak of truth. So when creationists in California decided to place so-called ‘creation science’ on display, they used the same display techniques as other recent museums to sell their ideas.”

Today, there are thirty-four⁵ creation museums in the United States (see Table 2 for a complete list). Within the walls of creation museums, the twin goals of promoting scriptural inerrancy and striving for academic parity work to establish and uphold biblical authority. These two calls will be explored individually, with the intent of exposing how each of the creation museums interacts with the larger goals of the young-Earth creationist social movement.

Creation Science, Cultural Reproduction, and the Museum Form

One of the overarching themes which will be discussed in the course of this dissertation is the concept of authority: who has it, how it is authenticated, and how museums, as centers of authoritative knowledge in the United States, become cornerstones of the push for cultural reproduction of young-Earth creationism. However, before exploring the specific nature of the relationship between museums, authority, and young-Earth creationism in the United States, it is necessary to explore the development and function of museums in general.

What Makes a Museum? Developing a single, all-inclusive definition of a museum is a difficult endeavor. In attempting to theorize modern museums, MacDonald (1996:4) writes that “*the* museum does not exist,” explaining that museums are not monolithic entities and a number of factors must be considered when analyzing them.

⁵ These thirty-four museums do not include attractions such as the Cabazon Dinosaurs. Included in this list are in-progress museums and museums that were once open but temporarily only exist in a virtual environment.

However, the classic vision of a museum in the twenty-first century is based, in part, on the modernist museum idea of the nineteenth century. Hooper-Greenhill summarizes the modernist museum, explaining that “the collection and classification of artefacts and specimens...were drawn together to produce an encyclopaedic world-view,” (2000:151). She notes that this conception of a museum and the curation, collection, and exhibition of artifacts, remains central to how we envision museums today, even if it is not a completely accurate vision. Likewise, she points out that the “inevitable visual narratives, generally presented with anonymous authority, legitimized specific attitudes and opinions and gave them the status of truth,” (Hooper-Greenhill 2000:151).

The modern museum, however, is not directly rooted in this nineteenth century idea, particularly in the United States. Equally important to understanding modern museums (particularly natural history museums) is the “New Museum Idea”, set forth by late nineteenth and early twentieth century museum reformers in the United States (Rader and Cain 2014). This idea involves producing and disseminating knowledge, and museum staff figuring out a way to efficiently balance these two objectives. Conn (1998:56) describes this as a “struggle to define a space within American society” and notes that this struggle in early American museums was simultaneously intellectual, social, and political in nature. For many museum reformers, facilitating use of specimens for a general audience (through exhibitions and education) as well as for specialist researchers was of utmost importance (Conn 1998).

Bennett (1995) describes this apparent push towards democratization of museums as misleading at best – although museums were being constructed for the people, the general public was not involved in their construction and the exhibits within the museum

often had little to do with the daily lives of the people. Instead, he argues, “their central message was to materialize the power of the ruling classes,” (Bennett 1995:109).

Likewise, Hetherington (1996:155) argues that museums are “not just involved in ordering and classifying cultural works and artifacts, they are also expressions of the ordering of the social. They are already imbued with power-knowledge that derives from social context and within that context they produce distinct modes of ordering.” As cultural entities, therefore, Bennett (1995) and Hetherington (1996) contend that modern museums have developed out of the desire to help reinforce the existing social identities of the less educated.

Considerations of identity, power, and knowledge are equally important when considering the modern American museum. Even as museum professionals push for a more inclusive voice and attempt to engage in more of a dialog with the public, the perception of the museum and its curators as authoritative and trustworthy remains (Rozenwig 2000). MacDonald (1996:4) further explores the tension between the authoritative voice and visitors, writing that “museums negotiate a nexus between cultural production and consumption, and between expert and lay knowledge.”

Knowledge is recognized as the commodity offered by museums (Hooper-Greenhill 1992), and the authoritative presentation of knowledge is central to the exhibitions constructed in many museums. Both Hooper-Greenhill and MacDonald are touching on an important element in the existence of museums: the negotiation of authority.

Because academic authority remains intrinsic to the museum form even as intercultural negotiations are starting to redefine museums (Hooper-Greenhill 2000), this is a primary reason why young-Earth creationists participate in the construction of

museums for creation evangelizing. The authoritative structure of the museum, the potential for influencing identity, and the opportunity to engage in “exhibitionary spectacle” (Conn 1998:47) all explain, in part, why the structure of the museum in particular is so critical to the quest for cultural reproduction among YECs.

Creation and Museums In 1917, John Cotton Dana wrote that “to make itself alive a museum must do two things: It must teach and it must advertise. As soon as it begins to teach, it will of necessity begin to form an alliance with present teaching agencies, the public schools, the college and universities,” (Dana [1917] 2004:25). Although he was referring specifically to art museums, this statement illustrates the complexities faced by modern museum staff. Museums are inherently educational and as a result, they often become intertwined with the more formal centers of education in their communities. In some cases, this interaction results in programming and exhibit decisions being made by museums to directly align with the state and local educational guidelines (Interview, education staff member).

One of the ongoing efforts among creationist groups is to receive equal time within local schools. This is the focus of the recent “teach the controversy” campaign spearheaded by the Discovery Institute’s Center for Science and Culture (Scott and Branch 2003), an organization which is designed to:

advance the understanding that human beings and nature are the result of intelligent design rather than a blind and undirected process. We seek long-term scientific and cultural change through cutting-edge scientific research and scholarship; education and training of young leaders; communication to the general public; and advocacy of academic freedom and free speech for scientists, teachers, and students. [Discovery Institute n.d.]

Those advocating for equal time make the argument that good pedagogy requires teaching multiple sides of an issue (Scott and Branch 2003). With respect to schools,

however, this argument has been repeatedly rejected by the courts in recent years (*Weber v. New Lenox School District* (1990), *Rodney LeVake v. Independent School District 656, et al.* (2000), *Kitzmiller v. Dover School Board* (2005), among others), leading many who hope to eliminate evolutionary content from the formal schooling curriculum to shift their focus away from elimination and towards casting doubt on evolutionary theory⁶ through a variety of new educational avenues.

The shift in focus is where museums become critical elements of the creationist message. If, as recent evidence indicates, creationism cannot (and will not) be taught in public schools, museums become a reputable educational forum in which the creation message can take center stage both through the promotion of YEC ideology and the construction of doubt about evolution as a viable scientific concept. Secular museums exist primarily for the “increase and diffusion of knowledge among men,” (Smithson 1826:4) and arguably, creationist museums are created for similar reasons. Although there has been debate in the media about whether these museums are truly museums (Gill 2010; Goldberg 2014), the International Council of Museums (ICOM) (2015) defines a museum thusly:

A museum is a non-profit, permanent institution in the service of society and its development, open to the public, which acquires, conserves, researches, communicates and exhibits the tangible and intangible heritage of humanity and its environment for the purposes of education, study and enjoyment.

Creation groups that are able to construct a venue which meets the standard ICOM definition of a museum are afforded an authoritative-type venue with the freedom to exhibit whatever material they see fit.

⁶ For example, the Discovery Institute is a driving force behind dissentfromdarwin.org, a website which calls upon scientists to sign a pledge that states “We are skeptical of claims for the ability of random mutation and natural selection to account for the complexity of life. Careful examination of the evidence for Darwinian theory should be encouraged.”

MacDonald (1998:2) contends that “museums which deal with science are not simply putting science on display; they are also creating particular kinds of science for the public, and are lending to the science that is displayed their own legitimizing imprimatur.” The issue of legitimacy and academic authority is a recurring theme among creation museums. As I conducted interviews with individuals affiliated with creation museums, it emerged as a point of concern for many participants. Academic authority is just one facet of the relationship between the young-earth creationism and American museums and can best be understood as helping facilitate cultural reproduction, i.e. sustaining the religious traditions that adhere to a young-earth belief structure which has been described as cultural reproduction (Eve and Harrold 1991).

Social Movements and Cultural Reproduction As defined by William Bruce Cameron, a social movement “occurs when a fairly large number of people band together in order to alter or supplant some portion of the existing culture or social order,” (1966:7). How do museums fit into our understanding of young-Earth creationism as a social movement? Crooke (2007) suggests that we can apply Herbert Blumer’s life stages of social movements to museums. Blumer (1951) describes social movements as transitioning through four stages: social unrest, popular excitement, formalized ideology, and institutionalization of the movement. Within Blumer’s framework, creation museums fall into the “institutionalization” phase of social movements (Stevenson 2012) – the final phase wherein operational tactics are formalized (Crooke 2007). In discussing why museums are relevant to social movements, Crooke (2007:130) explains that “the social movement is using the authority of the museum, and that provided through display, as an opportunity to further its needs.”

An additional consideration for the relevance of museums to social movements is the communal aspect of these institutions. Crooke (2007:129) notes that “community is constructed when a group of people perceive an external threat.” In the case of young-Earth creationism, the community is largely bound by a shared faith and confidence that there are external threats to that shared belief⁷. As such, museums become critical tools for reinforcing the continuing belief in biblical literalism among the faithful.

Eve and Harrold’s (1991) argument about cultural reproduction and creationism is derived from the work of Bourdieu which contends that culture is a form of capital, and social groups “must necessarily develop appropriate structures which enable successful cultural reproduction,” (Nash 1990:432). Bourdieu (1986) identifies three elements of cultural capital: the embodied state (concerning the mind and body), the objectified state (concerning cultural goods), and the institutionalized state (concerning educational qualifications). Within the realm of young-Earth creationism, cultural reproduction focuses primarily on controlling the means of cultural reproduction (Eve and Harrold 1991). That is, young-Earth creationists are primarily concerned with controlling institutionalized capital (schools, museums, and other educational venues) in an attempt to facilitate the transmission of their beliefs from one generation to the next. Because efforts to utilize the existing formal educational structures by injecting creationist ideology into the public school classroom have overwhelmingly failed (Berkman and Plutzer 2010), young-Earth creationists have turned their attention to constructing museums in order to advance the message of a young earth and a literal interpretation of Genesis.

Crooke (2007:129) notes that museums are not:

⁷ In this case, the perceived threat is the secular world.

likely to be visited by people unless they consider themselves members of the communities the exhibitions represent. Non-members would not have the cultural knowledge to interpret the collections or the social experience to feel at ease in the spaces where the exhibitions were held. The exhibitions will bring community members closer together, and reinforce a sense of exclusion for non-members.

With respect to creationism, museums serve this purpose: they become a shared, safe space to reinforce beliefs and enhance the transmission of cultural knowledge from one generation into the next. Unlike the churches young-Earth creationists belong to, museums can use creation science to create academic parity to secular science and reinforce their authoritative nature of scripture.

Creation Science, Authoritative Tool Creation museums exist for two purposes: for reinforcing beliefs and for evangelizing to non-believers⁸. Ultimately, their existence is intertwined with the authority of the Bible and belief in the word of God. Yet young-Earth creationism has turned to science as a way of reinforcing biblical authority. Barker (1985) explains that because of the epistemological authority of science in the secular world, any religion that can claim scientific support will have an edge in retaining believers and recruiting new individuals to add to the fold. On the other hand, Locke (1999) suggests that science as a universally valid form of knowing is only one view of knowledge. Instead, he proposes that the epistemological authority of science is merely one socially-constructed form of knowledge, which is not automatically authoritative for every person in every context.

The tension surrounding the epistemology of truth and authoritative knowledge is at the root of the existence of creation museums. Barker's (1985) assertion regarding scientific support of religion is most applicable to the integral nature of creation science for cultural reproduction in the museum context. As discussed previously, creation

⁸ However, as will be explored in Chapter 3, the extent to which this is happening is questionable.

museums exist not only for evangelizing, but for assisting in the cultural reproduction of young-Earth creationism. In both of these cases, authority is key: in the view of biblical literalists, the Bible has the ultimate authority, which is reinforced by exhibiting creation (and biblical) concepts in the museum form. Even among those who view science as a way of knowing that is less important than the ultimate authority found in Scripture, the ability to use scientific structures to reinforce biblical authority is a valuable tool for facilitating cultural reproduction of young-Earth creationism.

If the goal of creation museums is to evangelize, creation science operates in the manner that Barker (1985) identifies: creation science provides the appearance of having scientific proof to reinforce a religious ideology. For the non-believer (or for the believer who adheres to a more liberal ideology), the apparent compatibility of science and religion may act as a comfort and may make it possible for a conversion – or at least a consideration of a new religious paradigm - to occur. Creation science acts as a catalyst in this scenario, imbuing the biblical explanations with the appearance of the scientific form of knowledge.

With respect to ensuring the cultural reproduction of young-Earth creationism through reinforcement of religious beliefs, creation science is but one mechanism for establishing biblical authority. Religious knowledge is one way of knowing and understanding the world, while the scientific process is another. For a group who hopes to ensure the propagation of their most cherished ideas, creation science adds an additional layer of authority, providing Scripture with both biblical and scientific authority. It shows the members of the group that they can trust in the Bible because it has the backing of the same form of knowledge used by the secular world: science.

Research Questions and Methods

Creation museums are an integral source of information for this project, but they are just one element of this discussion. Museums are viewed as inherently trustworthy sources, more than even personal narratives, teachers, and non-fiction books (Rozenwig 2000). As a result, YECs have co-opted secular museums to create trustworthy venues for propagating their message of scriptural authority. I propose a tripartite model of authority and museums is the best way to comprehend the relationship between young-Earth creationism and museums, with the creation, contestation, and subversion of authority all acting as critical components of the bid for cultural reproduction (Fig. 1).

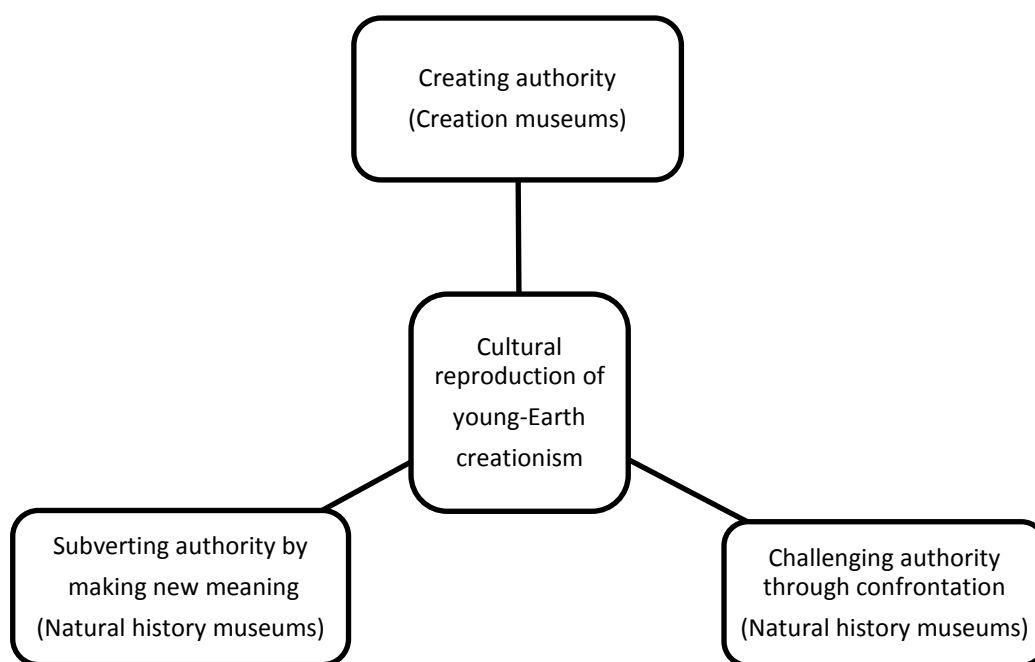


Figure 1: Triad of museum use for the cultural reproduction of young-Earth creationism.

In order to thoroughly analyze the multifaceted relationship between young-Earth creationism and American museums, I have formulated four primary research questions:

1. How is the museum form used to construct authority for the creation message?
2. How is scientific authority contested by creationist visitors to secular museums?
3. How are creationist tours and other resources used to undermine scientific authority in the secular museum?
4. How is creation science utilized to create the appearance of scientific authority while maintaining biblical authority?

Addressing each of these questions has required a multitude of sources of information, including interview, survey, and literature review. The activities which required collecting information from people were supervised by the University of Wisconsin-Milwaukee Institutional Review Board⁹. Each of these elements will be discussed in turn.

Surveys Two surveys were administered over the course of this project. The first was administered to employees of American Alliance of Museums-accredited museums in an attempt to understand the variety of experiences staff and volunteers have had with antievolutionism in their institutions (the questions can be found in Appendix B). This survey was sent out to employees at 133 museums, in addition to being distributed via two listserv channels. In order to retain anonymity, responses to this survey are marked with MS (for “museum survey”), followed by a unique identifying number.

The second survey (located in Appendix C) was distributed to individuals who self-identify as creationists and was designed to assess creationist feelings about evolution in secular museums. Snowball sampling⁹ was employed, wherein I shared the creationist survey with various self-identifying creationists and asked them to share the survey. In addition, this survey was distributed through a variety of creationist Facebook groups. Quotations presented within this dissertation which derive from this survey are

⁹ Protocol no. 14.099

marked with CS (“creationist survey”), followed by a unique identifying number.

Responses to each of these surveys are used, in part, to answer the first three research questions, and are featured in Chapter 4.

Interviews Between October 2013 and July 2014, I conducted forty-two in-depth interviews with staff members and volunteers at six creation museums and seven mainstream museums (five which may be classified as natural history museums and two which are best understood as science museums). In each of these semi-structured interviews, questions were asked regarding the individual’s background, institution, and their personal thoughts about evolution and creationism in the museum setting.¹⁰ Each interview was recorded and transcribed, and the transcriptions were qualitatively analyzed using MAXQDA version 11. In the interest of preserving participant anonymity, quotations from these interviews are identified only by the individual’s general role in the museum. Participating secular institutions were chosen for their proximity to creation museums, which themselves were chosen to vary with respect to size and geography. Responses to these interviews were used, in part, to construct answers to each of the four research questions of this project, and the results of qualitative analysis are discussed in Chapters 3, 4, and 5.

Museums and Associated Materials To assess authority in the museum context, I also made use of the wide variety of tools available for YECs to use in and out of the museum. Material was gathered through archival and library research, and this material was enhanced by literature collected at various creation museums. The variety of information collected is used to address questions one, three, and four. This material is primarily discussed in Chapters 3 and 5.

¹⁰ See Appendix D for a sampling of questions asked in these interviews.

Chapter Previews

To support the argument that museums serve as mechanisms of establishing and reinforcing biblical authority which facilitate the cultural reproduction of young-Earth creationism, I explore numerous sources of information relating to museums, human evolution, and the evolution/creation controversy in the United States. The subsequent chapter is dedicated to exploring the evolution/creation controversy, examining what creationism actually is, how creationism impacts evolution acceptance in the United States, and what that evolution acceptance actually looks like in American museums.

Chapter 3 focuses on young-Earth creationism and the construction of creation museums. This section evaluates the interviews conducted at creation museums and analyzes the reasons why creation museums have become useful for young-Earth creationism. In particular, themes of academic parity, legitimacy, and authority are identified as being important reasons why creation museums exist. Creation museums rely not only on the establishment of scriptural authority, but the creation of doubt in science, the discrediting of science in favor of scripture, and the appearance of truth being suppressed by the larger scientific community (which is described as scientific conspiracy).

Chapter 4 is dedicated to exploring how secular scientific authority is contested by creationists in the natural history museum. The secular museum meets an important demand within the academic community: it acts as a forum for conducting cutting-edge research, provides an outlet for new scientific discoveries and a method of sharing information that can be both authoritative and palatable to the layperson.

Natural history, science, and anthropology museums stand in direct contrast to creation museums as discussed previously. Creation museums exist for the purpose of educating visitors about the supreme authority of God as established in the Bible. By contrast, secular museums reinforce the idea of authority derived from the scientific method. This form of authority – particularly as it excludes the Christian deity from the process – is quite problematic for young-Earth creationists. As such, antievolutionism in the secular museum becomes a tool for contesting scientific authority, with the ultimate goal of promoting biblical authority as a method of cultural reproduction.

Chapter 5 examines the process of subverting authority in secular museums through the use of creationist museum tours, guidebooks, and technological resources. Openly objecting to content in secular museums occurs as a mode of contesting the academic and epistemological authority of the museum and there is a degree of performance encapsulated within these objections. The variety of tools which exist for the express purpose of subverting scientific authority and reframing museum exhibits in a manner that is more coherent with a biblical worldview allow for a sort of grass-roots campaign of information, developed not for museum staff but for individuals already enmeshed in young-Earth creationism. The construction of these tools and the techniques employed to subvert scientific authority will be analyzed in the fifth chapter, allowing for a discussion of the academic and spiritual aspects of cultural reproduction as it pertains to natural history museums in the United States.

The final chapter of this dissertation acts as a summary and explores the research avenues which may emerge from this project. It is through the construction of their own museums, the contesting of academic authority in natural history museums, and the

subversion of scientific authority using creation-based tools that museums become a critical component of the ongoing quest for cultural reproduction in young-Earth creationism.

CHAPTER TWO

ACCEPTANCE AND BELIEF: EVOLUTION AND CREATIONISM IN AMERICA

In early 2014 I found myself sitting in a small creation museum, conducting an interview with three of the museum's staff members. As they were signing consent forms and preparing for my questions, the gentleman to my left turned to me suddenly and said, "So, are you a Christian?" This was not the first time I had been asked this question over the course of this project, and it wouldn't be the last. His question, however, had a hardened edge to it, as though he was preparing for a confrontation.

Truthfully, I responded "I was raised Catholic," to which he immediately shot back, "but are you a Christian?" The intent of this question was to assess my belief in the Genesis creation narrative and its applicability to human origins. For many people (particularly those I encountered in creation museums across the country), "true" Christianity is connected to the rejection of evolution and wholehearted acceptance of special creation.

Equating Christianity to creationism is a common theme in creation museums, but the issue of evolution and creationism is not as straightforward as the phrasing of the question implied. In order to fully understand the issue of scientific versus biblical authority in American museums, it is necessary to first explore the intricacies of what it means to be a creationist in modern America.

Understanding Creationism

Without exception, all the individuals I interviewed at a creation museum considered themselves a believer in "true" Christianity, an adherent to a worldview that was absolute and not capable of being considered in shades of grey. For my participants,

being a Christian and being a creationist consisted of the traditional belief in the holy trinity, augmented with the belief that the Earth was created in six 24-hour days (as described in Genesis 1) approximately 6,000 years ago.

This particular theological position, however, does not cover all creationists. Rather, these individuals are just one fragment of the larger creationist spectrum. American creationism is not a monolithic entity in which everyone agrees on what it means to be a creationist. This fact is famously acknowledged in the doctrine of “mere creation” espoused by Phillip E. Johnson and other members of the Discovery Institute’s Center for Science and Culture. Johnson notes that creationists have “healthy disagreements about all sorts of specifics. But we are united on a common approach, a shared determination to define the issues correctly,” (Johnson 1998:449).

Among American creationists, variations in belief are linked to the interpretation of the Old Testament, acceptance of evolutionary principles, and an understanding of the validity (or lack thereof) of the scientific methods of measuring the age of the Earth. These variants in American creationism can be separated out into four distinct categories: intelligent design (also sometimes referred to as “neo-creationism”), theistic evolution, old-Earth creationism, and young-Earth creationism (Scott 2009). Of these four categories, it is variations on two (intelligent design and young-Earth creationism) that tend to find their way into museums.

Theistic evolution (TE) is the category of creationists least likely to be affiliated with strict Christian fundamentalism. Theistic evolution views all aspects of modern science as accurate, including the evolutionary concept of descent with modification (Scott 2009). Where theistic evolution diverges from the scientific realm is the

incorporation of God into this process. Although accepting of scientific conclusions, theistic evolution is anchored in a theological belief that God utilizes the laws of nature as avenues for creation (Scott 2009). The concept of TE is found to be compatible with a number of Christian religious traditions. Recent examples of this compatibility can be observed within modern Catholicism: Pope John Paul II proclaimed that the human body had evolved through natural processes (Scott 1997b), while Pope Francis, upon addressing the Pontifical Academy of Sciences, stated that “evolution in nature does not conflict with the notion of Creation,” (Pope Francis 2014:n.p.).

Among the major organizations featured in the history of American creationism, the American Scientific Affiliation (ASA) is most closely aligned with the concept of theistic evolution. Initially formed in 1941 to help link scientific fact and the tenets of Christianity, the ASA has gradually moved away from a literal interpretation of Genesis and toward promoting a belief in theistic evolution (Fowler 1982). Members of the ASA have held a variety of beliefs regarding evolution and creation. The gradual transition towards theistic evolution ultimately drove the formation of Henry Morris’s Creation Research Society in 1967 (Fowler 1982), a group which features heavily in the promotion of young-Earth creationism in the U.S.

A second form of American creationism is old-Earth creationism (OEC). Old-Earth creationism is a broad label that encompasses four kinds of creationism: gap, day-age, progressive, and evolutionary creationism (Scott 2009). Generally speaking, old-Earth creationists believe that the date of creation was much longer ago than the 6,000 year claim of young-Earth creationists (Eve and Harrold 1991). Old-Earth creationists tend to embrace some scientific evidence which indicates an old Earth, while

simultaneously using this information to reconcile the age of the Earth with Genesis in a variety of ways. It is this process of reconciliation that results in the multiplicity of views regarding OEC.

The first of the OEC ideas is referred to as “gap theory”, wherein adherents posit there is an undefined passage of time between Genesis 1:1 (in which God creates the heaven and the Earth) and Genesis 1:2 (where the Earth is described as “without form”) (Eve and Harrold 1991, Gen. 1:1-2 AV). This idea assumes the existence of a pre-Adamite world which was subsequently destroyed following the initial special creation in verse one and then re-created in verse two (Scott 2009). Following this undefined chronological gap between verses, verse two then resumes with the six day creation narrative, featuring six 24-hour days (Numbers 2009). Such an interpretation of Genesis 1 allows old-Earth creationism to neatly mesh biblical origins with the age of the Earth as indicated by modern radiometric dating techniques.

Adherents to gap theory tend to embrace a relatively conservative interpretation of the Old Testament from Genesis 1:2 onward. While the gap of an undefined period of time features untold disastrous events during which fossils were formed, the timeline of events featured in the remainder of chapter 1 (Gen. 1:2-31 AV) matches up with the timing and sequence of events used by young-Earth creationists (Numbers 2006). In spite of this acceptance of geological knowledge, however, it is important to note that gap theory does not allow for the possibility of human evolution (Eve and Harrold 1991). On this element, gap theorists and young-Earth creationists are in agreement.

The second OEC idea, day-age theory, is heavily reliant on the ambiguity inherent in the translation of Genesis from Hebrew to English and the translation and

interpretation of the Hebrew word *yom* (Eve and Harrold 1991). Even though *yom* is consistently translated as the English word *day*, linguistic evidence indicates that *yom* was not consistently applied to the twenty-four hour day. Instead its meaning is variable, sometimes referring to undefined periods of time and sometimes to the twenty-four hour solar day (Eve and Harrold 1991). Thus, day-age supporters contend the days described in Genesis 1 are of indefinite length, allowing this interpretation of special creation to conflict less with mainstream science (Numbers 2006).

Similar to gap theorists, day-age theorists maintain a fairly literal interpretation of Genesis. Day-age theory outright rejects evolutionary processes (Numbers 2006), instead believing that the variation in *yom* indicates millions of years of creation – all while still maintaining the sequence described in Genesis (Scott 2009). Under this view, each “day” of creation may have been as long as a geological age (Eve and Harrold 1991), with day one representing the creation of matter, day three representing the epoch in which life appears, and day six representing the appearance of modern humans (Numbers 2006).

Scott (2000) points out that this interpretation allows for day-age theory to allow progressive change as found in the fossil record. One notable difference between gap and day-age creationism pertains to the creation of this fossil record. For gap theorists, the fossil record is formed prior to the six day “Edenic restoration”, but for day-age theorists the fossils are formed in days four and five – after the first life appears on Earth as described in Gen. 1:20-31 (AV).

The third form of old-Earth creationism, progressive creationism (PC), is slightly more accepting of scientific doctrine than the previous two forms of OEC. For progressive creationists, scientific evidence supports the big bang as well as the age of

the Earth (Scott 2009). The issue of day length is not terribly important for progressive creationists, many of whom acknowledge that the days of creation may have varied in length or even overlapped (Eve and Harrold 1991). Likewise, they are substantially less literal in their interpretation of Genesis, preferring instead to concede that the fossil record does not perfectly match up with the order of creation detailed in the first chapter of Genesis (Eve and Harrold 1991).

Although progressive creationism is more accepting of modern science, the belief structure does converge with commonly held beliefs within young-Earth creationism. For example, both progressive creationists and young-Earth creationists believe that God created “kinds” of animals, which are typically associated with larger taxonomic groups (general consensus is that a “kind” is approximately equivalent to the family level of classification (Scott 1997a)). The concept of a “kind” and that evolution is possible within kinds is a common element of the creationist version of systematics called baraminology (Gishlick 2006). However, a notable distinction within baraminology is a perceived boundary between micro- and macroevolution (Gishlick 2006). Baraminology allows for change within a kind (also referred to as “horizontal change”) but is accepted by creationists only because they largely view modern variation as a result of the initial basic body plans developed during creation (Scott 1997a).

The final iteration of old-Earth creationism, evolutionary creationism (EC), is quite similar to theistic evolution. Both evolutionary creationists and theistic evolutionists believe in God using evolution as a tool to develop the universe as we now know it (Scott 2000). Evolutionary creationists find fault with the concept of God intermittently intervening in the world, arguing that this interpretation does not bestow sufficient credit

to “the Designer” for his finely-tuned plans (Lamoureux 2010). The distinction between EC and TE is a theological one, with evolutionary creationists typically being more theologically conservative and commonly affiliated with forms of evangelical Christianity (Scott 2000). As Lamoureux notes, “evolutionary creation distinguishes conservative Christians who love Jesus and accept evolution from the evolutionary interpretations of deists... pantheists... panentheists ... and liberal Christians,” (2010:2).

From a historical perspective, most forms of old-Earth creationism originate long before the mid-20th century rebirth of scientific creationism. By the late nineteenth century, Christian apologists readily embraced the concept of an old Earth, conceding that the geological evidence could be easily intertwined with explanations of pre-Edenic life and an extension of time prior to the creation of humans on day six (Numbers 2006). The shift away from a literal interpretation of Genesis allowed Christians to retain a belief in supernatural origins while simultaneously accepting scientific evidence which conflicted neither with a belief in special creation nor with their certainty in the existence of a supreme deity. Even early twentieth century anti-evolution advocates (such as William Jennings Bryan of the infamous *State of Tennessee v. John Thomas Scopes* trial) were embracing the old-Earth perspective (Numbers 2006).

Within the United States, the thirty-two years between the Scopes trial and the launch of Sputnik were relatively calm in terms of challenges to evolution—largely because discussions of evolution were eliminated from post-*Scopes* biology textbooks (Grabiner and Miller 1974). With the launch of Sputnik came a near-immediate allocation of funds for scientific research and education by the United States congress. The satellite challenged American views of scientific supremacy, and a newfound

determination emerged to make sure that American students were among the best educated and scientifically minded scholars in the world (Berkman and Plutzer 2010, Eve and Harrold 1991).

A part of the funds allocated for scientific research were funneled towards the development of new high school biology textbooks through the Biological Sciences Curriculum Study (Eve and Harrold 1991). Over half of the nation's high schools adopted these books after their publication in 1963, ensuring that American students were being formally exposed to evolution (Eve and Harrold 1991). Additionally, in the 1960s many of the antievolution laws on the books had been officially repealed, and by 1970 there were no longer antievolution education laws in effect anywhere in the United States (Eve and Harrold 1991). This double victory for evolution education had a powerful consequence. The previously silent supporters of the antievolution movement were reawakened and emboldened to challenge the perceived assault on their religious beliefs in the name of science (Eve and Harrold 1991).

The intellectual revival of antievolutionism in the 1960s was led by Henry Morris, a professor of civil engineering at Virginia Polytechnic Institute and eventual founder of the Institute for Creation Research as well as the Creation-Science Research Center. With roots in earlier publications¹¹, the 1961 publication of Whitcomb and Morris's *The Genesis Flood* provided exposition of the scientific rationale for Genesis, arguing that the scientific method could be used to provide proof of special creation (Scott 2000). Ultimately, it was Morris's advocacy for what he termed "creation science" which made him the leader of the modern creationism movement (Lienesch 2007).

¹¹ George McCready Price's *Illogical Geology* (1906) and Bernard Ramm's *The Christian View of Science and Scripture* (1954) were both highly influential in the writing of *The Genesis Flood* (Numbers 2006).

Morris's creation science (also known as "flood geology") lies at the heart of the form of American creationism most relevant to the focus of this research: belief in a young Earth. Young-Earth creationism (YEC), unlike theistic evolution or all forms of old-Earth creationism, contends that the planet is roughly 6,000 years old¹², supports creation *ex nihilo*, and denies the biological concepts of descent with modification and macroevolutionary change (Eve and Harrold 1991, Scott 2000). A cornerstone of YEC is the claim that isotopic dating cannot yield reliable results, and that the most reliable basis for dating the Earth is scripture (Dalrymple 2007). Although at times young-Earth creationists are lumped in with individuals who believe in a flat Earth and geocentrists, the vast majority of YECs accept heliocentrism¹³ (Scott 2000).

Creation science and young-Earth creationism are inextricably linked but not completely identical. As noted previously, YECs embrace a young Earth regardless of the mainstream scientific evidence to the contrary. However, not all YECs are concerned with taking a scientific approach to confirming the validity of the Bible. For those YECs who also consider themselves to be scientific creationists, there is an acceptance of the value of science yet a refusal to accept scientific information which conflicts with the Bible¹⁴ (Eve and Harrold 1991).

Data from the General Social Survey indicate that a large segment of Americans prefer religion over science (43%), while an additional 21% of the populace views both

¹² It is worth noting that the 6,000 year claim is traced back to Archbishop James Ussher's calculation that the date of creation was approximately 4004 B.C. However, because this figure is not explicitly fixed in Genesis, some young-Earth creationists do contend that the Earth is slightly older (approximately 10 – 20,000 years old rather than 6,000).

¹³ The concept of a flat Earth arose several times in my interviews with various YEC museum employees. Each time, it was described with derision.

¹⁴ For example, creation scientists wholeheartedly accept that there is value in the fossil record when it is interpreted to reflect a young Earth and provide evidence of Noah's flood, yet reject fossil evidence that indicates an old Earth (including radiometric dating of fossil finds) (Whitcomb and Morris 1961).

science and religion favorably (O'Brien and Noy 2015). Indeed, many individuals who identify as both YEC and scientific creationists consider themselves scientists, either by vocation or by hobby (Locke 1999). This blurred line between scientist and biblical literalist is quite complex, and ultimately one of the reasons there has been substantial controversy over the distinction (or lack thereof) between young-Earth creationism, creation science, and intelligent design.

Intelligent design (ID) is the most recently developed form of creationism in the United States. While the fundamental concept of intelligent design can be traced to William Paley's *Natural Theology or Evidences of the Existence and Attributes of the Deity* (1802), the modern reboot of the omnipotent designer first appears in *The Mystery of Life's Origins* (Thaxton et al. 1984) in the mid-1980s (Numbers 2006). The book argued that for life's complexity to exist there had to be a divine creator. Later proponents of intelligent design, perhaps in an attempt to make this idea palatable to the public at large as well as public education, argued that intelligent design wasn't inherently religious. Rather, they classified ID as an evidence (and science)-based idea, designed to challenge ideas about naturalistic evolution (Numbers 2006).

Variants of intelligent design existed long before the 1980s, but the publication of *The Mystery of Life's Origins* gave this concept new life in a new era. Several years later, the first explicitly ID-themed textbook, *Of Pandas and People: The Central Question of Biological Origins* was published by the Foundation for Thought and Ethics (Numbers 2006). This book, the first to explicitly codify the concept of intelligent design, was actively promoted as a textbook, beginning in 1989 with the publication of the first edition (Hankins 2008). However, these efforts were largely unsuccessful, with the

majority of school districts that evaluated the book determining that it was pedagogically flawed (Scott 1996).

Many of the critiques levied at intelligent design center on whether or not it is truly a separate idea from that of scientific creationism (the idea that statements in the Bible were dictated by God and can be scientifically supported (Kehoe 1987)). Hewlett and Peters (2006) note that even many Christians are critical of ID, finding fault in the idea of treating the Bible as a static, scientific text. Scott (2007:59) describes intelligent design as “creation science lite”, arguing that ID is merely a subset of the larger creation science narrative as it does not contain any unique ideas not found within creation science.

Lambert (2006) notes that the 2005 Dover Area School District trial resulted in the discovery that the definition of creation science in early drafts of *Of Pandas and People* is identical to the definition of intelligent design. “Creation” and “creationism” had been intentionally and systematically changed to “intelligent design” in the later published drafts. Likewise, later works in support of ID (for example, Phillip E. Johnson’s *Darwin on Trial*, and Michael Behe’s *Darwin’s Black Box: The Biochemical Challenge to Evolution*) tried to distance themselves from young-Earth creationism, all the while presenting a disguised creationism (Numbers 2007).

Evolution Acceptance in the United States

Traditionally, education professionals have argued that the more people knew about biological sciences and the principles of evolution, the more likely they would be to accept evolution as an explanation for life on Earth. However, recent research paints a picture that is muddled and complex, with various sociocultural factors influencing an

individual's likelihood to accept evolution. Education certainly does have an impact on evolution acceptance, but sociocultural factors such as religion and the politicization of science are also understood to have tremendous influence on an individual's acceptance of evolution.

Since 1982, Gallup has been asking a three-part question¹⁵ to measure belief in human origins as a part of their Values and Beliefs survey. The most recent Gallup poll indicates that 42% of Americans adhere to a belief in special creation (Newport 2014), down from 46% in 2012 (Newport 2012). An additional 31% of those surveyed believed in some form of theistic evolution, agreeing that humans evolved but only under the guidance of God (Newport 2014). This poll indicates the number of individuals who believe in special creation has held relatively steady (in 1982, 44% of respondents believed in special creation); by contrast, there has been a shift in the number of individuals who accept a strict scientific approach to human origins (9% in 1982, 19% in 2014).

The Gallup data suggest that a large segment of the U.S. populace believes in a conservative form of creationism. Recent data from the Pew Research Center¹⁶ indicate a slightly larger percentage of individuals accepting human evolution. The Pew data indicate that 32% of Americans accept human evolution, while another 24% believe that

¹⁵ From the *Values and Beliefs* survey, the question on human origins reads: Which of the following statements comes closest to your views on the origin and development of human beings? 1) Human beings have developed over millions of years from less advanced forms of life, but God guided the process, 2) Human beings have developed over millions of years from less advanced forms of life, but God had no part in the process, 3) God created human beings pretty much in their present form at one time within the last 10,000 years or so.

¹⁶ From the *Pew Research Center*, participants were asked to identify which statement came closest to their view: 1) Humans and other living things have evolved over time, 2) Humans and other living things have existed in their present form since the beginning of time. If the respondent said they believed humans had evolved over time, they were asked to specify whether they thought evolution occurred through natural selection or through the guiding hand of a supreme Deity.

a supreme being guided the process of evolution (Pew Research Center 2013). The remaining 33% of the sample believe that humans have existed in their present form since the beginning of time (Pew Research Center 2013).

The Pew and Gallup data elucidate what Americans believe about evolution, but don't fully expose the basis for those beliefs. Examining the Pew Research Center's full report (2013) provides a bit more insight. Most notably, Americans appear to differ on evolution acceptance with respect to religious affiliation, political affiliation, and educational attainment (Pew Research Center 2013). These three factors are repeatedly observed as being influential on evolution acceptance in the United States, both within the general population (Gauchat 2008, Mazur 2004, Miller et al. 2006) and within more specific groups (teachers: Trani 2004, students: Martin-Hansen 2008, Paz-y-Miño-C and Espinosa 2012).

Religious Affiliation Within the United States, evolution acceptance varies distinctly across religious affiliation (see Table 3). Among participants in the recent Pew survey (2013), white evangelical Protestants were the group with the largest percentage of individuals agreeing that humans were created in their present form. This was followed closely by black Protestant groups and Hispanic Catholics.

Table 3: Religious Affiliation and Belief in Special Creation

Religious Affiliation	Percent Agreement
White Evangelical Protestants	64%
Black Protestants	50%
Hispanic Catholics	31%
White Catholics	26%
Unaffiliated	20%
White Mainline Protestants	15%

Religious affiliation may be linked tightly with anti-evolution messages, particularly among non-denominational or evangelical Christian groups, leading to a decreased level of acceptance of evolution. Evans (2013) found a connection between conservative Protestantism and science, with conservative Protestants wanting scientists eliminated from the decision making regarding policies about evolution and other sociopolitically controversial scientific topics.

Education The impact of education on evolution acceptance is not as clear-cut. Research does indicate that those who hold graduate degree are approximately four times more likely to believe that humans definitely evolved than those with only a high school diploma (Berkman and Plutzer 2010). These findings (based on the General Social Survey from 1993 – 2004) are mirrored by Heddy and Nadelson (2013), who found that at the state level, there was a strong correlation between evolution acceptance and holding either a bachelor's degree or a more advanced graduate degree.

While higher levels of education have an influence on evolution acceptance, the actual content of the degree matters as well. On an individual level, there is a clear positive relationship with the number of college-level biology courses taken and acceptance of macroevolution (Nadelson and Southerland 2010). Likewise, on the state level, there is a strong positive correlation between the number of science degrees awarded and acceptance of evolution (Heddy and Nadelson 2013). The influence of higher education in STEM fields on evolution acceptance points to the critical importance of scientific literacy on evolution acceptance.

Scientific literacy is, in essence, the level of understanding of scientific concepts. Miller (1983:30) refines the concept of scientific literacy, arguing that scientific literacy

refers less to formal scientific education and more to the ability of the individual to understand and formulate an opinion on scientific concepts. With respect to evolution acceptance, science literacy has a demonstrable effect, specifically as it pertains to what Miller and colleagues (2006) term *genetic literacy*. Genetic literacy, as opposed to scientific literacy, emphasizes the importance of understanding basic genetics in order to understand and accept evolutionary theory.

Evolution Exposure Linked to scientific literacy and education more generally, exposure to evolution is an additional education variable which accounts for all of the ways in which an individual might encounter evolutionary content in their day-to-day lives (Hawley et al. 2011). Exposure can include a variety of sources; informal education venues (museums and zoos), print media (newspapers, books, and magazines), and multimedia programming (television, movies, and various online sources) are all considered sources of exposure to evolutionary content. In examining a population of undergraduate students, Hawley and colleagues (2011) found that exposure to evolution was positively related to knowledge of and attitudes about evolution. This may be an artifact of previous attitudes about evolution. Individuals who hold strong views on socially complex issues (such as the creation/evolution debate) tend to seek out evidence which will confirm and augment their existing beliefs (Lord et al. 1979). Thus, people who already view evolution positively will be more likely to seek out additional exposure to evolutionary theory than those who have a negative view of evolutionary theory.

Religion links to evolution acceptance in two ways: directly through religious affiliation and indirectly through exposure. Religious conservatism has been negatively correlated with exposure to evolution (Hawley et al. 2011), indicating that those who

have been immersed in conservative religious traditions tend to be less likely to seek out scientific information on evolutionary theory. For individuals who are interested in learning about science yet prefer to seek out information which they do not find to be contradictory to their faith, there exist a variety of publishers which cater to a creationist audience. Likewise, periodicals such as *Acts & Facts* (ICR), *Creation* (CMI), and *Answers Magazine* (AiG) denigrate evolution while exalting creation, thus leading to a reduced level of exposure to positive (or even neutral) information about evolutionary theory.

A particular facet of exposure is the individual's level of religiosity. Religiosity is the extent to which people state that religion is very important to their lives (Pew Research Center 2010). In several populations, religiosity has been negatively correlated with evolution acceptance (Heddy and Nadelson 2012, Heddy and Nadelson 2013, Mazur 2004, Paz-y-Miño-C and Espinosa 2012). This link is easily explained. As Gauchat (2008:342) notes, "those with more devotion are probably more cognitively invested in the core religious doctrine of their particular faith."

Politicization of Science Recent years have seen an increasing polarization and politicization of science in the United States. The debate over evolution and creationism has been incorporated into political rhetoric in the United States, with the Republican Party adopting creationism as a part of their platform in several states (Miller et al. 2006). Republicans tend to be less accepting of evolution than either Democrats or Independents, with only 43% of Republicans agreeing that humans had evolved over

time¹⁷ (Pew Research Center 2013). Between 2009 and 2013 the percentage of Republicans agreeing with human evolution has dropped from 54% to 43%.

A closer examination of the ideology of the 2013 survey respondents indicates that the current round of self-identified Republicans are more likely both to consider themselves conservative and attend worship services at least once a week (Funk 2014). This suggests that, at least with respect to the question of evolution acceptance, religiosity (and the refusal to accept human evolution) is related to the tendency to vote Republican (Cotner et al. 2010).

Belief, Authority, and Knowledge Evolution acceptance is intertwined with the concept of belief and the authority which belief can hold. With respect to the creation/evolution debate in the United States, *believe* is used nearly interchangeably with *know*. “I don’t believe in evolution” is a common refrain among American creationists, as though facts were negotiable truths, something one could choose to accept or reject and that would change its meaning. The phrasing is particularly notable, with “believe *in*” denoting a more closely held, personal belief (Smith and Siegel 2004).

Within a statement about belief in evolution or creation there exists an important variable, an arbitrating factor labeled “feeling of certainty” (Ha et al. 2012). Feeling of certainty reconciles the interaction between knowledge and acceptance of evolution, leading one to reject evolution even with a certain level of knowledge. Religious belief is frequently equated with knowing, and as Burton (2008:23) notes, “such knowledge is felt, not thought.” In effect, these creationists are displaying rejectionism as a strategy for dealing with science. Eve and Harrold (1991) describe rejectionism as the practice of

¹⁷ By contrast, 67% of Democrats and 65% of Independents polled agreed that humans had evolved over time.

rejecting any scientific conclusion that contradicts religious belief. There exists a strong correlation between rejectionist ideas and a lack of understanding the nature of science (Eve and Harrold 1991, Mazur 2004).

The concept of rejectionism and the complex relationship between knowledge and belief, evolution and creation, can best be understood through the lens of constructivist epistemology. Radical constructivism in particular holds that knowledge is not passively received, nor is it devoid of social interaction (Staver 1998). Starr (2010) argues that within the dialog about creation and evolution, existing tension between science and religion mediates the construction of knowledge, identity, and meaning. Perceived tension between scientific and religious thinking infiltrates the way in which individuals construct an understanding of the natural world. Messages received about evolution – and human evolution in particular – interact with the individual’s sociocultural framework. It is in this interaction between external information and internalized tension regarding science and religion that allows individualized beliefs about human origins to transform into personal knowledge.

Personal knowledge is linked broadly with education and specifically with exposure (Hawley et al. 2011), but knowledge does not necessarily influence evolution acceptance. Previous studies have indicated that there is no relationship between religious belief and knowledge of evolution (Brem et al. 2003, Ha et al. 2012). However, still others have found that there appears to be a link between religious affiliation and understanding of evolution (Cotner et al. 2010, Trani 2004). Thus, while knowledge may play a role in increasing evolution acceptance, it is far less powerful a predictor than the sociocultural factors identified in this chapter.

Evolution Acceptance in American Museums

The primary goal of this dissertation is to develop understanding of the various ways in which museum authority is used to promote the cultural reproduction of young-Earth creationism. Understanding the diversity of viewpoints among American creationists is important, but museum professionals are not always able to identify the specific beliefs and theological outlook of visitors. This results in the general label “creationist” being applied by museum employees. For creationist visitors, as will be demonstrated in the subsequent chapter, activities in the museum are less about equality and legitimacy, but more about reinforcing biblical authority while questioning the authoritative knowledge produced by mainstream science.

Museum visitor populations tend to be better educated and more accepting of scientific concepts than the general American public (Growick 2007, Spiegel et al. 2006). Of visitors surveyed at the New York Hall of Science, 49% agreed with the statement that evolution was a “completely or mostly accurate account of how humans were created and developed” (Stein and Storksdieck 2005). A recent study using the Measure of Acceptance of the Theory of Evolution (MATE) device (Rutledge and Warden 1999) at the Milwaukee Public Museum reflects this pattern, with 64.8% of visitors falling into the “High Acceptance” or “Very High Acceptance” categories (Barone and Buntin 2014).

A more nuanced examination of evolution acceptance in museums reveals a differential in acceptance of general versus human evolution. Visitors tend to be more willing to accept evolution as a process that affects the non-human biological world than a process that has shaped modern humans (Spiegel et al. 2006). This cognitive separation of humans from evolution in the rest of the living world is unsurprising, as this is a

distinction found among the general public as well. Data from the 2013 Pew Research Center survey indicates that Americans are less likely to accept human evolution than animal evolution (Table 4). This differential remained constant between age groups and educational levels – in every instance, more individuals were willing to accept animal evolution than human evolution (Pew Research Center 2013).

Table 4: Acceptance of Human Evolution versus Animal Evolution

	Accept Human Evolution	Accept Animal Evolution
Age Group		
18-29	68%	73%
30-49	60%	64%
50-64	59%	62%
65 +	49%	50%
Education Level		
H.S. Grad or Less	51%	52%
Some College	62%	64%
College Grad +	72%	77%

Because evolution acceptance is linked to education and exposure, museum populations may well be more accepting of evolution than the general public simply because they are interested, have positive experiences, and seek out additional exposure to the material. Additional exposure equates, potentially, to additional knowledge (therefore increasing scientific literacy) and a hypothetically more positive view of evolution (Hawley et al. 2011). Natural history museum visitors do appear to know more about evolution than the general public (MacFadden et al. 2007) and are less likely to engage in creationist reasoning (Evans et al. 2010).

These studies support the common belief among museum professionals that creationists are not visiting natural history museums. However, I will demonstrate in subsequent chapters that the activities of young-Earth creationists are not exclusively

limited to the realm of creation museums. Instead, evidence indicates that creationists do frequently engage in activities within natural history museums in an attempt to establish educational equality, academic legitimacy, and supreme biblical authority.

Conclusion

This chapter has examined the complex suite of educational, political, and sociocultural factors which muddle the issue of evolution and creationism in the United States. It has also considered the development of many variations of creationism which have arisen in the U.S. during the latter half of the twentieth century. There are a variety of factors that influence one's acceptance of evolutionary theory and its applicability to the human species. However, I contend it is religion (both exposure to and specific affiliation with) that plays the biggest role. The relationship between creationism and American museums is primarily about facilitating the cultural reproduction of religious beliefs about special creation and a literal interpretation of Genesis. Functioning as authoritative venues, museums provide a secular arena for promoting religious ideas.

Ensuing chapters will elucidate this issue as it pertains to creation science (and young-Earth creationism) within the authority of the museum. Each chapter will highlight a different aspect of museum authority and creationism. Chapter three will focus on creating authority in creation museums, chapter four will emphasize contesting authority in natural history museums, and chapter five will explore creationist tools for subverting authority in different types of secular museums. These three interactions combine to create a tripartite model of how museum authority is used to assist in the ongoing quest for cultural reproduction of young-Earth creationism.

CHAPTER 3
CREATING AUTHORITY:
BELIEVERS AND THE CREATION MUSEUM CONCEPT

The 2007 opening of the Answers in Genesis Creation Museum marked the peak visibility of the largest creation museum in the United States. Public discourse about this institution has ebbed and flowed since, most recently cresting with the highly publicized debate over human origins and nature of science between Bill Nye and Ken Ham. While bringing the evolution/creation discussion to the forefront of American minds for a few weeks in early 2014, the debate also brought a renewed focus on the preeminent museum exhibiting these ideas.

Over the course of this project, I conducted interviews with staff members at six different creation museums: five that were currently open and one that had closed and was in the process of re-opening. From the first interviews I completed, a few days before the Nye/Ham debate, to the final interview five months later, people were talking about the debate. They shared their perceptions of Ham's performance, questioned the credentials of Nye, and were enthusiastic supporters of Ham's message of "biblical creationism".

The distinction between young-Earth creationism and biblical creationism is a question of identity. The central concepts of the two perspectives (belief in the six day creation model, adherence to the concept of special creation) are the same. So why the different labels? Ken Ham (n.d.) explains that "by making our primary title 'young-earth creationists,' we seem to agree that the debate is merely over the scientific evidence of the age of the earth....While examining the evidence is valuable, the issue is not the evidence itself. The main issue is our starting point for interpreting the evidence – either

fallible human opinions or infallible Scripture.” Certain individuals may consider themselves young-Earth creationists; however, over the course of my interviews it was much more common to hear people label themselves either “biblical creationists” or “Bible-believing Christians”. Each of these labels, however, held the same connotation: belief in a young earth and adherence to a literal interpretation of the Bible as the inspired word of God.

Embracing the title of “biblical creationist”, as Ham encourages his followers to do, makes one thing abundantly clear: the governing authority of the natural world can be found within the pages of scripture. This authority is unquestionable and is reinforced by the scientific paradigm developed for the purpose of scientifically validating scripture (creation science). The authority of creation science can then be converted into a useful tool which facilitates the transmission of biblical creationism from one generation into the next.

Consideration of creationism and engagement with the museum format will ultimately stumble upon one incontrovertible truth: that the museum is an authoritative locale, and that the museum format intrinsically imbues information with an air of authority. Previous work has examined various aspects of creation museums (Asma 2011, Duncan 2009, Stevenson 2012), but no one has undertaken a multifaceted examination of young-Earth creationism as a social movement utilizing museums – both creation and natural history - as an authoritative form.

Over the course of seven months, I conducted sixteen interviews at six different creation museums (the institutions, their locations, and their missions are listed in Table

5). The institutions were chosen because they represent various points in the creation museum life cycle¹⁸ and range in size from approximately 70,000 ft² to 4,500 ft².

The interviews I conducted at each museum were enhanced by viewing and thoroughly scrutinizing the exhibits. This enabled me to not only analyze the words of the museum's employees, but examine what their museum is actually presenting. Qualitative analysis of interviews was conducted using MAXQDA version 11

¹⁸ One museum had opened one week prior to my arrival, one was closed, and the other four were actively receiving visitors.

Table 5: Creation Museums and their Missions

Museum	Date Visited	Mission
Akron Fossils and Science Center Akron, OH	March 28, 2014	How we answer questions of origins is critical to how we view ourselves, our families, our community, our nation and our world. Are we the result of billions of years' worth of accidental random processes? Or are we instead the products of design with a purpose? Could there be an intelligent designer who is the mastermind behind all that we observe in the universe? Our Science Center was established to try to provide answers to these important questions.
Creation and Earth History Museum Santee, CA	February 13, 2014	To provide scriptural and scientific evidence that reinforces the biblical account of creation and support the body of Christ in fulfilling its commission in offering educational and evangelistic opportunities through interactive museum experiences and activities.
Creation Experience Museum Branson, MO	April 30, 2014	The purpose of this museum is to introduce our guests to the reliability and accuracy of the Bible. We do this through exhibits that show support for the Bible from the sciences, such as archaeology, biology, and geology. Therefore, our worldview at Creation Experience Museum includes the Creator, who has revealed Himself to His creation in many and various ways.
Creation Museum Petersburg, KY	January 9, 2014	We proclaim the absolute truth and authority of the Bible with boldness. We relate the relevance of a literal Genesis to the church and the world today with creativity. We obey God's call to deliver the message of the gospel, individually and collectively. ¹⁹
Glendive Dinosaur and Fossil Museum Glendive, MT	April 25, 2014	The mission of the Foundation Advancing Creation Truth and its related ministries is to glorify God as Creator and Sustainer, emphasize man's accountability to Him, and challenge the hearer/visitor to think through the humanistic concept of evolution. Currently this is achieved through the Fossil Digs at Glendive where fossil excavation of dinosaur bones is done in the context of the flood of Noah's day.
Lost World Museum Phoenix, NY	July 3, 2014	The Lost World Museum is dedicated to exploring the origins question through comparing and contrasting archeological, geological and anthropological evidences from both an evolutionary and creationist perspective.

I will argue that there are three important reasons why young-Earth creationists have leaned on the museum form - evangelistic education, establishing scriptural authority, and undermining scientific authority – and that each of these goals helps

¹⁹ There are no separate mission statements for the Creation Museum and Answers in Genesis, the museum's sponsoring organization. The same is observed for the Glendive Dinosaur and Fossil Museum and its parent organization, the Foundation Advancing Creation Truth.

facilitate the cultural reproduction of young-Earth creationism. Each of these will be considered in-depth in the coming sections.

Evangelizing Education

The employees and volunteers I spoke with over the course of this project were excited to share their faith, and as critical components of creation evangelism, the museums enabled them to do just that. Of prime importance is the ability to evangelize for creation to the younger generations. One individual shared his thoughts on the relevance of his institution in achieving this goal, telling me:

And like so many people in America, they've gone to church and all of the sudden by the time they get to college, because college is teaching you completely different things than your family's teaching you. They teach you things and you go, wow, these guys have been lying to me! This is it, I'm not going to go to church any more. And that's what happens. Kids are starting to leave church, just check out basically, in junior high. Much earlier than people thought that they did when they went to college...And that's why it's such an important deal right now to be able to try to show people the other perspective because basically the other perspective is being closed off. [Interview, exhibits staff member].

The relationship between the museum and the visitor as a tool for spreading information was mentioned by individuals in other institutions as well. For instance, another museum employee shared that:

It is used to educate. A lot of times I find Christians who have not really been in the Word of God so they really don't understand. Sad to say, there are many Christians who will not open up the Bible to see or even try to study it out. So this is a way of stimulating that. To maybe go back to the scriptures to search for themselves. [Interview, visitor services staff member]

Educating and evangelizing about the word of God is most certainly at the center of each creation museum's mission statement. The mission of each participating museum for this project is summarized in Table 5.

Each of these mission statements focuses on educating the public about an alternative (Christian) interpretation of the world. The perception about the target audience, however, was divided. Some employees noted that their exhibits were designed explicitly for people who already believed in the creation message. When asked about the strength of their museum, one employee told me that “it gives Christians, first of all, who visit here an opportunity to see that as they would have expected, God’s word is beautifully consistent with what we see in the natural world...So I think one of our strengths is being able to teach from a biblical and creation point of view to people who want that,” [Interview, curatorial staff member].

An additional consideration was that of being able to share the message unopposed. A volunteer at one museum told me that museums “provide a place where the creation message can be given and some of the distractions that might otherwise interfere with it or some of the considerations perhaps from the pulpit aren’t present. And we have a very focused view that we are able to provide,” [Interview, museum administrator].

Although several individuals said their institutions were designed primarily for Christians, there is also a pervasive opinion that the museum can be used to bring non-believers into the fold²⁰. In these cases, education is secondary to evangelizing. As one person describes, their museum was created so visitors could:

... read the scripture like you’d read through the Bible and let the Holy Spirit use that to talk to people and then we don’t have to try to explain it and then there’s, you know, well that’s just your opinion of what this says. OK, this is what God says, so that’s God’s opinion. And that seemed to work really well. It resonated with our base and the ministry’s an outreach to the church anyway. So this was an outreach to the church, but a place that was going to have plenty of scripture, plenty of gospel throughout the whole thing. So people could bring friends that they wanted to encourage to consider Christianity. It was kind of an evangelistic

²⁰ In this case, “non-believers” includes all individuals – Christian or not - who do not believe in biblical creationism.

weekend for somebody, our evangelists could take or bring a friend and it's like taking them to church in a way without the stigma or the resistance that people have going to church. [Interview, museum administrator]

There is little doubt that evangelizing was one of the main goals in developing museums of this sort, but the extent to which believers are using these museums for witnessing to their non-Christian friends remains undocumented. As Dean (1994) observes, museum visitors encountering items that run contrary to their worldview are typically quite uncomfortable and may not have a pleasant experience, thus reducing the chances that evangelizing will be successful in this context.

Like secular museums, creation museums are an educational forum. Employees and volunteers touched on the concept of seeing the information in a different context and the importance of visual presentation. One person said that museums were important for creationism because they were “able to present the message here in a visual way, with interactive exhibits. And it's a fun place to come and spend the day. There's a lot of fun, interactive and engaging ways for people to just hear the message here,” [Interview, exhibits staff member].

This opinion was echoed at another institution, with an employee indicating that she thought creation museums were useful because:

People like to look at stuff. You know, when you go to a museum, you want to look at stuff. And in order to give the creation science message an opportunity to explain the processes and how we think and how we interpret the fossil record, it's important for people to actually be able to see the items in front of them. So a museum is much better able to do that than a documentary or a book, in my opinion. People can go see the fossils themselves. They can see the hands-on demos and the presentations, and they're better able to make the connections, I think, than just reading a book. [Interview, museum administrator].

Another person touched on the fact that the museum setting may appeal to many different kinds of learners, telling me that:

There's just something when you have an opportunity to see the fossils and then see the interpretation, it gives people access to this type of information that may never buy a book ever. You know, they won't buy the first book on creation or evolution, I mean they're just not going to do it. But they're going to visit a museum. So it becomes a gateway to introduce new ideas. People never would have considered it, they go to the museum, they see things, they begin to percolate, ideas begin to percolate in their minds, and they may be at that point, they will actually read an article or buy a book or something like that. So it really serves as kind of an entrance into a different way of thinking that might never happen in any other forum. [Interview, museum administrator]

The concept of using the museum to introduce new ideas was reiterated by several interviewees, with a docent noting:

I might go to a museum just for one topic, but I'm going to see all kinds of stuff that I may have never thought of before. And I love to learn. I think it's important to all through your life to continue learning. It helps you grow as a person. And I think that's what this museum does for people. It's like, you can see it right in front of your face. That's what it did for me; it actually made me think about things I never thought about before. [Interview, docent]

In this respect, creation museums and secular museums are similar. For visitors, the exhibits are curiosity and personal interest-driven. This allows what Falk and Dierking (2002) have termed "free choice learning" to occur. The engaged visitor selects what they are interested in pursuing, and they follow that through the museum and out into their daily lives.

Although the basic purpose of creation and secular museums is at least superficially the same, a major aspect creation museums is to supplant scientific and secular authority²¹. The proliferation of creation museums enables those involved to achieve this goal through two techniques: using the museums to establish scriptural authority while simultaneously exhibiting secular topics in the hopes of diminishing the authority of secular science and elevating the authority of scripture.

²¹ An additional strategy involves attempting to influence the content of textbooks used in public schools.

Establishing Scriptural Authority

Label text at the Creation and Earth History Museum in Santee, California – the oldest creation museum in the United States, with roots that stretch back to 1976 – familiarizes the visitor with the museum and the exhibits at the museum. This welcome label clearly introduces the museum’s perspective, immediately greeting the visitor with the following statement:

Most museums are developed around a naturalistic interpretation of history. The Creation and Earth History Museum and its exhibits are based on Biblical history, beginning with the creation account in Genesis 1. This museum provides a chronological journey through history, moving from the creation through the rebellion of humanity against the Creator, the worldwide flood of Noah’s time, the rebellion and dispersion at Babel, the history of Israel and the Gentile nations, the redemptive work of Christ, the Reformation and advent of scientific disciplines, the creation/evolution debate since Darwin, current science research by creation scientists, and the consummation of all God’s purposes in creation when Christ returns.

The topics listed in this first label are unsurprising – just about every creation museum in the United States features some (or all) of these topics in their exhibits. These topics fit nicely in with the previously discussed educational mission of these museums. What is implicit (or, at times, explicit) in all of these missions is the ultimate authority of scripture assigned by believers in this particular fundamentalist interpretation of Christianity. Education may be a piece of the museum’s mission, but the larger overarching theme is that of creating a forum for establishing biblical authority in a neutral setting (the museum).

Several interview participants touched on truth and authority, telling me that “people think that if it’s in a museum, it must be true. So they go to the Museum of Man and everything is millions and billions. Oh, it’s in the museum, it must be true. So we

have to counter that with the same physical evidence in the museum. That's what I think," [Interview, docent]. Simply by existing in the physical form of a museum, authority is imbued into the material being presented (Cain 2008).

It is through the establishment of academic parity and legitimacy as well as the deconstruction of science as a tool of doubt that young-Earth creationism utilizes museums to elevate scriptural authority and biblical supremacy. I will explain each of these topics in turn.

Parity and Legitimacy The San Diego Museum Council is an organization which exists to "increase awareness, connect, provide services, and advocate for the diverse museums within its membership," (San Diego Museum Council n.d.). The museums which belong to the council are diverse in size and scope, but all must meet the AAM definition of a museum as well as a set of operational guidelines to be admitted and receive the benefits of membership (San Diego Museum Council n.d.). In a close vote conducted in late 2013, the Creation and Earth History Museum was denied membership to the council for failing to meet animal care, exhibitions, and storage standards (Carone 2013). The reasons for denying the membership were well within the council's guideline, and yet, the issue became about religious persecution. Tom Cantor, current owner of the museum, stated that he believed the membership application was rejected due to "prejudice against God" and likened the museum's existence to the American Civil Rights Movement of the twentieth century (Carone 2013).

Arguments about organizations and individuals being prejudiced against creation museums are not new. Several interviewees touched on this theme when speaking with me. One individual told me that he believed there was a "phenomenal amount of

governmental control and you've got organizations that don't want you to even think about certain things over here. They want to outlaw every semblance of Christianity in America. That's the goal of what's going on right now," [Interview, exhibits staff member].

This claim was echoed at a different institution, where I was told that "America will not allow a museum like this fifty years from now... I do think that there's a legitimate concern that, you know, creation-based anything and homeschool-based anything will be outlawed in the future," [Interview, museum administrator]. Museums effectively become a tool for combating the perceived prejudice and persecution, becoming a "safe space" for expressing the young-Earth ideology.

For believers, this "safe space" is a blessing – somewhere they can go and see their faith reflected in the exhibits. Stevenson (2012:99) observes, "For creationists who reject the evolutionary narrative of earth science, publicly co-opting the museum genre serves to legitimize their beliefs as it simultaneously denies the ultimate authority of the traditional natural history museum." The legitimizing/denying paradigm is a critical element for the existence of creation museums. Several of the museum employees touched on its importance during their interviews. One person told me his creation museum was an important destination for his family because "it's a place I can take my kids and teach them what I believe is true....It's well done and it's a place where we can go and get a different message than you're going to get from natural history museums," [Interview, marketing staff member].

This idea of being an equivalent alternative to a mainstream natural history museum was echoed by another museum employee, who described his institution's goal of providing a counterpoint to secular museums:

The museum is very kid friendly... Because they're the ones who are getting the evolutionary indoctrination more than the adults. In their schools, in the media, and then the natural history museums. So the museum was meant to be kind of a counter as much as we could to big museums like the Smithsonian or the Field Museum, which is an incredible museum. So there's that brick-and-mortar idea of trying not to compete, we're not trying to compete with the Field Museum, but at least offer an alternative to people. [Interview, museum administrator].

As this employee points out, creation museums have overlapping, intrinsically linked roles. These institutions may be viewed as safe spaces for biblical literalism while simultaneously serving as an intellectually legitimate scientific alternative that can be used to support biblical authority.

In discussing museums as heterotopias, Lord (2006:3) writes that the "heterotopia is a space of difference, in which ordinary cultural emplacements are brought together and represented, contested, and reversed." This is precisely what can be seen within the built environment of creation museums. Both creation science and mainstream science are combined with a religious perspective, thus providing a centralized setting for a space of representation (Foucault [1970] 1994) and a sense that what is being presented is just as academically legitimate as mainstream scientific thinking.

Creating this air of equivalency is where creation science becomes an integral component of many of these creation museums. For many interviewees, it appeared to provide reinforcement. One person described their museum's content, saying:

There is science that validates the position...so museums have an attraction to folks who are interested in knowledge or are interested in learning more about a particular subject. Why not creation? If you're interested in learning about the creation museum, whether you agree with it or not, why not come look at it? We

present it in a way that I think is logical and well thought out. We have a lot of folks that know what they're doing, we have a lot of Ph.Ds on staff. It's not just some guy in the back room cranking out papers. So, yeah, I think it's important to present it in a museum atmosphere because it gives it legitimacy. [Interview, marketing staff member]

Another employee, frustrated with the constant attacks on his museum complained, "There are thousands of museums teaching the opposite. What is wrong with one teaching what we believe? ... For some reason, obviously, people are vehemently opposed to us. So the negative I usually hear is about the science...It's not about the museum, it's not about the people. It's about the science," [Interview, marketing staff member].

The construction of academic legitimacy for creation museums hinges primarily on creation science. Creation science (also known as scientific creationism) is the discipline which is used to reinforce scriptural authority from a scientific perspective. Creation scientists are typically Protestant fundamentalists that reject evolutionary theory, uphold Genesis as the accurate account of our origins, and do so under the guise not of belief, but of academic authority found in science (Locke 1999). Toumey (1994) argues that while the primary goal of creation science may be inclusion in public education, the much larger impact has been to call into question the validity and credibility of evolutionary theory, thus providing Christians a reason to believe that the Bible and science can comfortably coexist.

Certainly creation science adds to the appearance of academically sound science occurring at these institutions and affiliated research centers. For many believers, however, having scientific reinforcement is really secondary to simply acknowledging the supreme knowledge of the Bible and the fact that for many the Bible is considered an

academically cohesive text. One participant shared with me their perception of the role of the creation museum, stating:

I think it's a way to display historical evidences and build credibility. It's really a way to strengthen people's faith. But where can you see these types of things? ...Like I said, there's nothing from the world point of view that's going to show anything that we're showing here. In the, giving it the interpretation that, the meaning from a Biblical perspective...People get together, they have fellowship, and they talk about things that are important to them and why these things matter. And it's just a good place to, you know, why do we have museums around the world? I mean, they're all for educational purposes and we're here to educate regarding the Bible and creation. [Interview, museum administrator]

Likewise, another individual emphasized the fact that creation museums exist “to be able to bring people back to the Bible, to think about the Bible as real history. Because the secular world is basically trying to say the Bible is just nothing but a book of fables,” [Interview, exhibits staff member].

Effectively, the museum form becomes a way of showing the perceived reality of the Bible. For young-Earth creationists, the Bible is not mythical. It is an accurate account of the history of the world. By displaying the biblical text in a museum setting with science they feel reinforces the account in Scripture, biblical creationists are attempting to achieve parity in the larger secular landscape of human origins.

Undermining Evolutionary Science

Walking into the Creation and Earth History Museum (CEHM), the visitor is immediately engulfed in darkness. This is intentional, as the first part of the museum is designed to mimic Genesis and the six days of creation. In this dark room visitors are immediately oriented to the worldview represented in the museum. Label text proclaims:

The tree of evolutionism bears only corrupt fruits; Creationism bears good fruits...There are only two basic worldviews. What one believes about his/her origin inevitably affects beliefs about destiny, the meaning and purpose of life,

and daily behavior. It is vitally important that we and our children believe and obey the Biblical teachings on Creation.

The positioning of evolution as something that leads to moral decay is not unique to CEHM. Indeed, not only is it featured in other creation museums, but the evolution and moral decay equivalency is common in the rhetoric of the antievolution movement (Catchpoole 2009, Price 1925, Toumey 1994, Weinberg 2014).

As discussed previously, creation museums are important for the young-Earth movement because they mimic the form of authoritative academic institutions. The museum form is likewise used to instill perceptions of scientific errancy in the secular worldview. This stands in contrast to another one of the major identifying elements of young-Earth creationism: the belief in biblical inerrancy and therefore belief in the biblical origins of the world and human existence. This is the piece of each creation museum which is dedicated to discussions of fraudulent information, falsified claims, or reversals in thinking among the scientific community.

Creating Doubt In the course of this project, I visited eight institutions²² which exhibited creationism (the Cabazon dinosaurs, however, are not positioned explicitly as a creation museum but did still proclaim elements of the young-Earth narrative). In these visits, not only did I encounter exhibits trying to debunk well-understood fossils (such as *A. afarensis*²³), I routinely saw discussions of three contentious pieces of scientific history: Nebraska Man, the Piltdown hoax, and Haeckel's embryos. Haeckel's embryos are not fossil or fossil-like material, but they are still upheld as examples of evolutionary

²² I viewed exhibits at eight institutions, but formal interviews were only conducted at the six institutions listed in Table 5. The two additional institutions included are the North Carolina Museum of Creation, Taxidermy Hall of Fame of North Carolina, and Antique Tool Museum as well as the Cabazon Dinosaurs in Cabazon, California.

²³ *Australopithecus afarensis*, first formally named in 1978 by Johanson and colleagues, is represented in the fossil record by hundreds of known specimens (Cartmill and Smith 2009).

lies. More interesting for the discussion of human evolution in creation museums is the treatment of hoaxes in the history of paleoanthropology.

On the website for the Creation Education Center, a section is labeled “for skeptics”. This section includes a description of the faulty nature of hominin fossils, noting that “all examples of alleged ‘ape-men’ fall into one of three categories: (1) An ape that was made to look more ‘human-like’. (2) A human that was made to look more ‘ape-like’. (3) A fraudulent or accidental mix of ape bones and human bones,” (Creation Education Center 2014). The contention that the hominin fossil record is skewed, exaggerated, or completely incorrect is common and will be examined in its own right. First, however, I will consider the final item in this list – fraudulent fossils – as a frequent weapon in the creationist arsenal.

Piltdown is perhaps the most well-known of the hoaxes which feature the hominin fossil record. Excavated between 1908 and 1913, the Piltdown Man (given the scientific name *Eoanthropus dawsoni*) was initially proclaimed to be a human ancestor. It was later found to be an amalgamation of human and ape bones (Straus 1954). Pro-creation label text at the Cabazon Dinosaurs (taken from a 2003 BBC article) boldly proclaims “Piltdown Man Was a Fake” and gives the impression of a massive hoax being perpetrated, with scientists the world over being blindly fooled. In reality, as Straus (1954) describes, even immediately after the “discovery” of Piltdown Man, many scientists were uneasy with the claim that it was a human ancestor, noting that the cranium and jaw did not appear to be of the same species. However, it wasn’t until the conclusion of World War II that new techniques became available which assisted in proving the fraudulent nature of the Piltdown find (Agin 2006).

In an analysis of three major creation ministries, Benton (2014) found that Piltdown Man was either the most referenced “hominin fossil” or was second only to discussions of Lucy. Benton writes “although it is a hoax and therefore has no impact on modern paleoanthropological thinking (save as a cautionary tale), references to the irrelevant Piltdown man outweigh references to each of the legitimate fossils except Lucy on all of these sites,” (2014:3). The fact that Piltdown is irrelevant in modern paleoanthropology is, in itself, irrelevant for the young-Earth creationist. In fact, it serves as proof of the fallibility of modern science and becomes a nice counterpoint for the infallible word of God²⁴.

Like Piltdown, the so-called “Nebraska Man” is also held up as an example of an evolutionary hoax. Unlike Piltdown, however, Nebraska Man is less well-known in 21st century paleoanthropology – perhaps due to the less deliberate nature of the mistaken identification. Initially discovered in 1922, the tooth identified by Henry Fairfield Osborn as *Hesperopithecus haroldcookii* was at first proclaimed to be evidence of an anthropoid ape in North America. Quickly, however, this claim was invalidated and by 1925 Osborn ceased publishing about the specimen as it became clear that what was at first identified as a human ancestor was, in reality, a pig (Wolf and Mellett 1985).

Interestingly, Nebraska Man is more thoroughly explored in the museum context than Piltdown Man. Creationist materials are filled with references to Piltdown, yet only the Cabazon Dinosaurs mention the Piltdown hoax in their displays. Nebraska Man, however, appears in two of the eight creationist attractions I visited. Label text at the

²⁴ As Branch and Scott (2013) note, the fact that Piltdown Man was rejected as a hoax is actually proof that the scientific process is self-correcting and able to test and re-test information to validate it. This point, however, is largely ignored by creationist organizations.

Glendive Dinosaur and Fossil Museum (GDFM) provides their take on Nebraska Man, explaining that:

This example has all the ingredients of the “monkey to man” game: a discovery is made, a prominent scientist(s) interprets the data in the framework of current scientific (evolutionary) thinking, the popular press bridges the gap between the scientist and the lay person, and in the process, “fills in” a few details. The man on the street or the student is presented with an image that will be retained, that man arose from apes.

Within this single label, the museum clearly conveys the opinion that modern science cannot be trusted because the evolutionary thinking taints interpretations of new discoveries in the fossil record. This same label also points out the link between Henry Fairfield Osborn and the American Museum of Natural History, implicitly calling into question the ultimate scholarly authority of the museum and the evolutionary perspective it represents.

Five of the seven exhibits I visited exhibited debunked information despite its ineffectiveness. As one museum staffer told me:

So you can teach a positive with just an image, but you can't teach a negative without reading or very, very difficult. We have the picture, you know, the monkey-to-man progress. And we have, you know, a big, huge sign and we've got monkey on one end and man on the other end and fraud, fraud, fraud, fraud for all the in-betweens. And people still walk away from that and they don't even see the x-ed out frauds. They don't even see it. So we're – even with that, I hear mothers telling their children, you know, saying “See?” you know, and they completely missing it. “See? Here's evolution” and so of course we don't want to do that. We don't want to reinforce it. [Interview, museum administrator]

Research on museum visitors does reinforce this observation. Few visitors will take the time to carefully read every word of an exhibit (Dean 1994, McManus 1989) and many prefer to view objects over reading text (Bitgood 2003). Having text-heavy exhibits which are intended to discredit the evolutionary worldview may be unclear or have the opposite effect on the visitors.

The use of discredited finds in creation museums speaks to the general rhetorical strategies of young-Earth creationism. Piltdown and Nebraska Man are common talking points among young-Earth creationists and are frequently invoked as examples of how the scientific establishment cannot be trusted when it comes to the science of human origins. Many YECs are convinced of the utility of these examples, and therefore many of these examples trickle down onto the museum floor. In reflecting on the Nebraska Man episode and the nature of science, Wolf and Mellett (1985:41) write:

...the issue relates to the fundamentally different values that creationism and science place on error. Creationists are quick to point out error by scientists, and ridicule it. They go on to argue that error and disagreement among specialists are indications that the fabric of science is coming apart, and that it will eventually collapse, with creationism reigning triumphant after Armageddon. But what creationists ridicule as guesswork, and trial and error, and flip-flopping from theory to theory, are the very essence of science, the stuff of science. Error correction is part of the creative element in the advance of science, and when disagreement occurs, it means not that science is in trouble but that errors are being corrected and scientific advances are being made.

An additional consideration in analyzing the construction of doubt is the source material for many of these museums. Although some museums (such as the Answers in Genesis Creation Museum) utilize label text written by their in-house staff, others lean on label content directly from previously-published literature. In particular, several of the locations I visited relied heavily on Marvin Lubenow's "Bones of Contention" for their label text, even going so far as to use passages word-for-word from the book. They do not take into consideration special techniques for writing label text, instead focusing on providing a thorough deconstruction of these frauds in order to reinforce a critical point: that science can be – and frequently is – wrong.

Serrell (1996) describes several major missteps of writing museum labels, pointing out that labels that are too long and wordy (such as lengthy book excerpts) are likely to decrease visitor comprehension. The creation of wordy exhibit labels which originate verbatim from a book highlights the relative lack of professionalization of creation museum staff. Each individual I spoke to described how they wound up at their museum, telling me that God was calling to them and how they intended to have a career that was dedicated to honoring Him. As one individual expressed to me, “I begin with the assumption that there is a God, there is a creator, and how more importantly could one spend one’s life, the last 10 or 15 years, encouraging others along those lines?” [Interview, curatorial staff member].

There was no shortage of passion for evangelizing through creation science. However, very few of the employees had any formal museum training and only one reported having worked at a different museum prior to becoming affiliated with their current institution. Many museums eagerly discuss having Ph.Ds validate the information they are presenting (or, in some cases, that the information derived from various creation science publications), however, there are few institutions which have these individuals on staff. Of the six museums I conducted interviews at, only one (the AiG Creation Museum) retained individuals with advanced scientific credentials on staff.²⁵

Suppressing Scientific Truth Several individuals alluded to a scientific conspiracy to suppress the truth. In discussing Noah’s flood, for example, one individual told me that:

²⁵ This may be in part a function of the economic realities of creation museums. Answers in Genesis as a whole (and the Creation Museum specifically) is extremely well-funded. Their last available IRS 990 form (found on charitynavigator.org for 2012) listed the total revenue as \$19 million.

The biggest thing that we're doing here is we're looking at things that people have said have been mythical. And one of the things is whether people say they believe that the, or the science community, let's say, both says that they believe that there was not a worldwide flood based upon why they think all these things happened, et cetera. I mean there are so many things that they can't answer that if you actually think about a worldwide flood, it actually makes more sense, the way that so many things are formed. But they don't want that message to be out there. [Interview, exhibits staff member]

Likewise, another participant attacked the process of modern science, stating:

You've gotta understand that the evolutionary "theory" is very, very well thought out, very well-funded. They've had 150 years of concentrated effort to forward this and I'm going to sound like, forward this agenda so to speak. Forget about science....we're an impure people and we take that to whatever we're doing. And I'm not saying that there aren't scientists that are pure of heart. There are. But they're the ones that I think are being pressured by those who are stuck in a philosophy. And some people are not knowing what they're doing and other people are knowing full well what they're doing. [Interview, museum administrator]

The implication in this statement, of course, is that the wholehearted support in the scientific community for evolution by natural selection is part peer-pressure, part science, and part conspiracy. Another individual touched on the "agenda" of the secular world, telling me that "showing all of these things as real history is an opportunity to help people see something that the secular world out there's not telling them. And the secular world has an agenda. Nobody comes into life without an agenda. You either see things through we say biblical glass or secular glass," [Interview, exhibits staff member]. This attitude feeds into what Lewandowsky and colleagues (2013) describe as the "motivated rejection of science", wherein individuals who are more inclined to suspect widespread conspiracy are also more likely to actively reject acceptance of scientific fact.

A similar message of distrust comes across in several of the creation museums I visited as well as the language used in creationist materials for visiting secular

museums²⁶. Alongside messages of truth suppression were messages that all scientists who are Christian perform scientific inquiry that confirms the Bible – for example, at the Creation Experience Museum visitors are greeted with a label which proclaims “scientists who are Christians interpret and see the evidence as agreeing with Biblical history. The facts and the evidence in the world and universe around us are the same for creationist and evolutionist [*sic*]. Evolutionary scientists (and some Christians) attempt to interpret the evidence in order to make it agree with evolutionary theory.” The final sentence of this label clearly demonstrates the belief that secular science is attempting to make connections where there are none. Instead of the evidence supporting evolution, evolutionary theory becomes the mold to which everything must conform.

Deconstructing Scientific Fact In addition to pointing out the scientific errors in evolution, there is one other tactic used to create scriptural authority: the deconstruction and attempted discrediting of scientific fact. This intention was described by several individuals. One person, while discussing their museum, described to me the intention of conveying information in an “us versus them” framework:

...something like this, something like a theme park or a museum has the opportunity to be able to tell that story... It’s showing a collection, or a way to be able to tell that story, and it’s based upon a secular point of view of what that history is... we’re saying OK, secular history is what it is, but there’s a whole dating time that’s very different between what the Bible has to say and what people within the evolution movement have to say. They’ve changed the whole sense of time that exists out there that probably 300 years ago didn’t exist in terms of that. Because people were still sort of working within a Biblical time framework. And so it’s really to be able to sort of counteract that whole thing, to say these are the reasons why we believe that the secular world is doing what they’re doing, based upon their dating methods, et cetera. And that’s where they get millions and billions of years, et cetera, that kind of thing. The Big Bang, what have you. Bible says X, and we want to show you the plausible reason why our X

²⁶ These materials will be discussed in detail in Chapter 5 – Subverting Authority: Creationist Tools for the Natural History Museum.

makes sense with the world that you see out there, makes pretty simple sense.
[Interview, exhibits staff member]

Indeed, this strategy seems to be employed at each of the museums visited. In particular, there are four topic areas in which secular science is routinely confronted: the (artificial) distinction between historical and observational science, the evolution of *Homo sapiens*, the dinosaur fossil record, and the age of the earth. Each of these four items will be discussed at length below.

Historical vs observational science²⁷ Ask anyone who is seriously involved in advocating for biblical creationism about science, and they'll be quick to point out that they love science and think it's fascinating. However, these statements always feature a caveat: they believe in a distinction between what they've termed *historical science* and *observational science* – with evolution falling into the historical science category and therefore being viewed as suspect. The distinction that is made by young-Earth creationists between historical and observable science is largely dismissed as meaningless in the secular world (Cleland 2001), yet is a common creationist talking point. For example, what AiG refers to as operation science “uses the so-called scientific method to attempt to discover truth, performing observable, repeatable experiments in a controlled environment,” (Ham and Mortenson 2007:np) while origin science “attempts to discover truth by examining reliable eyewitness testimony (if available); and circumstantial evidence, such as pottery , fossils, and canyons. Because the past cannot be observed

²⁷ The labels for these two groups vary. Historical science is alternately referred to as origins science, while observable science is referred to as observational science or operational science in different materials.

directly, assumptions greatly affect how these scientists interpret what they see,” (Ham and Mortenson 2007:np).²⁸

This distinction is critical for young-Earth creationists, and several individuals discussed it with me. One person, in talking about the relationship between Christians and the sciences, observed:

You’re going to get information overload that points to the fact that there are people that are serious, well-educated Christians that are doing science. Historical science, yes. But they’re also doing the observational science from the scientific method. And as you’ve heard, I’m sure, you don’t confuse the two. But that’s the problem with the secular world, they blend the two. [Interview, volunteer]

The distinction between historical and observational science is critical to understanding how secular science is undermined within the creation museum context. By placing evolution as dependent on eyewitnesses and/or circumstantial evidence, there automatically exists the ability to question the information. One individual shared with me skepticism in this vein, asserting “Some of it was just we don’t see evolution happening like they say. You know, we don’t see a fish turning into an amphibian. We don’t see that today, so how do we know that happened in the past?” [Interview, museum administrator]. By contrast, mainstream science does not view this lack of observation as problematic. Lombrozo (2014) points out that this distinction is not important because all hypotheses (regardless of whether they can be classified as observational or historical) are subjected to hypothesis testing.

The different forms of science are frequently written about and discussed in creationist literature. Within the museum context, however, examinations over the “forms of science” tend to be a bit more subtle and often incorporate a comparison between

²⁸ Although AiG is responsible for championing this concept today, this concept can be traced back at least until the 1980s, with *The Mystery of Life’s Origins* (Thaxton et al. 1984) and *Origin Science* (Geisler and Anderson 1987).

“man’s word” (secular science) and “God’s word” (scripture reinforced by creation science). Label text at the Creation and Earth History Museum explains:

The word “science” is derived from the Latin *scientia*, meaning “knowledge”. Thus, science is organized factual knowledge based on observation – *not* naturalistic²⁹ speculation. Science is TRUTH, wherever it is found.

An additional label in the same exhibit claims:

Religion and science are not separate spheres of study, as some say. Both involve the real world of human life and observation. If both are true, they must agree.

The implication within these labels, of course, is that there must be a consensus among all ways of understanding the world, otherwise one must be false. Because the concept of special creation derived from a literal interpretation of scripture contradicts human evolution, only one must be true. For the faithful, therefore, there is no other option except to declare the scientific interpretation false.

A direct consequence of this distinction between two kinds of science is a need to discuss the forces of evolution and the mechanism of natural selection within the museum context. Charles Darwin, of course, has become a figure of great disdain for young-Earth creationists³⁰. The Creation Experience Museum, for example, had several labels dedicated to debunking Darwin’s most famous work. One label explained “Darwin’s Galápagos finches demonstrate only microevolution which is simply adaptation to changing environments. There is no evidence of macroevolution either with these birds or any other creatures on Earth. It is variation with the DNA limits of each family or kind. Darwin’s finches are still finches.” At the same institution, another label showed a

²⁹ Naturalism is defined by the Answers in Genesis “Museum Guide: A Bible-Based Handbook to Natural History Museums” as “The system of thought holding that all phenomena can be explained in terms of natural causes and laws without recourse to spiritual or supernatural explanations.”

³⁰ One individual I spoke with, for example, continually referred to him sarcastically as “the Reverend Charles Darwin”. While Darwin did have a background in theology, the message this person was conveying was that Darwin is a holy figure in the pro-evolution crowd.

photograph of a two-headed calf and a label which read “Mutations have not been demonstrated scientifically to support macroevolution. They are mistakes in the genetic code that result in deformity and loss of normal function.”

The micro-not-macro distinction is a common refrain in young-Earth creationism, and is echoed in an exhibit entitled “Natural Selection is not Evolution” at the Creation Museum. Labels explain to visitors that:

Natural selection is supported biblically and scientifically. It can be viewed as a God-ordained process that allows organisms to survive in a post-Fall world. Natural selection cannot (despite the common perception) be the mechanism for molecules-to-man evolution since it does not have the ability to create new genetic information (mutations cannot do this either). Natural selection allows limited variation within populations, preserves the viability of populations, and is, in fact, a great confirmation of the Bible’s history.

The claim that natural selection cannot drive macroevolutionary change and that mutation cannot cause new genetic traits is effectively reinforcing the idea of witnessing the change. We can see these microevolutionary changes happening from generation to generation, but according to this view, there is no observable evidence (ie, an eyewitness) that can confirm larger, species-level changes.

This concept of “eyewitness testimony” that is believed to be necessary to corroborate historical science is essentially how creation science situates its understanding of human origins. The Bible serves as an eyewitness to all of the events in history; therefore any work done from a historical and scientific perspective within creation science must coincide with what this testimony describes. Unlike secular “historical science”, for which there exists no eyewitnesses to the existence of *Homo erectus* or the transition from non-human ape to hominin, creation science has all of the necessary components (according to their definition of what it means to conduct

historical/scientific analyses). As label text at the Creation Experience Museum proclaims, the Bible is “the history book of the universe!”

A Young Earth A major point of contention for creation museums is the age of the earth. Thus, one of the most common attempts at discrediting science in the museum relates to the age of the earth and the methods used to arrive at a conclusion. Disputing dinosaurs and human evolution while deconstructing different kinds of science are routinely employed techniques. At the heart of each of these issues lays one of the central tenets of young-earth creationism: the actual reality of the age of the earth. As noted earlier, Ham argues against people’s referring to themselves as young-Earth creationists, preferring the moniker “Biblical creationist” because it situates the Bible, rather than the age of the Earth, as the core issue. Disputing the evidence that the planet is substantially older than the six-to-ten thousand year time frame typically presented by young-Earth creationists is a complex, ongoing issue.

When discussing the evidence for an old earth, many of the museum employees I spoke with were quick to dismiss the methods used to determine geological age. One told me that “all of them are supposition. I don’t care which one you use, they’re all based on supposition. In fact, the ones that aren’t based on supposition, they’re based on observational science, actually attest to Biblical creationism,” [Interview, docent].

To the secular scientist, these claims are audacious. However, each of the five open museums where I conducted interviews featured exhibits that echoed this claim. A discussion of radiometric dating at the Glendive Dinosaur and Fossil Museum (GDFM), for example, tells visitors that “radiometric dating methods are based on circular reasoning and unfounded assumptions. When the methods are put to the test, they fail

miserably.” Likewise, an exhibit on C-14 dating at Akron Fossils and Science Center (AFSC) claims that because C-14 has been found in trace amounts in diamonds and coal, the earth must be quite young – a claim that is easily refuted as a result of the difficulty in dating items older than approximately 50,000 years with this type of dating method (Reimer 2012). Similar arguments are made at the Creation and Earth History Museum (CEHM), with an entire label elaborating on the “assumptions” of scientists, stating that:

Physicists have measured radioactive decay rates of parent radioisotopes in laboratories over the last 100 years; geologists have assumed these radioactive decay rates have been constant for billions of years. This is an enormous extrapolation through immense spans of unobservable time without any proof that such an extrapolation is credible. Yet geologists insist the radioactive decay rates have always been constant, because it makes radioactive clocks “work”. [Creation and Earth History Museum, February 13, 2014]

The point that this label is making is clear: radiometric cannot be trusted because the scientists who devised this dating method are beholden to an evolutionary, anti-Biblical worldview that supports billions – not thousands – of years.

Not only are the dating methods themselves argued against, but the idea of uniformitarianism is contested with discussions of the Grand Canyon and other geological formations. At AFSC, for example, a label next to a cut-out version of the Grand Canyon asks “Can the Mighty Colorado River Carve Out the Grand Canyon?” and then answers that question with a discussion of the river’s features, telling visitors “The Colorado River is a meandering river. Meandering rivers do not carve gorges and canyons – only straight, high volume rivers cut these kinds of formations. It is, however, quite easy for a global flood to carve out the Grand Canyon.”³¹

³¹ This exact same label text appears at the Glendive Dinosaur and Fossil Center, suggesting a shared source.

The Creation Experience Museum (CEM) displays an Answers in Genesis poster which identifies features of the Grand Canyon (such as the presence of sea animals above sea level) as problematic for any explanation other than a global flood. The AiG Creation Museum repeatedly reminds visitors that “the present is not the key to past” while claiming that “Noah’s Flood and times following involved more violent catastrophism than anything known in the present. At best, modern catastrophes provide only clues about those times.”

The crux of the arguments against an old earth rests on two legs: 1) the alleged faulty nature of dating the Earth and 2) Noah’s Flood. Discussions of the Flood are invoked to explain nearly everything in the geological and paleontological record, including how certain fossils may be found in deeper layers than others if they died at the same time. This effectively covers the law of superposition, and what is excluded from this kind of explanation is simply shrugged off as unreliable dating and erroneous claims that there are millions or billions of years observed in the fossil record. By alluding to scientists as somehow invested in preserving an older, anti-Biblical timeframe, these museums are attempting to demonstrate that only the Bible can be relied upon for true guidance, and no authority can be gleaned from scientific inquiry that does not mirror the Bible.

Dinosaurs and Humans Driving along Interstate 94 in Montana, it is impossible to miss the gigantic dinosaur sticking out of the Glendive Dinosaur and Fossil Museum. This is designed to attract passersby with the promise of viewing dinosaur fossils in an area of the world which is rife with the prehistoric beasts. In this particular case, the geographically appropriate nature of the display is tangential to the reasons why

dinosaurs are traditionally used in creation museums. Of the creation museums I visited, three featured large dinosaur images or models outside of their doors (and one, the Cabazon Dinosaurs, were the museum themselves).

The widespread use of dinosaurs is intentional, not only to attract visitors but to attempt to discredit an evolutionary world view. Davis (2008) explains:

Dinosaurs are some of the most fascinating animals, and children especially are intrigued by them. This is one reason why evolutionists use them, over and over, to teach millions of years and evolution. Christians, however, should use dinosaurs to teach the true history of the universe. When children, young people, and adults are informed about the truth of dinosaurs, they can answer the questions of a skeptical world and spread the good news of the gospel. When dinosaurs are used to spread the gospel, they become “missionary lizards.”

Indeed, in all five of the museums³² where I conducted interviews, as well as at the Cabazon Dinosaurs, dinosaurs are used in an attempt to discredit the scientific interpretation of an old earth.

Discussing the co-existence of humans and dinosaurs³³ is a popular tactic for supplanting science in favor of biblical authority. From a scientific standpoint, the separation between these two groups is immense and nearly 65 million years long. Because this long gap in the secular fossil record represents a tremendous problem for those who believe in a young Earth, one of the key aspects of exhibiting this topic is undermining the secular evidence for the time difference between humans and dinosaurs.

The way creation museums go about approaching this topic varies. Several museums I visited make a point of stating that humans and dinosaurs coexisted, and we

³² At the time of the interview, the Lost World Museum in Phoenix, NY was closed and in the process of renovating and reopening. As such, no physical exhibits were available for examination.

³³ In particular, many museums make the argument that biblical references to dragons are actually referring to dinosaurs. This equivalency is used as proof of the validity of the Bible: we have dinosaur fossils, dinosaurs are dragons, and therefore biblical accounts of dragons are reliable eyewitness accounts. Many institutions rely on archaeological evidence and/or cryptozoology to reinforce these claims.

know this because God created both groups on the same day (the sixth day) of creation (Gen 1:24-31 AV). This type of presentation is simple, does not get weighted down with jargon, and makes clear that the evolutionary interpretation is viewed as faulty.

Labels at the Creation Museum, for example, pose questions such as “Are human bones found with dinosaur fossils?” and then explain that “None have been discovered yet. However, many animals that live in the world today, like crocodiles and coelacanths (a special type of fish) aren’t found buried with humans either. If human bones aren’t found with dinosaur bones, it simply means they weren’t buried together.” This explanation effectively dismisses all discussion of paleontology and geology as well as evidence that indicates these two groups did not coexist. The subsequent label asks “How can we correctly interpret fossils?” Unsurprisingly, the answer given is not with science, but lies within the authority of the Bible: “First we have to know what happened in the past. The Bible’s true account of history gives us the key to the fossils we find in the present.”

The deficiency of human and dinosaur fossils in the same strata is clearly viewed as problematic for young-Earth creationists, but not to the point where it demonstrates a lack of coexistence between the two groups. At the Akron Fossils and Science Center, this discrepancy is explained by an examination of the fossilization process as it pertains to Noah’s flood. A poster describes the formation of fossils and asks “Why are Human Bones So Scarce?” The explanation is largely based on the fact that the Flood happened as a way to destroy mankind, that “land vertebrates, especially mammals, bloat when dead and float in water” and that the “processes acting during the Flood would destroy soft-bodied organisms, and preserve those with hard outer shells.” In this view, the

scientific explanation for a lack of dinosaurs and humans together (that they did not coexist) is regarded as incorrect, while an event described within the Old Testament (Noah's Flood) is offered as an explanation for this inconsistency.

For some of the creation museums, the most definitive proof of human/dinosaur coexistence lies not within explanations of differential fossilization, but with something that is heralded as conclusive proof that the two species intermingled: the Glen Rose "man tracks"³⁴. Although the tracks at Glen Rose have not been completely rejected by creationist groups (Moore 2014), the larger creation museums avoid discussing these footprints, potentially because many have proven to be fraudulent carvings or simply dinosaur footprints within the Cretaceous limestone (Branch and Scott 2013). However, the "man tracks" were exhibited at the Creation Experience Museum, the Glendive Dinosaur and Fossil Museum, and the Akron Fossils and Science Center.

Interestingly, speculation runs rampant in label text that analyzes the footprints. One label at GDFC proclaims, "Perhaps he was hunting. Perhaps he was simply taking the already "broken" trail because it was the easiest. We don't know because we weren't there when the tracks were made. We do know that these tracks confirm that humans and dinosaurs lived at the same time, which is perfectly consistent with the Genesis account of creation." This explanation simultaneously dismisses all scientific evidence that these two groups did not coexist, discredits "historical" science, and promotes Genesis as ultimately authoritative in interpreting the fossilized dinosaur tracks.

Although the "man tracks" have been widely panned by both secular scientists and many creationists, there is one piece of dinosaur-related evidence that is accepted by both groups, but with radically different interpretations. In 2005, paleontologist Mary

³⁴ For a summary of the history of the "man tracks", please refer back to chapter one.

Schweitzer and colleagues published a groundbreaking find: soft tissue structures had been discovered in the hind limb of a 68-million year old *Tyrannosaurus rex* specimen from Montana. As with many scientific discoveries, this one was met with a dose of controversy – after all, soft tissue is not typically preserved for so long. While further analyses support the initial conclusion (Schweitzer et al. 2013), Schweitzer’s discovery has been wrested away from the scientific establishment and adopted by young-Earth creationists as definitive proof that dinosaurs are much younger than paleontologists claim, thus providing proof for a young Earth (Fields 2006).

Dinosaur soft-tissue is widely exalted in creationist circles. At the International Conference on Creationism, for example, people I spoke with excitedly discussed the tissue as proof of a young earth. Within creation museums, this material is promoted in exhibits on dinosaurs, but with an interpretation that runs contrary to Schweitzer’s interpretation. One individual I spoke with discussed the *T. rex* evidence, telling me:

Mary Schweitzer, the scientist who is involved in this, in her own words, and we have them posted on the wall right above the pictures of the soft red tissues, she said ‘I looked at this and I could not believe it. We performed the test 17 times and it kept coming back and telling us the same thing. I cannot understand how these cells could survive 65 million years.’ Well you know what, Mary? Maybe you’re asking the wrong question. [Interview, museum administrator]

Creation museums have their own way of dealing with the *T. rex* data, and the “wrong question” approach is one that is commonly used to re-frame the debate. At the Akron Fossils and Science Center, for example, images from Schweitzer’s 2005 paper are displayed without any interpretation alongside a cast of the Glen Rose footprints in a case labeled “Evidence of Humans and Dinosaurs Living Together”. Citations of other soft-tissue finds are provided from PLoS One and Proceedings of the Royal Society B: Biological Sciences. However, what these articles actually say is omitted from the

exhibit, thus giving the uninformed visitor the impression that these recent scientific articles are, in fact, favoring the creationist view of the coexistence of humans and dinosaurs. This approach simultaneously implies this evidence supports young-Earth creationism and discredits the larger scientific establishment.

Akron is not the only site that uses a re-interpretation of the Schweitzer *T. rex* data in its exhibits. At GDFM, the explanation is much more thorough, and includes text which states, “Present day scientific study of soft tissue decay shows conclusively that it can be only preserved for thousands of years at best. The Scientific [*sic*] research says that it is impossible for soft tissue to be preserved for tens of millions of years.” While the discovery was indeed a surprise to many paleontologists, this text ignores both the ever-changing nature of science as well as later research by Schweitzer’s team which explains how cells and other soft tissues might be preserved for such an extended period of time (Schweitzer et al. 2013).

In order to drive home the implicit point that the evolutionary viewpoint does not have the same kind of scientific authority that the Biblical perspective does (as well as the distinction between observable and historical science), the exhibit elaborates on this, stating:

In the end, evolutionists ignore the research on soft tissue preservation and never question the age of the *T. rex*! The research on soft tissue deterioration is based on observation, which is repeatable with predictable results. The supposed 68 million year old ‘age’ of the *T. rex* is based on unfounded assumptions. We would like to suggest that the Biblical account of earth history matches up with the science better than the evolutionary assumptions. The *T. rex* would have been alive and buried some 4,500 years ago during the global flood of Noah. This is why there is still soft tissue within the bones. We have two beliefs about the age of this *T. rex*. The actual evidence observed fits the creation model but does not fit the evolutionary model.

This comparison, evolutionary versus Biblical models, 68 million years versus 4,500 years, is done with the explicit goal of undermining the authority of science, while simultaneously glossing over details of the scientific process³⁵ that do not fit with the narrative of un-Biblical, and therefore untrustworthy, modern science.

The Hominins A common discussion in creation museums is focused on invalidating what we know about human evolution from the fossil record. Discussions about the hominin fossil record fall into the first two points described by the Creation Education Center: an ape made to look more human or the opposite, a human made to appear ape-like (and generally speaking, both are referred to as “Ape-Men”). Lucy, for example, is often deconstructed and held up as nothing more than an ancestral primate. Likewise, other hominins are dismissed as either already being human or simply being an ancestral ape. Outside of the evolutionary “frauds” discussed earlier, the other species most commonly held up in discussions about human evolution are *Australopithecus afarensis* (the Lucy specimen in particular), the Neanderthals, and *Homo erectus*.

One way in which human evolution is presented in creation museums is to show alternate (and scientifically incorrect) interpretations of the hominin fossil record. In discussing their exhibit about Lucy, one museum employee told me that:

That’s the second reason for the Lucy exhibit. It’s to show not that this is what Lucy looked like. We have no idea. That’s, if you read it, we’re actually saying “we don’t know”. And then you go around to the back and you see those different heads. Those are all from the same mold, painted different ways. And the white of the eyes is unique to humans as far as the way that it’s presented. And so if you put a human eye into a gorilla head, it’s going to look more human automatically because the iris would be so much smaller, there’d be so much more sclera, the white part, showing. And the white part on a gorilla is also very dark. And so the belief of the artist is funneled through their work. And the observer has nothing else to go by so they are going to believe – they assume these are experts so they

³⁵ For example, this label omits the fact that Schweitzer’s discovery was hotly contested among paleontologists (Wong 2012).

know what they're talking about. [Interview, exhibits staff member]

The Answers in Genesis Creation Museum in particular spends a fair amount of space devoted to deconstructing Lucy³⁶. Shown in a stance similar to a modern chimpanzee, their interpretation of Lucy sits below a label which inquires, "What did Lucy look like? The bones don't tell us." This theme is reiterated in the label text, which proclaims:

From the evolutionists' point of view, humans evolved from an ape-like ancestor. So they interpret the majority of ape-like fossils to be human ancestors known as *hominids*. This preconception, or bias, leads them to look at a fossil like Lucy and conclude that she must fall somewhere in that line from ape-like creatures to humans. Depending on where they place her on that timeline, they will depict her as more or less human.

Introducing paleoanthropologists as inherently biased is used to undermine the academic legitimacy of modern science in favor of Biblical creationism. In discussing the number of hominid fossils, for example, the Creation and Earth History Museum cites Lubenow's "Bones of Contention", stating, "There is a common belief today that there are only a handful of hominid fossils (humans and their theoretical evolutionary ancestors) to study. Evolutionists complain about this because the specimens they have do not fit the evolutionary scheme well." This portrait of paleoanthropologists misrepresents paleoanthropology's attempt to enhance our understanding of human evolution by finding fossils that help construct a comprehensive portrait of our origins. Within this label, however, the implication of scientists being biased is clear.

In addition to constructing an image of modern science as inherently biased, several creation museums employ the "science changes" model of doubt to reduced trust in paleoanthropology. At the Glendive Dinosaur and Fossil Museum, for example, label

³⁶ In fact, Lucy appears in the museum twice: once alongside a label that says "The evidence is in the present, but what happened in the past?" and once in a more extensive exhibit in the "Starting Points" room.

text discussing changing interpretations of Lucy places her in the same category as *Australopithecus boisei*³⁷, explaining:

In the 60's and 70's, many school children memorized the names of this ape as the "known ancestor" of man. *Zinjanthropus* is essentially the same primate later known as *Au. Boisei* [*sic*]. None of these robust australopithecines are now considered to be ancestral to man. **So it appears that *Au. Afarensis* [*sic*] ("Lucy") joins *Au. Boisei* [*sic*] as a non-ancestor of man...** Lucy and the australopithecines show nothing about human evolution and should not be promoted as having any sort of "missing link" status. The creationist alternative, that humans, apes, and other creatures were created that way in the beginning remains the only explanation consistent with all the evidence.

Likewise, the Creation and Earth History Museum provides back-to-back interpretations of the hominin fossil record, clearly labeled as "creationist" or "evolutionary" interpretations. In discussing Neanderthals, for example, labels explain that an evolutionist has multiple explanations for Neanderthals (that they evolved into modern humans, that they interbred³⁸ with modern humans, or that they were killed off by modern humans). On the other hand, the creationist interpretation remains relatively constant: Neanderthals were "true human beings, descendants of Adam and Noah." By comparing the different ideas about the relationship between humans and Neanderthals, the museum is attempting to reinforce the idea of biblical inerrancy: while scientific knowledge changes, creationist interpretations remain the same.

Conclusion

For those who study creation museums, the continued success of these institutions is a persistent question. The proliferation of creation museums in the United States is, as Stevenson (2012) proposed, a clear indicator of the final stage of young-Earth creationism as a social movement: the institutionalization of the movement into

³⁷ While this taxonomic designation is debatable, this is the scientific name used on the label at GDFS.

³⁸ Notably, the label text reads "Neanderthals were absorbed by/intermarried with more modern-looking humans." This language choice is clearly a nod to the museum's conservative Christian audience.

permanent forms. While museum staff talk of sharing the message and of evangelizing to non-believers, the reality is that these museums are borne out of the desire to construct an authoritative body of knowledge for believers in a trustworthy-seeming academic forum.

Messages of biblical authority, of scientific errancy, and of academic parity serve to reinforce what is already known to believers in this particular brand of Christianity (Stevenson 2012). While these visitors may already place supreme authority in the Bible, the presentation of seemingly scientific information, reinforced by the Bible and scholars who hold similar personal beliefs, is immensely gratifying (Interview, visitor services staff member).

However, given the limited number of these institutions, these museums are not easily accessible to the majority of Americans. Thus, while creation museums provide the opportunity for believers to confirm what they already know, secular science museums remain a point of contention. Secular museums proclaim a time frame and a worldview that stands in opposition to that of the creation museums. In spite of this, they are still being visited by people who may skew towards the young-Earth belief structure. The subsequent chapter, therefore, will examine this issue in depth, with the goal of understanding how authority is contested in secular museums by creationist visitors and how that is factored into the cultural reproduction of young-Earth creationism.

CHAPTER 4

CONTESTING AUTHORITY: CREATIONIST VISITORS TO MAINSTREAM MUSEUMS

On my final day of interviews for this project, a staff member shared an email with me. A physical anthropologist with a Ph.D., she worked in a large natural history museum and had been for a few years when she received an email from a member of the public. The message was clear: repent and believe in God because teaching evolution is a sin. He had signed the email “Faith Recovery Mission – Infect Evolutionary Hearts”.

Although this was a unique experience for her, similar letters, emails, and messages have been distributed to museums across the country. The scope of antievolution experiences of staff in the secular museum is relatively unknown. Fraser (2006) notes that staged protest, harassment of museum staff, and expressing opinions through surveys have all been experienced at a variety of museums, but these experiences exist as anecdotes rather than as components of the larger overall pattern.

In October 2013 I administered a survey with the explicit goal of creating an overarching picture of the experiences of employees with creating, exhibiting, and public protests at AAM-accredited natural history, science, and anthropology museums – effectively, the aim was to create a portrait of how creationists contest scientific authority in the secular museum. Designed to ask a variety of questions about exhibits, programming, and interactions with visitors, the survey is a snapshot of how creationists challenge museum professionals on a day-to-day basis. Questions varied based on the individual’s position at the museum, but all respondents were asked to describe their experiences with visitor objections to exhibit content. This online survey was sent

directly to employees at 133 museums, as well as distributed through a variety of listserv channels³⁹.

The survey remained open through January 2014, at which time I began to sort the dataset. Individual responses which only included answering the first question on the consent form (“If you are interested in taking part, select "yes" to sign the consent form and launch the survey”) were eliminated from the dataset, as well as responses from individuals who clearly indicated they were not at AAM-accredited natural history, science, or anthropology museums. A total of 263 individuals began the survey, of which 169 were eligible and completed the survey beyond the initial giving of consent. These 169 individual responses represent 93 total museums. Individual responses which did not indicate an institutional affiliation were given the institution code as “99” in the survey data⁴⁰.

The survey findings are enhanced with information gathered through semi-structured staff interviews conducted between November 2013 and July 2014. In total, I conducted twenty-six staff interviews at seven separate institutions across the United States (see Table 6 for a complete list of institutions). Interview participants were recruited in three ways: some were survey respondents who provided their contact information and indicated a desire to participate in a detailed follow-up interview (8 out of 26), several were referred to me by other participants and had not participated in the survey (15 out of 26), and others were recruited via a direct e-mail inquiry (3 out of 26).

³⁹ Mailing lists used include Museum-L (general museum listserv), Talk (for museum education), the Association of Science and Technology Centers (ASTC) listserv, and NHCOLL-L (for natural history collections).

⁴⁰ Within the refined dataset, there were 12 individual responses that did not indicate individual affiliation. They did, however, all indicate location of their museums, making it clear that each response came from a different museum.

The participants varied with respect to their position in the museum, while museums varied in terms of annual visitorship, location, and content focus but all have obtained AAM-accreditation and are classified as natural history, science, anthropology museums. Importantly, these institutions are in relative geographic proximity with the creation museums examined in chapter three, providing an important contextual element.

Table 6: Museums Visited

Museum	Location	Creation Museum	Location
American Museum of Natural History	New York, NY	Lost World Museum	Phoenix, NY
Natural History Museum of Los Angeles County	Los Angeles, CA	Creation and Earth History Museum	Santee, CA
Greensboro Science Center	Greensboro, NC	NC Museum of Creation, Taxidermy Hall of Fame of NC, and Antique Tool Museum	Southern Pines, NC*
McClung Museum of Natural History and Culture	Knoxville, TN	Creation Museum	Petersburg, KY
Science Museum of Minnesota	Minneapolis, MN	Glendive Dinosaur and Fossil Museum	Glendive, MT
Denver Museum of Nature and Science	Denver, CO	Creation Experience Museum	Branson, MO
Cleveland Museum of Natural History	Cleveland, OH	Akron Fossils and Science Center	Copley, OH

* No interviews were conducted at the museum in Southern Pines, NC.

In addition to surveying museum professionals, an additional survey component was developed and deployed in March 2014 to understand whether or not self-described creationists are visiting natural history museums. This survey, distributed online via public Facebook groups for creationists as well as via email to personal contacts, drew on

previously established surveys⁴¹ to assess individual attitudes as well as their thoughts about evolution in the museum context.

In order to encourage candor, all survey and interview responses were recorded anonymously. Interview participants are identified only by their role in museum operations, while open-ended survey responses are assigned an alphanumeric code, with CS indicating a response from the creationist survey and MS indicating a response from the museum survey. The analysis of the data gathered throughout the course of this project took place in two parts: a basic quantitative analysis completed using SPSS version 22, and a qualitative analysis completed using MAXQDA version 11. Due to the nature of the questions, responses to institutional questions⁴² were examined for multiple respondents from the same institution. Museums with conflicting responses (yes and no) to these two questions were eliminated from the frequency analysis, resulting in a total of 65 museums represented in question 8 and 70 represented in question 10. However, with the remaining questions, all responses were included as they represent individual experiences and knowledge with antievolutionism in the museum.

On the basis of these two surveys and interviews, I argue that young-Earth creationists contest the authority of the secular museum in an attempt to neutralize the perceived threat to the creationist worldview that these institutions represent. This is evident in three components: 1) staff perception about their visitors versus the reality of the visiting public, 2) the lived experiences of museum staff with antievolution advocates,

⁴¹ The EALS survey and Pew Research Center survey in particular.

⁴² Institutional questions include question 8: Does your museum discuss the topic of human evolution in any exhibits or programs? and question 10: Does your museum discuss general concepts of evolution in any exhibits or programs?

and 3) the issues surrounding exhibition of human evolution in a secular museum. Each of these elements will be explored individually within this chapter.

“Creationists Don’t Come Here”

Frequently over the course of the year, mainstream museum staff shared their thoughts on their visitors with me. For many, it was simple: they didn’t think discussing creationism juxtaposed with evolution was a worthwhile pursuit simply because they did not believe creationists were coming to their museums. Multiple individuals made a point of telling me the reason they hadn’t dealt with much antievolutionism was, as one person put it, because there is a “filter right at the door,” [Interview, docent].

Another participant described not a single filter but multiple filters, remarking that a lack of negative pushback on human origins may be because “people have already decided to come to a natural history museum, then they’ve already made this decision to come into the Hall of Human Origins, then they’ve made the decision to come into this lab space. So all of those screens, you get to a visitor who is like enthusiastic and sort of positive and excited about learning about this topic instead of looking for something negative,” [Interview, education staff member].

To an extent, these observations are correct. As with any museum there is a self-selected group of individuals not only choosing to go, but choosing to enter an exhibit which either explicitly or implicitly discusses the science of human origins. These visitors tend to have a better understanding of and are less likely to reject evolutionary theory (MacFadden et al. 2007, Spiegel et al. 2006).

The phenomenon of self-selection was identified by several participants, with one describing a behind-the-scenes tour as something that is “mostly with people who are members or people who are really interested. So that, I think, is kind of like a self-

selected group of people who would not be creationists, more or less,” [Interview, docent]. However, with nearly a quarter of American adults visiting natural history museums every year (National Science Board 2014), the perception that everyone in the museum agrees with an evolutionary outlook on the world may be misguided. We know that museum visitors are more likely to understand and accept evolutionary theory than the general public (Spiegel et al. 2006), but more likely does not equate to universal acceptance of evolution by natural selection.

Studies that have explored the acceptance of human evolution among museum visitors indicate that the museum population is generally accepting of human evolution (Barone and Buntin 2014, Spiegel et al. 2006, Stein and Storksdieck 2005), thus reinforcing the commonly held beliefs about the museum population by staff. However, there is some evidence to the contrary. In every visitor population, there are individuals that either identify as creationist or express creationist ideas/ideology. Scott (2007) provides data for four different museums, where between 7.41% and 11.65% of surveyed visitors indicated “not at all” as their level of agreement with the statement “modern humans evolved in Africa”. An additional 8.33% - 14.29% responded that their level of agreement was “not much”.

Understanding Creationist Visitors These data raise the question: is there truly a filter at the door? With so many people visiting American museums each year and such a large section of the U.S. population believing in various iterations of creationism (including young-Earth ideology), it is likely that creationists are walking through the doors. This was abundantly clear in interviews I conducted at creationist museums, as

well as in a brief survey administered in early 2014⁴³. Although the sample is relatively small (46 self-identifying creationists participated), we can glean meaningful information about museum visitors from their responses. These responses demonstrate the complexity of creationist visitors in the museum.

Among those surveyed, 39 responded to the question regarding natural history museum attendance. Seven individuals (17.9%) report never visiting a natural history museum, while the remaining 32 (82.1%) report visiting a natural history museum less than once a month⁴⁴. Thus, while creationists may not be visiting the natural history museum regularly, they do visit natural history museums. On the question which specified selecting museums visited within the last year, 13 individuals said they had visited a natural history museum, while nine reported visiting a science or technology museum and none reported having visited an anthropology museum. By contrast, data from the General Social Survey indicate that in the last year, 72.6% of respondents had not visited a natural history museum and 75.4% had not visited a science or technology center.

Clearly, creationists are visiting museums at a rate that is higher than perceived by museum employees. The question that remains, then, is why? Why do creationists want to visit a museum that runs so contrary to their worldview? While participants in Biblically Correct Tours (explored in Chapter 5) may find the experience helps to reinforce the YEC identity, individual visitors to the mainstream museum are engaging in the museum's "object-based epistemology" (Conn 1998:4) wherein objects are viewed as sources of knowledge or meaning. In this view, because objects have inherent

⁴³ Survey questions can be found in Appendix C

⁴⁴ No participants indicated that they visited natural history museums at least monthly (or more).

knowledge, “the meanings held within objects would yield themselves up to anyone who studied and observed the objects carefully enough,” (Conn 1998:4). For the individual visitor, then, the label text is inconsequential as the object holds the meaning. YEC visitors, therefore, can construct their own meaning – from a biblical point of view – while visiting secular museums.

Within this same survey, participants were asked to share their thoughts on the scientific validity of evolution and its appropriateness to the natural history museum. 21 of the participants (46.7%) stated that, in spite of their self-applied creationist label, they do consider evolution to be a scientifically valid idea. By contrast, 24 respondents (53.3%) said they did not think evolution was scientifically valid. Interestingly, the sample was less evenly divided with respect to whether or not evolution was appropriate for discussion in a natural history museum, with 25 individuals (67.6%) responding that it was appropriate, and only 12 (32.4%) stating that they did not think it was appropriate for exhibition in a natural history museum (there was also a strong positive correlation between these two survey questions, $r = .712$, $n = 37$, $p = .000$).

Another element worth considering within this sample is how many of these individuals can truly be defined as young-Earth creationists, and what bearing that may have on their opinion of the scientific validity and appropriateness of evolution in the museum. In order to assess ideology, the survey included several Likert-scaled items adapted from Hawley et al. (2011) as well as one question from the Pew Research Forum which asked participants to rate their agreement on a scale of one to five, with one representing “strongly disagree” and five representing “strongly agree”. Among these

questions were four which may act as a barometer for various forms of creationism, including young-Earth ideas. These four items were:

1. Adam and Eve of Genesis are the universal ancestors of the human race.
2. The earth is approximately 6,000 years old.
3. God created humans in their present form.
4. Evolution is the best explanation for human life on earth. ⁴⁵

Pearson correlation analysis reveals an interesting pattern: there is a highly significant correlation between each of these items and whether or not evolution is a scientifically valid concept. Individuals who agreed that Adam and Eve were the universal ancestors were more likely to think that evolution was not scientifically valid ($r = .416$, $n = 35$, $p = .007$). Likewise, individuals who believed that the Earth was approximately 6,000 years old were more likely to disbelieve in the validity of evolution ($r = .583$, $n = 35$, $p = .000$), as were individuals who believed that God created humans in their present form ($r = .417$, $n = 35$, $p = .006$). By contrast, individuals who find evolution to be a scientifically valid idea tend to be more likely to agree with the final item: that evolution is the best explanation for human life on Earth ($r = -.711$, $n = 34$, $p = .000$).

Exploring Affirmative Responses Of course, neither the frequency counts nor the correlation data can tell the whole story. To clarify the motivation in these responses, participants were asked to explain why they did or did not think that evolution was appropriate for exhibition in the museum. For those that felt it was appropriate, there were three recurring themes: people arguing that the public should be given all options and then allowed to “decide for themselves”, people supporting evolution as a process that drives adaptation but not speciation, and people who acknowledge that their personal belief should not stop museums from displaying the content. Notably, none of these

⁴⁵ Items 1-3 were adapted from the Evolutionary Attitudes and Literacy Survey (EALS) and item 4 was adapted from the Pew Research Forum.

responses propose the dual exhibition of evolution alongside creationism (though this idea has emerged in previous visitor studies – see Barone and Campbell (2014) for an exploration of this idea of religious accommodation in natural history museums). Instead, individuals noting that people needed all sides were merely referring to the museums presenting evolution juxtaposed against other sources presenting creation.

The first of these groups, individuals who were supportive of presenting content so visitors could make their own decisions, were the most common among creationists who responded that evolution was appropriate for exhibition in a natural history museum. Participants noted that “people should be aware of all options of life to decide their own idea,” [CS01] and that “it is important for everyone to learn all theories and decide for themselves what to believe. Keeping people ignorant is not the best way to promote one's own ideals and beliefs,” [CS36]. Even though it is presented as an open-minded approach to the topic, the idea that creation and evolution are on equal footing is a systematic tactic used by creationists to degrade the authority of the scientific establishment.

A corollary of this response lies within a fundamental misunderstanding of scientific enterprise – the “it's only a theory” group. One individual noted that evolution would be acceptable “if it is presented as a theory and not as a fact it allows people to grow in critical thinking skills,” [CS05]. Likewise, another participant emphasized that “it's appropriate to show as a theory. I would prefer it be balanced with the 'theory' of creation as well rather than just assuming old earth evolutionary theory,” [CS06]. While in the same vein as secular museum employees who argue that presenting both evolution and creation in the museum might be acceptable (but within strict parameters), these individuals are advocating for this approach because of perceived shortcomings of

evolutionary theory rather than as a teaching opportunity for exploring a variety of ideas about human origins (which appears to be what the museum employees were supporting).

The second group represented in this survey is the individuals who differentiate between micro- and macroevolution. One individual explained this distinction, stating “While I don't believe evolution caused the first life forms on our planet, I believe that species have adapted to their environments and passed along traits and behaviors to subsequent generations, ie: evolution,” [CS04]. The separation between micro- and macroevolution was made completely clear by other individuals, who noted that they thought “the choice is too narrow. Evolution within a micro evolution is scientifically verifiable, moths changing color, variation among dogs ect [*sic*], not however in macro evolution fish changing into snakes. True science should be taught, scientific speculation less so....” [CS31]. Another individual echoed this sentiment, saying that “showing how animals change over time is important. However, the limits of that change should also be shown in museums. I do not believe in a common ancestor for all animals,” [CS22]. This distinction is quite common among creationist individuals, with even some of the most conservative creationists accepting microevolution, adaptation, and mutation – all while being uneasy about the ability of natural selection to drive evolutionary change (Scott 2009).

The final group represented within this section of the survey is those individuals who may not be accepting of evolution but acknowledge that their personal beliefs should not dictate what a museum presents. One individual concisely summed up this position, writing “whether we like it or not, it is a view that is held pretty widely. I have a problem with it being presented as 100% fact, but not being presented. We also have to remember

everyone is not a Christian,” [CS11]. This perspective, while recognizing that there is value in the presentation, does still degrade the scientific legitimacy of evolution-as-fact. Others, while clearly considering themselves creationists, noted that there is value to presenting science, stating that “any discussion of scientific viewpoints is beneficial,” [CS21].

The individual above didn’t elaborate on why discussing scientific viewpoints may be beneficial. For many, this may be linked to the ways in which creationists engage with natural history museum exhibits. One individual made a point of describing how they would use such an exhibit:

Evolution is a scientific theory that scientists seek to prove. I like having the opportunity to discuss the differences in belief systems and science with my children. They will inevitably have family, friends, and co-workers who will believe differently than they do; thus, it is important for them to understand the different theories and points of view. Additionally, part of their growth and learning is to provide many opportunities to gather information and then help them make sense of the information. Part of that process is for my children to understand that creationism is the combination of science and faith. Many who reject the idea of God cannot make sense of creationism as there is no faith in God; therefore, they cannot reconcile the thought of God creating the world and solely seek proof of our existence with science and empirical evidence. [CS63]

This technique, which will be explored in depth in the subsequent chapter, touches on an important way in which creationist visitors interact with secular museums: using the exhibits along with alternative interpretive information in order to subvert scientific authority and promote biblical authority.

Exploring Negative Responses For people who responded negatively to the question about evolution being presented in a natural history museum, there was unanimity in the responses. For these individuals, evolution is merely an unsubstantiated opinion, one that has no place in a museum of science. One individual explained, “As

evolution is now portrayed, I feel it should not be in a Natural History Museum.

Evolution is a theory based on assumptions not facts like it is stated in Museums. I have no problem with people believing in Evolution but I feel it steps out of the realm of observable science,” [CS42]. This sentiment was echoed by others who thought that it was inappropriate because “it’s an unproven theory displayed as fact,” [CS45] and “evolution is not a valid theory. It contradicts science,” [CS23].

Interestingly, these individuals share the opinion of many of the affirmative respondents, but take a more negative view of the “theory-not-fact” line of reasoning. These justifications can be succinctly summed up by one response to this question: “Why should it be. It’s an opinion, just like my answer is,” [CS24].

The negative responses garnered in this survey are representative of the perceived threat that natural history museums represent to the cultural reproduction of young-Earth creationism. By describing evolutionary theory as an unverifiable anti-scientific opinion, pro-creation advocates who feel evolution is inappropriate for the museum context are reacting in part to the authoritative nature of the museum and the danger that is perceived in presenting evolution-as-fact.

Contesting Authority

While larger protests and legal challenges to evolution within the natural history museum are widely reported, the extent to which museum employees are experiencing low-level antievolutionism (as opposed to larger organized protests) has been, until now, relatively unexamined. In order to fully assess the extent of visitor objection to scientific content – and evolutionary content specifically – four questions were included in the survey for museum professionals⁴⁶: 1) Have visitors ever complained about scientific

⁴⁶ The table in Appendix E summarizes the responses to questions 1-3.

content in exhibits or programs? 2) Has anyone ever contacted you with specific objections to any exhibit or program at the museum? 3) Have you ever experienced any negative feedback with respect to any of your exhibits? 4) Have you personally ever experienced any antievolution comments or objections by visitors at the museum?

Most notable for this project are the responses to the fourth question: “Have you personally ever experienced any antievolution comments or objections by visitors at the museum?” Of the 169 participants in this survey, 111 individuals answered this question. 52 individuals (46.8%) responded affirmatively that they had experienced antievolution activities in their museum, while the remaining 59 (53.2%) had not had personal experiences. Figure 2 is a map of all of the geographical locations of museums which reported affirmative responses with respect to antievolution activities in their museums.



Figure 2: Map of museums with reported antievolution activities.

In addition to providing straightforward yes/no responses, participants in the survey were given the opportunity to elaborate on their experiences. Interview participants were likewise asked to describe their experiences with antievolutionism in the museum. From these detailed responses, three common experiences emerged: indirect contact with creationists, direct contact in the museum, and stealth opposition. Each of these kinds of experiences will be explored in turn.

Indirect Contact with Staff One common experience was that of the informal approach: members of the visiting public calling or writing to museum staff to register their displeasure with evolutionary content. For instance, participants report being sent “mail from proponents of ID [intelligent design] (and other ideas) a few times a year. Although it is always addressed to me, it is usually generic in nature. That is to say, I think people get my name and address from our website and then they send me form letters that have nothing to do with my work or my museum,” [MS086].

Others report not only being sent letters, but that these letters were accompanied by various pieces of creationist literature. One individual describes being mailed “many letters suggesting that I open my mind to the concept of intelligent design. These are usually in tandem with books or pamphlets or even published articles by Ph.D. researchers that challenge general evolutionary concepts and the use of the fossil record as evidence for evolution of life,” [MS129]. Another museum staffer relayed an experience that he had had at his museum, mentioning that they had received “a big shipment of creationist textbooks that were given to the museum without charge as like something to give out... I remember seeing a big box of them in vert paelo when I was

taking my docent training here; they actually made a point to show that to us. It was a fascinating little thing,” [Interview, docent].

While many individuals report receiving items through the mail, the increased accessibility of museums via electronic channels seems to have multiplied the negative feedback experienced by staff. Individuals report receiving comments “mostly via email, often in favor of creationism or intelligent design,” [MS052]. One individual noted that the negative commentary seemed to be primarily directed at one employee, saying that “the head of Vertebrate Paleontology often has emails or phone calls by irritated fundamentalists because he studies early primate evolution,” [MS083]. Facebook, in particular, seems to be a favorite mode of communicating displeasure. Respondents pointed at their institutional Facebook page, describing common antievolution arguments: either the “teach the controversy” or the “just a theory” arguments, writing that “occasional Facebook posts on our page have mentioned "Intelligent Design" and that evolution is just a theory," [MS005].

At times, the contact received by staff (either electronic or paper) takes a positive spin. Instead of objecting to the content, antievolution visitors applaud staff for not addressing the topic. One individual noted that this is really just a matter of perception, writing that “occasionally we get a compliment for "doing it right” - meaning we had displays up where people did not click to it that evolution applies to dinosaurs as much as it does to us. So, not seeing a direct link, they thought we were sidestepping the issue, and so we were "doing it right." [MS035].

A more frequent occurrence is that the communications take an aggressive tone. One individual described a letter she received:

I got a letter from a local pastor who told me I was going to hell. And, you know, that I'd better be ready to face the music. Because Jesus, you know, knows that this isn't true and you know, he found out somehow that I was the developer for Prehistoric Journey and he had actually come because of a little article that was in our local paper. I have a copy of the letter and I put the actual letter in my personnel file because I talked to security because it was a little worrisome. [Interview, exhibits staff member]

Staff Interactions with Visitors A variety of museum staff also reported experiencing verbal, in-person opposition on the exhibit floors. These experiences range from tamely questioning the scientific interpretation to vocally preaching against the exhibit content. Most of the objections center on the main young-Earth creationist talking points: a demand for equal time, the age of the earth, and the lack of legitimacy of an evolutionary viewpoint.

Museum staff report frequently being questioned about why creationism/intelligent design are not presented in the museum. Various responses illustrate this fact, noting that “visitors complain about presenting evolution without creationism along with it,” [MS156]. At times, these complaints directly equate the two views, noting that visitors mention wanting “creationism taught equally alongside evolution, a “balanced” exhibit,” [MS257] as well as exhibits that include the visitor’s personal beliefs: “creationists who are visiting have occasionally complained to staff or in writing that we do not present their views,” [MS083].

One individual I spoke with made the point that it wasn't that people were inherently objecting to human evolution being presented in the museum. Rather, as she notes, it's the question of “how come you don't talk about the other story? But I've never had anybody tell me that they shouldn't be teaching this. It's more a question of why

aren't you teaching the other half of the argument. Teach the controversy," [Interview, volunteer].

While not explicitly linked to antievolution sentiments, an overwhelming number of survey participants described comments they had received related to the age of the earth. Several people described their conversations, noting that "the dates on exhibits over 6000yrs is a regular comment in person...The general comment is that the earth is only 6000 years old, so how can we be putting misinformation on the panels," [MS251]. Another individual expressed such displeasure at the timeline that she "threatened to drop her museum membership because she was so tired of seeing exhibits misrepresenting the age of the earth (she was a young earth creationist)," [MS224]. As discussed in chapter two, the age of the earth is a central dividing point among creationists, with only young-Earth creationists believing that the earth is less than 10,000 years old. The age dispute is largely a dispute about scriptural authority and the Genesis account being a literal description of the formation of the earth.

The issue over the geological timeline is frequently discussed in conjunction with another favorite young-Earth point of discussion: the coexistence of humans and dinosaurs (as well as the word "dragon" being code for "dinosaur" in the Bible). One employee shared their experiences, noting that they had had "numerous conversations about the 6000 year age of the earth and calendar issues (BCE/CE and BC/AD). With the 6000 year arguments, I have had visitors cite various "experts" with data on solar cycles, photographs of people and dinosaur footprints, modern "dinosaurs" found, and many others over the years," [MS251]. Dinosaurs, as noted in the previous chapter, are a favorite topic of discussion among young-Earth creationists who see artifacts with

depictions of dinosaurs or dragons as proof that humans and dinosaurs co-existed.

Dinosaurs are viewed as “missionary lizards” which can spread the gospel of creation (Davis 2008); as a result they become a frequent point of contention for believers in a young-Earth.

The third overarching theme to these complaints is linked to the perceived lack of legitimacy in evolutionary ideas. Like many of the people described in the creationist survey, these individuals cry that evolution is “just a theory” and shouldn’t be conveyed as fact. One woman described her experience, saying:

I’ve had the, well, isn’t this just a theory question, that’s where we go to, OK, we need to talk about science, we need to define science, what science is. What it isn’t. What’s a theory, what’s a hypothesis, and separate those things out. And I mean, I’ve had one parent that kind of kept going, but I think that was one of those situations where he’s attacking me instead of the argument itself, and other parents and the kids were, they were just fine. They kind of had to block him out. [Interview, education staff member]

Other staff indicated they’ve had similar issues, with visitors attempting to dispute the legitimacy of evolution by bringing up other creationist topics. For example, one person giving a tour had “creationists come up to me and in front of the whole group brought up creationist talking points. Example “why do evolutionists still believe in Haeckel’s embryos?” I told this person we did no more and have not for a long time. That came as a surprise,” [MS035]. The use of ideas that have already been discredited by the scientific establishment is a recurring theme, one that appears in creation museums as well as creationist literature (refer back to chapter 3 for more detail).

Most of the encounters reported were relatively peaceful. However, just as described with the written complaints, some of the conversations reported by museum

staff take a decidedly aggressive turn. One individual described her experience on the exhibit floor:

On the floor in the dinosaur hall where a guy actually came to me and said, and he was very – it still gives me nightmares because of how aggressive he was. He just kind of came up to me with his arms crossed and said “How do you explain sea shells at the top of mountains?” and I was just like, oh, well, there’s geologic uplift and so where you have one plate sliding another plate and the mountain ranges form this way... I was just explaining something and he got more upset or more – he kept questioning me more about, well how do you know? How is this? What is this area? There’s an area that I’m talking about and I was like, what area are you talking about where this? Like what specific area can I talk to you about because like I can think of all these different areas but I need a specific – like what geology are you talking about? And he just wanted to get in an argument about seashells at the top of mountains and the Flood was putting them there. [Interview, education staff member]

Several participants reported similar experiences. One person told me that “there were a couple of times where people had more direct, aggressive questioning. Like one guy explained sort of a Biblical worldview. I tried to patiently take his questions one at a time and tell him about a scientific perspective on it and he left the room thumping his chest saying “I’m just saying, I’m just saying”,” [Interview, education staff member].

Others reported similarly argumentative visitors. For example, one individual described an encounter with an angry visitor, explaining they were:

attending a table in our lobby on Darwin Day when I was assaulted by an angry visitor. He had no specific objections to anything we were doing or saying, he was just angry. The only thing I remember him asking me was the full title of Darwin's Origin⁴⁷. Thereafter, I refused to answer his questions and he walked away. I would have followed him but I needed to stay with my specimens. [MS086]

Some of the more severe experiences involved condemnations and anger. One museum employee told me “I have been yelled at, I have been told I’m going to Hell, I have had people yank their kids away saying “we don’t believe this”,” [Interview,

⁴⁷ This is a common technique among creationists: using the full title of *The Origin of Species* in an attempt to equate Darwin and natural selection with racism (Campolo 2009).

volunteer], while another described their encounter, explaining that they have “had visitors complain that we are 'lying' to them because we do not discuss creationism in the Museum [*sic*]. I've personally been yelled at and told I'm going to hell because I teach human evolution in the Museum [*sic*],” [MS001].

Not only is museum staff yelled at, but staff members report instances of visitors preaching at other visitors in the museum. One person explained an encounter a visitor had with a member of a Biblically Correct Tour⁴⁸ noting that “One of the people on the tour went in to the area where Lucy is and there was a mom and her young son, maybe about 6 or 8 years old or something. And this woman on the tour told them that they were going to hell,” [Interview, exhibits staff member]. Another individual described an experience wherein someone was escorted out of the museum for “loudly preaching at the human evolution exhibit. He was escorted out not because of his beliefs--he had a perfect right to express them!--but because he was loud and disruptive and our other visitors were complaining,” [MS072].

Stealth Opposition The final method of contesting scientific authority in the museum can best be categorized as stealth opposition. These individuals choose to share their beliefs through pamphlets, tracts, and books that are scattered throughout the museum. One person knew precisely who was leaving the materials, noting that “a family of creationists comes to our dinosaurs and fossils gallery and regularly leaves leaflets everywhere. They also wear pro-creation shirts,” [MS159]. More often than not, however, the literature is left without the staff truly knowing who is responsible. Typically, literature is left in relevant exhibits, though not always.

⁴⁸ Biblically Correct Tours is an organization based out of Colorado which frequently leads tours in the Denver Museum of Nature and Science. This concept will be explored in the subsequent chapter.

One woman described a common occurrence at her museum, telling me that occasionally you would just start finding creationist pamphlets. You know, like little booklets. They would just be all around, and they wouldn't even necessarily be just in the dinosaurs and fossils exhibit, they could be anywhere in the museum. But, you know – in fact, you'd probably find – people working in all the different galleries would probably find one or two hidden here or there. [Interview, education staff member]

Similar experiences were reported in other institutions. For example, one staff member reported being personally given literature as well as finding items left in their dinosaur gallery. She recounted, “I had one lady... handed me a pamphlet. I mean, yeah I'll take your pamphlet. I love collecting them to read them... People actually sometimes come in and leave stuff on our dino platforms,” [Interview, education staff member]. An additional source of this antievolution literature in the museum is the museum's gift shop. One museum employee reported finding materials “tucked into books, especially in the kids' books,” [Interview, education staff member].

In other instances this pro-creation material is instead mailed directly to museum staff. Sometimes, as noted previously, this material is accompanied by a more extensive message. One person stated that they “receive creationist literature about every two months from usually unidentified sources,” [MS038]. This matches the relative anonymity of scattering the materials in the museum. The information is dispersed, but no conversation has to be had about the materials. In these cases, however, the information is clearly intended for staff to use. By contrast, the deposition of antievolution literature in the museum (whether in the exhibits or in the bookstore) is targeted at museum visitors who may be more open to receiving information about alternate origin stories.

Each of these anecdotes carries a clear undercurrent of contesting the authority of science and the secular museum. The intensity of these experiences may vary by institution, by region, and even by an individual's position within the museum. Even so, the overarching theme remains constant. For creationists in the museum, anything that conflicts with supreme Biblical authority cannot be correct, prohibits the cultural reproduction of their belief system, and is problematic enough to drive oppositional action.

Human Evolution in the Museum

We know that visitors to American museums are split on the topic of human evolution, but how do the museums respond to this split? Several museums do have exhibits which feature human evolution prominently (for example, the American Museum of Natural History's Hall of Human Origins and the McClung Museum's Human Origins: Searching for our Fossil Ancestors), but this is not the case at every museum. Table 7 represents institutional responses to questions regarding exhibit and programming content. Among the surveyed museums, an equal number featured as did not feature human evolution (31 apiece). By contrast, many more museums exhibited non-human evolution (52) than not (14). A basic cross-tabular analysis enhances our understanding of the relationship between, evolution, human evolution, and the museum: among surveyed museums, only two that featured human evolution did not also have separate exhibits or programs that feature evolution. By contrast, 21 of the museums which exhibited evolution did not also feature discussions of human evolution.

Table 7: Survey Responses Regarding Human and General Evolution in Museums

	Yes	No	Not sure	Total
Human evolution exhibits/programs	31 (47.4%)	31 (47.7%)	3 (4.6%)	65
General evolution exhibits/programs	52 (74.3%)	14 (20.0%)	4 (5.7%)	70

A deeper analysis of the survey data gathered for this project reveals three pieces of correlational data that may highlight an important trend among professional experiences with antievolutionism. The first relevant correlation is the highly significant correlation between museums that feature human evolution and employee experiences with antievolution comments ($r = .271$, $n = 79$, $p = .008$). Pearson's correlation also indicates that the presence of a human evolution exhibit or program is significantly correlated with the presence of additional exhibits or programming which discuss evolution in a non-human context ($r = .474$, $n = 96$, $p = .000$). Most notably, however, is the lack of a correlation between the presence of a general evolution exhibit and antievolution comments in the museum ($r = .040$, $n = 96$, $p = .349$), indicating that human evolution is what museum visitors find most problematic.

No Human Evolution in the Museum One particularly important point that the survey exposed pertains to why museums decide to avoid exhibiting human evolution. While it is easy to assume they simply want to avoid controversy (and in some cases, this is an accurate assumption), that is not the case for every institution. Some museums find that human evolution exhibits are beyond the scope of their mission statement. Several survey respondents emphasized this, pointing generally to the mission statement and saying "officially, this is not a part of our mission," [MS029]. Another respondent elaborated, noting that "It doesn't really fit into current mission. Our mission is to

interpret the natural and cultural history of the Great Plains with specific emphasis on Nebraska,” [MS181].

Others pointed specifically to the fact that human evolution would not fit in with the museum, claiming “Our museum focuses on environmental research and systematics of non-human species.” [MS103] Still others made a clear distinction between natural history and what one termed “human-related science” [MS091], deeming human evolution only appropriate for discussion in an anthropology museum. Many of these same individuals noted that their museum intentionally tried to avoid overlapping topics with other museums in the same cities, stating “We are focused on natural history and leave anthropology to another museum in town,” [MS084].

A second common theme among survey respondents was the lack of resources (both in physical specimens and staff expertise). For some, it was simply lacking “the requisite specimens or space,” [MS153]. For others, the driving factor was a lack of staff interest, with one person stating that “it is not part of our research agenda within the curatorial staff,” [MS025]. The most common impediment in this category, however, was a lack of collection materials related to human evolution. One individual explained the importance of this factor, stating “We really don’t have anything in our collections that deal with human evolution and our exhibits reflect our collections. If we had something we would do an exhibit about it,” [MS200]. Although it is common practice to borrow or purchase materials for exhibition while consulting with outside experts to construct accurate exhibits, the individuals at these institutions indicated that these were not options for them when it comes to exhibiting human evolution.

An additional resource-related consideration for one museum was the lack of authentic materials available. “We have discussed it often, but the main reason is that it would all be casts and our museum prides itself on mostly having real collections on exhibit,” [MS083]. The debate over authenticity in museum artifacts is not limited to human evolution-related materials, thus it is unsurprisingly an important issue for some museums when they choose to exhibit human evolution.

During the traveling “Lucy” exhibit, for example, there was a substantial debate over whether the Ethiopian government should allow the original fossil to travel to various museums in the United States or if, due to the importance of the find, a replica should be used in its place (Lovgren 2006). This kind of consideration is highly unrealistic for museum in the United States, where no notable human evolution finds have occurred. Many – including the aforementioned Lucy specimen – instead remain in the country of their origin and become a source of immense national pride (Scott 2007).

Finally, among museums who decide against exhibiting human evolution there is a consideration of visitors and a tendency to avoid the controversy. Simply put, the staff acknowledges that the topic may be disliked by their visitors. However, they do not think the tradeoff between the scientific necessity of displaying human origins and potentially angering a large portion of the visitorship is a worthwhile exchange. In some cases, the concerns are vague. For example, one individual remarked that “it would receive a lot of negative feedback in Montana.” [MS156]. However, another staff member pointed directly to the demographics of the community, noting “Our community is too conservative/Christian to handle it,” [MS066]. As explored in chapter two, conservatism (both religious and political) as well as religious affiliation relate strongly to evolution

acceptance. Therefore, in communities that tend to be both conservative and strongly religious, fear that a human evolution exhibit would not be positively received is not unfounded.

Staff in Opposition The creation of exhibits in a museum typically involves a variety of parties from all aspects of museum management. Among this survey sample, individuals involved in the development process include administrators (15), educators (26), curatorial staff (34), exhibits staff (13), and collections management (5). However, just as there are concerns about visitors when constructing an evolution exhibit, the beliefs of staff members can have an impact on whether or not human evolution makes it into their museum. This is particularly relevant for those in positions of power: primarily, museum board members. Indeed, as one individual noted, “I suspect there has been an unspoken fear among past museum administrators to tackle human evolution head on,” [MS081]. Likewise, donors can influence museum exhibits, albeit in a different fashion. The power that these groups wield is different: for administrators and trustees, there is the power to limit what is being presented (Mottner and Ford 2008), while for donors there is the potential for large donations to have an impact on how their money is spent with respect to exhibit content (Hughes and Luksetich 2004).

Museum administrators play a tremendous role in guiding institutional development (McLean 1999), and thus these administrators may have a powerful influence on how a museum embraces (or avoids) human evolution. Staff members shared their experiences with this, noticing that a change in director could equate to a change in institutional policy regarding evolution. One individual in particular spoke to the differences in institutional policy that came along with a change in director, noting

that with the previous director: “The museum had had a long policy of trying to avoid the conflict. Even as much as we once had a special exhibit that came in that had the word evolution in the title and before we would agree to host it, we had to agree to allow us to use a different name without evolution in it,” [Interview, education staff member] and with the current director: “this president is more, you know what? If it’s appropriate, put up a sign! If it’s not, don’t. But we’re not going to make a decision on that based on a small percentage of our population. We will go on the leading scientific views,” [Interview, education staff member].

An additional common concern is not with exhibiting evolution, but rather other young-Earth creationist beliefs. One respondent remarked that their:

VP of Operations takes exception to what we teach in the planetarium about the age of the universe. His objection to what we teach had led to significant tension between the Education Department and the Operations Department...to an extent that Operations openly interferes with our ability to conduct programming in the museum. [MS203]

Another participant discussed how a member of the board would make references to Christian theology in his remarks at the museum, describing an exhibit opening thusly: “whenever the exhibit hall upstairs opened a few years ago...he gave a talk at the opening of that hall and invoked Adam & Eve. There is this, you know, intentional act of trying to avoid addressing evolution,” [Interview, curatorial staff member]. In each of the previously described cases, administrators and board members were able to use their position of power as a method of injecting their personal beliefs into the museum. These beliefs ultimately impacted not only the formation of exhibits, but programming opportunities as well.

An additional consideration in the dichotomy between power and exhibition in the museum relates to the financial strain museums frequently face. Monetary donations are a critical piece of financial solvency for many museums. In spite of this, donors arguably have less power than staff members in dictating what can be exhibited in the museum. While very large donations may result in an exhibit being named after the donor (for example, the David H. Koch Hall of Human Origins at the National Museum of Natural History), donors do not seem to have extensive power outside of naming rights and the occasional quotation.

In many institutions, however, the donor's power comes from limiting presentation. Interestingly, this limited presentation is not always at the behest of the donor. In many cases, museums preemptively limit controversial content out of a fear that it may prohibit them from courting wealthy donors. A former curator indicated to me that the lack of human evolution was "to avoid alienating any of the big donors. And you know, donors tend to be wealthy, tend to be conservative...I heard rumors about some trustees not being very comfortable with the idea of evolution and trying to get the museum to be low-key in that respect," [Interview, research staff member]. Another individual echoed the same sentiment, stating "My sense is that there has been active avoidance of the topic of evolution in our recent exhibit developments... I have been told that the museum director and board of trustees fear that bringing the topic of evolution into exhibits would compromise funding efforts," [MS027].

Religious Accommodation The dilemma of donor desires versus the direction of the museum is an unrelenting issue for cash-strapped museums. Recently, a minor skirmish erupted in Los Angeles regarding label text at the Natural History Museum of

Los Angeles County. On the entryway of their new exhibit was a brief, one-sentence introduction to the Nature Lab which read “The Nature Lab is a gift to Los Angeles to celebrate all of God’s creatures and enable NHM to broaden our understanding of the natural world through the process of scientific discovery,” (Ng 2013). This text, placed at the behest of a major donor, was immediately at the center of a minor controversy.

Staff members and scientists from across the country objected vociferously to the label, arguing that invoking the name of God was inappropriate. Some argued that because the Natural History Museum of Los Angeles County is publically funded⁴⁹, inclusion of God was inappropriate (Coyne 2013), while others stressed that inherent in this label was the potential to exclude individuals of other religious traditions. One employee described the conflict, explaining:

Even if it’s a donor’s quote, it still says something that we put it up there. So we had a discussion with it in our education department about OK, this quote went up, we all know, we all saw it. How do we go about this if visitors ask? Well, there’s about twelve to fourteen of us in the education department that are on the floor and not everybody’s of the same viewpoint on religion and we’re all from different backgrounds. And so I, coming from my side, which I’m like full-on atheist, I was not raised religious at all. I was like, this is totally exclusive, this excludes all other...Buddhists and whoever else comes in the museum that’s of a different, atheists, different people’s background saying “God’s creatures”. But then my coworker who is actually in school for theology was like “Well, we should talk to people about how religion and science can coexist.” And I was like, that’s not really our job in the first place. [Interview, education staff member]

The situation in Los Angeles raises a very important issue that all secular museums grapple with: what is the responsibility held to represent more than just the scientific consensus in the halls of the museum? Should there be a discussion of alternate ideas of human origins, or is trying to incorporate multiple perspectives (what can be termed *religious accommodation*) outside of the scope of the museum?

⁴⁹ According to the museum’s website, 45% of its annual budget comes from county funding.

Among museum professionals, there exists a variety of opinions on the validity of this approach. These responses are largely context dependent, allowing for discussions of religion in exhibits where this may be appropriate (history, art, or religion-based exhibits) but not within the context of the science of human origins. As a research staffer at a large natural history museum told me, “The natural history museum’s a science museum, so they should provide the scientific view of the origin of life. But if you know church wants to have an alternative view, that’s perfectly fine with me. It’s just I don’t think that would be appropriate in a science museum,” [Interview, research staff member]. Others made similar statements, noting that discussing the issue of alternate ideas of human origins would be confusing, muddling the idea of scientific authority because teaching creationism alongside evolution:

gives it credibility as if it’s an either/or thing... And by saying, OK, let’s have both perspectives, you’re saying that there are two perspectives when we know that there are not. There is no controversy in scientific circles, so why introduce the public to a very small, very vocal group, but a very small group that represents a single religion in this country in a science museum? [Interview, curatorial staff member]

Placed within the framework of museum authority, supporters of the “evolution only” approach can best be understood as supporting and reinforcing science as the primary source of authoritative knowledge in the natural world. Their argument is not theological in nature, but rather emphasizes the role that secular museums play in informal science education. Among those I spoke with, several who vehemently opposed incorporating an acknowledgement of “alternate ideas” into evolution exhibits themselves identified as Christian. However, none would go so far as to label themselves creationists, preferring instead to professionally identify with their scientific discipline.

A recurring theme among those who opposed the “teach both” approach was the lack of evidence behind the creationist viewpoint. The lack of scientific credibility was highlighted by one employee, who told me:

I think that science museums should just display the science. I’m not convinced that the creation view is based on science, so I don’t think that it should come from that angle...you want to welcome people and if someone doesn’t feel welcome in a museum they’re not going to come. But we’re not going to cater to everybody’s view. I think science museums should just show the science of it. [Interview, exhibits staff member]

Likewise, an employee at a university natural history museum emphasized the need for exhibits to coincide with the science being taught on campus, stating “The objectives of our exhibit were to present what is taught here at this university and what is taught here at this university and this department is what’s in that exhibit. So we didn’t really want to present any other particular point of view because they are largely based on different religious perspectives.” [Interview, education staff member].

A third individual indicated that they didn’t think discussing creationism was appropriate, and that museums shouldn’t shy away from discussing the nature of science, explaining that “Science is always changing, and if something comes up in the evolution that says that idea is wrong, it’s tossed out. That’s science. Creationism has a narrow view... And a natural history museum should not have anything but science,” [Interview, docent].

By contrast, there are museum professionals who do believe that a discussion of alternate ideas may be appropriate in certain settings. For these individuals, it is less about preserving scientific authority in the museum and more about alleviating perceived confusion among the museum guests. One staff member pointed out that the

pervasiveness of the creation question in the United States would necessitate discussing creationism in an exhibit that was focused on evolution, stating:

In general for something like our dinosaurs and fossils gallery, I don't think there's any reason to feature both points of view. But, you know, we have talked about making an exhibit on evolution... With that, I think it would be odd not to address that somewhere because it's a big deal, you know? It's a very pervasive argument, especially when it comes to education, and it would be odd for us not to address it in some sort of fashion. [Interview, education staff member]

An important element in the debate about even minimal amounts of religious accommodation in the museum is the concept of the entrance narrative. Doering (1999) describes a visitor's entrance narrative as the information they bring with them into the museum. This can include previous knowledge (through education or other channels), cultural background, and religious affiliation. All of these factors will influence a visitor's experience in the exhibit. In speaking about an element at the American Museum of Natural History's Hall of Human Origins in New York City, one individual describes that museum's approach:

There's...a video of different scientists talking about evolution and religion. I think that is really good. So it's not entirely shying away from it. I don't believe there should be an exhibition on creation or giving equal time, anything like that... but if they're [the visitor] not like "I am creationist", they may be wondering how to reconcile things. And I think a small bit of space devoted to that can be a good thing. Just devoted to, we acknowledge that people are asking questions about religion and how to deal with it. [Interview, research staff member]

The concept of creating a dialog about the topic was proposed by additional participants. One person, although opposed to presenting creationism, noted that:

I think that there's a place. One thing is to be able to open a dialogue, you know. And another thing would be to say, well, there's this other theory... What I'm trying to say here is that being more, being friendlier and inviting people to see that there's no threat in the theory of evolution to the religious belief is one thing. Having the museum say well, there's this other thing, that's just a no-no," [Interview, docent].

Surprisingly, when creation museum employees were asked whether or not they thought teaching both evolution and creation in a museum context was necessary, many of their responses mirrored those of the natural history museum staff. Many creation museums make a point of comparing and contrasting creation versus evolution, particularly in order to illustrate the perceived flaws with evolution. However, when discussing whether they believe natural history museums should take a similar approach, few believe that is necessary. As one individual told me:

There's a lot of evolution scientists/natural history scientists that don't understand the creation science view... So I think it would be difficult, maybe, to have a display at a traditional natural history museum that would present the creation view as objectively as possible. Not to say that everybody would put their slant on it, but that's what I've seen... So I do think it's hard for them to look at it objectively and be able to have a display objectively. [Interview, museum administrator]

Authority and Exceptionalism in the Museum

Among American creationists, there are two primary issues at play in their interaction with secular museums: scientific authority and human exceptionalism. Fraser (2006:88) describes the complex relationship that creationists have with museums as “a struggle for representation and citizenship in a polytheistic society that does not accept their world view.” This struggle for representation is one aspect of the larger issue of cultural reproduction among young-Earth creationists. Feeding into the YEC struggle for cultural reproduction is the perception of being a persecuted minority. Among white evangelical Christians, half (50%) of those surveyed said they face a lot of discrimination on a day-to-day basis (Pew Research Center 2014).

The perception of persecution among evangelical Christians may explain, in part, why there is such strong emphasis on teaching creationist concepts alongside

evolutionary ideas in schools and museums. This push speaks to the creation of identity in museums. In a secular country that largely divorces religion and science, those who believe that their religion and science are intimately connected hope to see themselves, their beliefs, and their understanding of science reflected in the dialog about science education. This is largely where creation science becomes a useful tool for the young-Earth creationist.

As Ken Ham (2010) is fond of pointing out, the difference between secular science and creation science is largely dependent on an individual's starting point. Creation science advocates argue that the primary difference between creation science and secular science is situated not within the scientific method, but within the goal of the discipline: to find scientific proof that confirms the Bible (Scott 2009). For individuals who believe in the inerrancy of Scripture and adhere to a literal interpretation of Genesis, creation science confirms what they already know within their hearts. As a result, it is far less important than having faith in the Word of God.

However, secular museums that deal with human origins leave biblical authority out of the discussion. As such, creation science becomes a less useful tool (though it is frequently invoked in much of the literature received by secular museums). Thus, within the secular museum, creationists find it to be more useful to denigrate scientific authority while simultaneously invoking biblical authority.

In his discussion about the human origins exhibit at the Cleveland Museum of Natural History, Sonino John Paul Scardelletti (a creationist) argues that the biggest issue is that the exhibit is:

...constantly telling people they've descended from an ape-like creature and are not created in the image of God. This is totally against the teachings of Jesus

Christ and the Book of Genesis. It instills into society that the Bible cannot be trusted concerning the human origin. This further leads many to doubting Scripture in other areas, which eventually contributes to the removing of the Bible from one's life altogether. It means living by man's laws instead of God's. [2007: 166-167]

Scardelletti's argument is, at its heart, about giving preference to scientific authority instead of scripture. In order to undermine this potentially detrimental scientific viewpoint, young-Earth creationists have latched onto two main issues in the secular museum. These common topics include the age of the Earth (including the fossil record) and human evolution (particularly Lucy).

As discussed in chapter two, a primary tenet of young-Earth creationist ideology is the belief in a young earth. Based on the same calculus as used by Archbishop Ussher in 1650 (Morris 2003), individuals who consider themselves young-Earth creationists believe that the Earth is substantially younger than mainstream science indicates (and younger than the timeline conveyed in a secular museum). Because of this belief, even without the knowledge of creation science, an individual who believes in the authority of scripture will find information presented in the secular museum problematic. It is not authoritative given that the Bible is the ultimate authority governing the natural world. Discussions of the age of the Earth may come in the form of a dinosaur exhibit, a fossil gallery, a geology exhibit, or exhibitions about evolution. This may, in part, explain why objections to the age of the Earth are so commonly reported by museum staff – just about every natural history museum, science center, or anthropology museum will have exhibits which conflict with a young-Earth timeline.

Human Exceptionalism in the Museum While the age of the Earth is a major point of contention for visitors at nearly all secular museums, the results presented earlier

in this chapter clearly indicate that evolution in general is less problematic for visitors than human evolution specifically. The incorporation of humans into the evolutionary process is perceived as troubling by creationist visitors. Many staff members observed that at their institutions, most evolution-related complaints pertained specifically to humans and the concept of divine creation. One individual described a tour they had given, observing that when he “began to talk about Lucy ... there were some faces that kinda got a little sour. And my impression was they were fine with dinosaurs, dinosaurs were great, but not humans. You know? They draw the line,” [Interview, docent].

At a different institution, this distinction between dinosaurs and humans was again noted, “People express disbelief that evolution applies to humans; this after walking through the previous nine tenths of the paleontology hall where evolution is featured to explain pre-dinosaur and dinosaur life on the planet. People seem ok with that, but when they enter the final portion of the display, and see it linked to us humans, they balk and complain,” [MS035]. For instance, during an exhibit installation, “one parent was heard to say loudly to his children: these are all lies -- pointing to the displays of early humans,” [MS035]. This individual’s specific belief structure is unknown; however, the lack of authority placed in the human fossil record is a common component of young-Earth rhetoric.

The observations of museum staff speak to the concept of human exceptionalism. Miller et al. (2006) identified a belief in human exceptionalism as one of the four main factors which influence evolution acceptance in the United States. The human exceptionalism paradigm rests on four basic principles: that humans are unique among animals because they have culture, that culture varies infinitely and drives powerful

changes, that human differences may be socially induced, and cultural progress is limitless (Catton and Dunlap 1978). The creationist iteration of human exceptionalism builds particularly on the first aspect of the human exceptionalism paradigm (humans are unique among animals). However, rather than emphasizing culture, this version of human exceptionalism focuses on the concept of special creation.

The Institute for Creation Research explains the concept of special creation, stating that humans are:

created in the image of God, a quality that separates him from the animals created on day six. This special creation explains why man's behavior is far more complex than any other living thing on the planet. Man reveals God's image in many ways... Man also differs from the other creatures in his relationship to God. Man was created to serve other men and God, a fact that forms the basis for society. Men are God's most treasured creation. God treasures man so much that He died to reconcile man to Himself. It is this value that God places on man that truly separates him from the rest of creation. [Institute for Creation Research n.d.]

The position being articulated by the Institute for Creation Research is far from uncommon among the faithful who count themselves as young-Earth creationists. A quick review of the Answers in Genesis website, for example reveals articles discussing how man is created in the image of God (Short 1981), how paleoanthropology is engaged in an ongoing quest to deny special creation (Seegert 2005), and the human body as God's masterpiece (Paturi 1998). The basis of this claim is found in Genesis 1:26-28 (AV), which reads:

And God said, Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth. So God created man in his *own* image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth.

Believers in human exceptionalism, therefore, embrace the idea that they are special, their biology is separate from that of other animals and therefore immune to biological processes. This was reflected by an experience a staff member had with a young visitor, who told them that “humans are too perfect to not have been created by God; it just could not happen by chance,” [MS175]. Even creationist individuals who accept the concept of animal evolution place supreme authority in the Bible, rather than science, when it comes time to apply the concept to the human species.

This response to human evolution can be linked to an observation by a staff member which likened antievolutionism to a fear-based response, telling me:

The interesting thing I've noticed over the years of talking to people about human evolution and when they get angry at me, they're not mad. They're afraid. It's fear that I'm seeing. Not necessarily anger. Which I thought was an interesting kind of epiphany to discover. They're not angry to be angry. They're angry because they're afraid. [Interview, volunteer]

Indeed, many of the creationist survey responses contained emotionally-charged responses, with one individual going so far as to proclaim “I am embarrassed as an American and angry as a taxpayer that these publicly funded institutions espouse, without question, such a lopsided point of view,” [CS33] These emotional responses speak to the heart of creationist objections to evolution being presented as fact. For those who have been socially submersed in a belief system such as fundamentalist Christianity, the scientific view of evolution runs contrary to what they have been taught, in some cases, for their entire lives. It calls into question the main authority in their lives, and for fervent believers in a young-Earth, that worldview will be protected at all costs.

Conclusion

The ARK Foundation is a Dayton, Ohio based evangelical organization with the stated purpose to “Educate, Train, Encourage and Assist All People To Understand How

Great Is Our Creator & Designer—God,” (ARK Foundation 1997). On their website, visitors can navigate a virtual museum section which is divided into three categories of online museums: Biblical creation, historical, and atheist evolutionary. In the “atheist evolutionary” category, visitors are directed to the websites of the University of California Museum of Paleontology and that of the University of Pennsylvania Museum of Archaeology and Anthropology. Implicit in the labeling of these two institutions is the dichotomy that exists for many young-Earth creationists: if a museum is not explicitly creationist, it is automatically godless.

The perceived godless nature of natural history, anthropology, and science museums is the biggest issue for creationist visitors to the secular museum as it represents a slight against Biblical authority in favor of scientific authority. However, as demonstrated in this chapter, it does not prevent individuals who favor a creationist ideology (of any sort) from visiting the museum. The perception that there is a “filter” which limits creationist visitors to secular museums is not entirely accurate. The data presented here indicate that creationists do visit natural history museums, and while some are vocal in their objections, not all are. One can extrapolate, therefore, that not all creationist visitors are going to the museum and registering complaints about the content, thus reducing their visibility to the staff.

Even though it is indisputable that secular museums do favor a scientific approach to understanding the natural world, there is an element of derision included in the interpretation of the mission and content of secular museums as “godless”. As demonstrated throughout this chapter, creationist visitors have a variety of ways in which they dispute the scientific authority and legitimacy of what is portrayed in the museum.

Contesting this authority, however, is just one piece of the activities of creationists in the secular museum. As will be thoroughly explored in the next chapter, creationist visitors have methods of subverting the academic authority of secular museums, using faith-based materials to reinterpret museum exhibits in a way that meshes cohesively with supreme Biblical authority.

CHAPTER 5

SUBVERTING AUTHORITY: CREATIONIST TOOLS FOR THE NATURAL HISTORY MUSEUM

The use of museums by young-Earth creationists is a function of an authoritative structure which counters the secular scientific perspective. Creation museums are used to construct Biblical authority while natural history museums become tools for contesting scientific authority's supremacy over religious authority, yet in both cases the relationship between museums and authority is intertwined with the concern of cultural reproduction of young-Earth creationism. In this chapter, I discuss an additional use of secular museums by young-Earth creationists: the creation of tools that re-interpret exhibits in creationist terms, thereby subverting scientific authority. These tools focus the lens of creationist museum visitors that enables them to use museum exhibits to support their world view.

Over the course of my interviews, individuals at creation museums repeatedly touched on their love of visiting secular museums. When I asked one person how he reconciled the different worldview and contradictory timelines, he responded that “you can see how much fun I can have going through a museum. I mean, it’s a ball. I resist, you know, getting on a little soapbox and taking all the visitors and giving them a lecture. I know that wouldn’t go over well. So I don’t want to be disruptive, but I’m tempted,” [Interview, curatorial staff member].

This kind of sentiment was echoed at a different creation museum, where a museum staffer told me that “I’ve been tempted at the museum to stand in front of a fossil and do a presentation. But I passed on it. It’d be interesting to see how they’d react. I don’t know that they could say you can’t do it. I don’t know. I could stand there and do

a talk on it, you know?” [Interview, docent]⁵⁰. Both of these individuals represent the tension inherent when a young-Earth creationist visits a secular museum. The museum acts as an authoritative venue, yet this authority stands in direct contrast to the ultimate authority of God which young-Earth creationists hold in esteem and hope to pass on to their friends and loved ones.

Giving a creationist lecture in an exhibit is just one example of how scientific authority might be subverted in a natural history museum. There are several additional tools available for creationist museum visitors to deconstruct scientific authority and reframe museum exhibits within the paradigm of biblical creationism, thus facilitating the use of secular museums as institutions which support young-Earth viewpoints. These techniques include the use of written guides, organized tours, technology and virtual tours of museums, as well as staff and volunteer attempts to subvert authority from within. Each of these elements will be explored with the ultimate goal of understanding how scientific authority is undermined by creationist visitors in the halls of the museum.

Visiting the Museum

In the United States today, there are fewer than thirty creation museums in various stages of development. By contrast, there are approximately 300 natural history museums (and an additional 398 museums classified as science and technology centers) scattered throughout the country.⁵¹ The ubiquity of secular natural history museums combined with

⁵⁰ Interestingly, there have been cases where the reverse has happened: evolutionist visitors to creation museums have been kicked out for discussing the flaws in exhibits. PZ Myers (2009) reported on one such incident: “I was with him when he was pulled aside, and can verify that he was doing nothing but engaging in quiet conversation with a small group of us godless atheists when Mark Looy arbitrarily singled him out and took him aside to tell him stories about how unruly he had been.”

⁵¹ These figures come from the 2014 IMLS Museum Universe Data File, which provides details for each of the 35,000 museums in the United States.

the scarcity of creation museums means that creationists who wish to visit a museum will likely go to a natural history museum which contradicts their worldview.

For these same individuals, however, there is a variety of tools at their disposal for reinterpreting the exhibitions to match a biblical timeframe and thus completely undermining scientific authority. These options include using creation-based guidebooks (either on general topics like “dinosaurs” or written specifically for one museum) and engaging in group tours of exhibitions with a guide that “correctly” interprets the information being presented by the museum. Each of these options will be explored below.

Written Guides On the first page of the Answers in Genesis “Museum Guide”, the reader is presented with a question about natural history museums: “Is it possible for a Bible-believing Christian to visit such a place and yet leave with his faith intact?” This question speaks directly to the perceived threat to young-Earth creationism that many find inherent in natural history museums which present a scientific – rather than biblical – world view.

The introduction to the “Museum Guide” goes on to urge the reader to “learn how to tell what is true from what is fiction by learning to be discerning, as the Bible exhorts us to be,” (2007:7). The book provides information about biblical history for the reader to be able to contextualize what they are learning in the book and in whichever museum they are visiting. Included in this guide is a discussion of the major topics in natural history museums. These include Hall of Life (which includes information on origins, dinosaurs, and human evolution), Hall of our Exciting Earth (which discusses topics such

as rocks, the Ice Age, and coal), and Hall of Our Expansive Universe (which takes on discussions about astronomy and the Big Bang).

Like much of what *Answers in Genesis* does, the “Museum Guide”⁵² is not the sole example of this approach to undermining scientific authority in the museum; it is merely the best-known example of such literature. These guides are highly variable: some are generalized, whereas others are written for specific museums/exhibits. Still others are available in book form, and a variety of resources exist on websites and in digital forums for free, widespread distribution⁵³.

Table 8 lists four examples of museum guides that are not designed for any particular institution. Two of these publications are longer books (*Answers in Genesis & Adventure Safaris*), and the other two are magazine articles (*Acts & Facts* and *Homeschooling Today Magazine*). The approaches employed by these publications vary in accordance with their form. The books are more thorough, breaking down different topics from a biblical perspective. By contrast, the magazine articles are less about specific creationist education, instead focusing on encouraging Christians to make use of their local natural history museum while still keeping in mind the conflict between the young-Earth worldview and what is being presented in the museum context.

⁵² *Answers in Genesis* also has a “Zoo Guide” and an “Aquarium Guide”, which will not be discussed here.

⁵³ Technological resources will be discussed in their own section in this chapter.

Table 8: General Creationist Museum Guides

Title	Source
Make Museums Count for Creation	Acts & Facts, Kenneth Ham, vol. 20 no.2
Giants in the Earth: Dinosaur & Science Museum Field Book	Adventure Safaris, n.d. (self-published)
Museum Guide: A Bible-Based Handbook to Natural History Museums	Answers in Genesis, 2007
A Museum Guide for the Creation-Minded	Homeschooling Today Magazine, Felice Gerwitz, 2006

In his Acts & Facts article, Ken Ham (1991) writes:

I realized that Christians should not be intimidated by these museum displays. Yes, they are set up as great evolutionary propaganda machines, but, armed with a good understanding of the evidence for creation and against evolution, it is easy to give a guided tour through these museums to show our children that there is no evidence for evolution. In fact, secular museums can be some of the best places to take our children so they can see for themselves that these institutions, with supposedly the best collections of evidences for evolution from around the world, in reality do not have any evidence for evolution.

Written when Ham was still affiliated with ICR, this article is the forerunner of the AiG “Museum Guide”. It provides a starting point of five arguments a creationist parent can use in a natural history museum to share their faith with others. These arguments include 1) discussions of “kinds” of animals, 2) the lack of eyewitness testimony to support what is known about the fossil record, 3) questioning the fossilization process of fish, 4) criticizing the concept of animal evolution, and 5) a discussion of abiogenesis. With each of these talking points, Ham provides the appropriate Bible verse to enhance the authoritative nature of the argument being constructed.

Gerwitz (2006) shared similar advice in her museum guide in writing about her experiences at museums with her kids:

Education is the key. There are many fun field trips you can take with your children. When we traveled to Washington, D.C. and visited the Smithsonian Museums, the Natural History Museum caused much discussion when our

children turned to us and asked, "That isn't true, is it?" Heads turned to look at us. We gave a brief lesson and moved on. We critically analyzed everything to see where the truth has been skirted and the "evidence" stretched.

Gerwitz's description of this event is a perfect encapsulation of the ultimate goal of these museum guides: allowing the visitor the opportunity to present the creationist viewpoint (to family members or any other visitors that happen to be nearby) and demonstrate that the museum's science cannot be trusted.

Both of these shorter articles provide a general structure of how to effectively undermine scientific authority in the museum. They offer guidance and the basic architecture of what creationists can do for themselves and their families to make use of a secular museum while remaining true to a young-Earth creationist interpretation. For the newly-converted creationist (or simply an individual who is not as familiar with the creation science aspect of creationism), more detailed museum guides become handy tools for re-interpreting secular museum exhibits. Detailed information is provided which explains topics such as dinosaurs, fossils, the age of the earth, and the place of humans in the animal kingdom, all from a biblical perspective, using creation science to reinforce the constructed narrative.

Providing information from a biblical perspective is precisely what both the AiG and Adventure Safaris guidebooks⁵⁴ do. Like the creationist museum exhibits I discussed in chapter three, these books are designed with the ultimate purpose of demonstrating that secular science cannot be relied upon, and that the Bible is the epistemological authority of the world. Creationist exhibits construct this authority, and museum guides are condensed, portable versions of these exhibits which can be used to undermine scientific authority in a secular space.

⁵⁴ Adventure Safaris is affiliated with the Twin Cities Creation Science Association.

Depending on the topic, these museum guides rely on a mixture of scientific fact, creation science, scripture, and misinformation to create a new framework for the visitor to understand what they see in the museum. The Answers in Genesis guide begins the chapter called “Human Exhibits” by discussing one of the recurring influential factors on human evolution acceptance: human exceptionalism. They write that:

Museums often go to great pains to emphasize that humans are just another animal, like all the other mammals in the museum....We’re not just another mammal; we were created in the image of God. We were given the assignment to rule over the rest of creation, under the authority of God and according to His instructions in Scripture. [Answers in Genesis 2007:97]

This sets the tone for each of the topics covered in this section⁵⁵, allowing each subsequent topic to be deconstructed and reframed within the appropriate (Biblically-correct) framework.

An example of this deconstruction/reconstruction process can be seen in the section labeled “What Are They, Really?”, wherein eight commonly discussed groups among the hominins are identified⁵⁶. Each of the groups discussed is categorized as either an extinct ape or a version of a human, leaving no possibility for intermediate species between the non-human apes and *Homo sapiens*. In discussing *Australopithecus afarensis*, for example, the guide explains the research of Stern and Sussman (1983) in an attempt to demonstrate that Lucy was simply an extinct ape. This research is supplemented by a citation from Answers in Genesis, directing the reader to their website for more information on australopithecine jaws and their resemblance to modern gorillas (Answers in Genesis 2007). The overall message is that *A. afarensis* is not a human

⁵⁵ The list includes human evolution, genetic similarities between humans and chimpanzees, and the origins of human races (among others).

⁵⁶ This section also includes a discussion of the Laetoli footprints in addition to the different groups of hominins.

ancestor, and to consider this species anything other than a non-human primate is a mistake.

The strategy employed in “What Are They, Really?” is an approach seen frequently in creationist materials and creation museums: leaning heavily on cherry-picked quotes from reliable scientific sources to create the appearance of secular scientific support for the creationist viewpoint. Research by creation scientists also plays a role in the construction of these museum guides. In the section on *Homo erectus*, Biblical apologist Marvin Lubenow is quoted as saying “My own conclusion is that *Homo erectus* and Neanderthal are actually the same.” (Answers in Genesis 2007). To those unfamiliar with the intricacies of hominin evolution, this claim may appear legitimate and authoritative. The text refers to Lubenow as “Professor”⁵⁷ and makes a point of telling the reader that he has studied human evolution for 30 years, thus infusing his research with an air of authority.

The Adventure Safaris guidebook also uses creation science as an explanation for what a visitor might see in a museum. In discussing fossilized dinosaur tracks, they note that “Our interpretation of the data is that these tracks were made by pre-Flood animals and humans fleeing the rising Flood waters. They were preserved in the mud by a quick infilling of new mud brought in by the rising waters of the Flood,” (Adventure Safaris n.d.:28). References to Noah’s Flood are incredibly common throughout the guide and are used as explanation for the existence of fossils as well as much of the observable geological landscape.

⁵⁷ Lubenow is a faculty member at Christian Heritage College in San Diego, CA, where he is a retired professor of Bible/apologetics (Creation Ministries International n.d.)

Notably, these lengthy museum guides cover the same material, draw many of the same interpretive conclusions, and even rely on many of the same sources⁵⁸ as the creation museums themselves. Each of these is a generalized guide, designed for maximum portability and can be used from institution to institution. However, museum-specific guides, each designed for use in one particular institution, are also available. These items, listed in Table 9, are written by individuals or local creationist groups, with the ultimate goal of allowing young-Earth creationists to take a self-guided tour of their local museum from a biblical perspective.

Table 9: Creationist Museum Guides for Specific Museums

Title	Author	Museum
Creationist Guide to the Houston Museum of Science and Natural History	Steve Baird	Houston Museum of Natural Science. Houston, TX
Discovery Magazine, October 1, 2006	Kyle Butt	National Museum of Natural History. Washington, D.C.
Critical Thinking Guide	Ruth Madziarczyk	Field Museum, Chicago, IL
Evolution: Fact or Fiction?	Jim Orme	Field Museum. Chicago, IL
God versus the Cleveland Museum of Natural History	Sonino John Paul Scardelletti	Cleveland Museum of Natural History. Cleveland, OH
A Creationist's Guide to the Siebel Dinosaur Complex	Unknown	Museum of the Rockies. Bozeman, MT
Chinasaurus: A Different View	Julie Von Vett	Science Museum of Minnesota. St. Paul, MN

Each of the guides listed in Table 9 is designed for use by creationists in specific museums and with specific exhibitions. The Midwest Creation Fellowship, for example, makes Orme's guide to the Field Museum and Madziarczyk's critical thinking pamphlet easily accessible from their website and encourages Biblically-minded individuals to make full, free use of the materials. Their website explains "The 17 million dollar

⁵⁸For example, Lubenow's "Bones of Contention" is repeatedly used for label text in creation museums.

Evolving Planet Exhibit is worth seeing! However, it presents a story of natural history from a naturalistic (= "atheistic") point of view. The philosophical explanations being presented as science need to be evaluated. MCF can help," (Midwest Creation Fellowship 2014). In addition to providing these resources for visitors to use in this exhibit, the Fellowship has volunteers available to meet with groups outside of the museum for a debriefing session.

The shorter of the two guides, Madziarczyk's guide to *Evolving Planet* was written in the manner of an interactive worksheet with specific stopping points within the exhibition and questions for the visitor to answer. The guide begins by giving the visitor instructions "As you enter the *Evolving Planet* exhibit, put on your **critical thinking glasses**. These glasses won't change what you see. They are a reminder to think about what you see and read, and ask yourself these questions: 1) Is this real or imaginary? 2) Is this science or art? 3) Is this observed or imagined?" (Madziarczyk n.d.). These questions repeat themselves in various incarnations throughout the pamphlet, all with the same goal: providing the creationist visitor with a framework that allows them to clearly articulate why the scientific content featured in *Evolving Planet* may be exhibited incorrectly.

Madziarczyk's guide to *Evolving Planet* is brief (similar to the shorter, generalized magazine articles discussed earlier). By contrast, Orme's guide to the exhibit is much lengthier and more closely resembles the longer topic-based guidebooks. Orme (n.d.:29) explains that the purpose of the guidebook "is to show you that the Bible is historically accurate and can be trusted to tell the real origin and history of the world and mankind." To accomplish this goal, Orme walks the visitor through *Evolving Planet*, dissecting bits

of label text and injecting the preferential creationist interpretation. In discussing the section of the exhibit on human evolution, for example, Orme (n.d.:25) leans on the idea of hydrodynamic sorting⁵⁹, writing:

The display admits that “There are gaps in the fossil record, and many fossils are fragmentary.” There is very little evidence for human evolution. Note that the fragmentary fossil evidence can be interpreted from a creationist perspective as well as from an evolutionary one. During the Flood, people would have been more mobile than other species, climbing to higher ground or hanging onto floating debris. Since people were generally able to avoid being buried, they would not have fossilized. Hence, the human fossils are sparse and fragmentary.

This tactic attempts to critique scientists for discussing the fragmentary nature of the fossil record while simultaneously demonstrating that the Bible provides an authoritative way of understanding the sparse nature of the human fossil record.

This two-pronged approach of subverting scientific authority while elevating Biblical authority is observed within each of these written guides. The material is not written simply to discredit science; it is created to subvert scientific authority with the specific purpose of reinforcing scriptural authority. In describing the human evolution exhibit at the Cleveland Museum of Natural History (CMNH)⁶⁰, for example, Scardelletti (2007:126) writes:

The most important scientific exhibit in the Cleveland Museum of Natural History is the one promoting the theory of *Apes to Man Evolution*. Located in the *Kirkland Hall of Prehistoric Life*, this exhibit is used more than any other to convince the public, including thousands who visit the facility each year, that they’re only a modified form of animal which evolved over millions of years. The Bible, on the other hand, emphatically teaches that human beings were created in God’s image on the sixth day of creation week. Obviously, both views cannot be right.

⁵⁹ Hydrodynamic sorting is frequently employed to explain the distribution of organisms in the fossil record. Whitcomb and Morris (1961:275) explain that “Vertebrates in general possess much greater mobility, and this factor...would normally prevent their being entrapped and deposited in the deepest sediments.”

⁶⁰ Scardelletti’s book is based on the previous iteration of the human evolution exhibit at CMNH. The exhibit was renovated in 2013, although many of the original elements remain in the current iteration of the exhibit.

In this example, Scardelletti is deliberately juxtaposing evolution and creation – even the title of his book frames the issue as the museum being on trial by God. Promoting Biblical authority may be the ultimate goal, but the book is overwhelmingly written to argue against scientific authority. The scriptural authority of the Bible is important; in the case of this book it is less important than the subversion of scientific authority in the museum context.

Scardelletti's guide to CMNH attempts to provide proof that the scientific information is wrong, touching on many of the same topics discussed in chapter three, such as the Big Bang, dating methods, and human evolution. To accomplish this task, he relies heavily on creation science as a way of debunking information that diverges from a Biblical creationist worldview. Each of the museum guides, whether specific to a museum or written for general use, relies heavily on creation science to make its case. By employing creation science to assist in the deconstruction of secular science, the authors are making use of the epistemological authority of science. In this manner, creationist visitors can feel secure in their religious beliefs, armed with evidence to back up their certainty that the museum exhibits are based on faulty assumptions and biased interpretations.

Museum Tours At the Denver Museum of Nature and Science (DMNS), tour groups from Biblically Correct Tours (B.C. Tours for short) are a routine sight. The premise of these tours is simple: visitors are brought to the museum as a part of a formal tour organized by the company. In addition to paying admission, they pay a fee to the tour guide to be led through the exhibits and hear the information interpreted from a

young-Earth perspective⁶¹. The stated goal is “training people to think biblically about Science, Art, Animals, Law, Government, and More!” (Biblically Correct Tours n.d.).

Founded by Bill Jack and Rusty Carter in 1988 (Rooney and Patria 2008), B.C. Tours provides creation-based tours of museums, zoos, and the National Center of Atmospheric Research. In addition to organization-led tours, interested individuals are encouraged to sign up to lead tours in other locations. Their website urges people to “Stop complaining about the evolutionary bias and politically correct agenda that the museums and zoos are teaching children and start giving your school or church *biblically correct tours*. It is easy to learn, perfectly legal and eternally rewarding. B.C. Tours provides excellent teaching tools that will help your tour go smooth and make you look intelligent,” (Biblically Correct Tours n.d.).

At DMNS, B.C. Tours focuses primarily on leading groups through *Prehistoric Journey*, an exhibit which covers the 3.5 billion year history of life on Earth. The museum stations volunteers throughout the exhibit, manning artifact cards and answering visitor questions. The information being presented by the volunteers, however, runs contrary to what is being presented in a B.C. Tour. One museum volunteer shared her experiences with the tour groups in different sections of the exhibition. In the human evolution corner of the exhibition, she told me that she once witnessed the tour guide “talking about... the usual item that all that was found for the Lucy skeleton, for example, was the knee⁶² – a very famous bit of misinformation,” [Interview, volunteer], while in a different section of the exhibit, a “B.C. group was coming through and he was trying to

⁶¹ As their website explains, “We are B.C. and not P.C. We might even say the “J” word in public.”

⁶² Stromberg (1998) explores the connection between ICR and the *A. afarensis* knee discovered by Donald Johanson in 1973. Discussions of this knee are used by creationists as an example of evolutionary fraud.

explain how sedimentary layering doesn't work the way we present how sedimentary layering works," [Interview, volunteer].

B.C. Tours relies on the same techniques employed by creation museums to construct authority for the young-Earth creationist message. In particular, using the tour structure to subvert scientific authority and construct a narrative that supports scriptural authority is of critical importance to B.C. Tours at DMNS.

The interaction between DMNS and B.C. Tours is perhaps the best known example of creationist tours in a secular space due to a combination of factors: the frequency of these tours (which, according to staff at the DMNS, occur approximately once a month), the media spotlight being placed on B.C. Tours⁶³, and the continual confrontations between tour participants and other museum visitors that the museum has experienced. Even so, DMNS is not the only institution which unwittingly hosts creationist tour groups. Tom Carpenter of Creation Science Defense offers to give tours of Atlanta's Fernbank Museum of Natural History from a Christian perspective. Likewise, members of the Creation Science Fellowship in Pittsburgh advertise leading tours of the Carnegie Museum of Natural History from a creation science perspective. These tours, while not endorsed by the institutions, are not prohibited from entering the museum.

One staff member I spoke with described the situation at his natural history museum, telling me:

There are a lot of instances where folks will do, folks with a creationist perspective on the world and their lives will do use our exhibitions that feature evolution, like the dinosaurs and fossil gallery, which is here as a longer term installation than the current dinosaur show, which is just a 6 month feature for us. They'll do their own stories around creation in our evolution exhibits. And they

⁶³ Including specials on CNN Insight (2005) and ABC News (2008).

get to do that. Visitors get to make of this stuff any way that they want to as long as they're not disruptive of other visitors. [Interview, education staff member]

The issue of disruption is critical in understanding the actions of these tour groups. In particular, the B.C. Tours at DMNS have been reported to be loud and disruptive. One staff member shared her perspective on the museum's struggle, noting "we've had a history of some pretty bad interactions with the public where these big tour groups will crowd around something and talk really loudly and to basically, it's a concerted effort to keep other visitors from looking at things and from enjoying their experience," [Interview, exhibits staff member].

Fraser (2006:97) notes that these tours are "public performances aimed to reinforce in-group identity." This claim echoes Duncan's (1995) assertion that the museum can be viewed as a ritual space, wherein the visitors enact the ritual, taking cues from the museum setting as not only a structure, but as a participant in the ritual. Duncan (1995) argues that these rituals are transformative and are used in part to shape the participant's identity. This description is easily applied to YEC participants on a B.C. Tour: they join a tour, enter the museum space, and in doing so, strengthen their identity as biblical creationists. Rooney and Patria (2008) note that many participants on these tours do so in hopes of reinforcing their own beliefs in the young-Earth narrative that is central to the tour.

The formation of identity is, in part, influenced by the control over authoritative knowledge in the museum setting. Duncan (1995:8) notes that "to control a museum means precisely to control the representation of a community and its highest values and truths," yet the secular museum is far from controlled by YECs. Thus, while the secular museum retains academic authority simply by virtue of being a museum, the YEC

identity is shaped by placing ultimate authority in the Bible. B.C. Tours in the secular museum provide a method of subverting the authority of the museum, instead creating an authoritative ritual built around the YEC belief system. The tours enter an exhibit and intentionally undermine the established scientific paradigm which is presented within the museum halls, thereby presenting an opportunity for group members to engage in the deconstruction of secular scientific authority.

Experiences with these kinds of tour groups can leave museum staff feeling frustrated, particularly if the language about human origins within their exhibits is ambiguous. A former museum staff member told me “I heard about church groups coming to the museum and using the exhibits to basically show their version and the frustration among museum staff and curators is that our exhibits were not explicit enough or they were vague enough that they could be used to convey a completely different message,” [Interview, research staff member].

The lack of precision in language about evolution is an issue with several museums. In writing about an issue with the Discovery Institute showing a film at the Smithsonian, Sorensen (2005:246) issued a call for clarity of scientific communication, explaining that:

Scientists know there are not two competing "theories" of evolution, and that the disciplines of philosophy or religion—not science—speculate that we are "miraculously" on a "privileged planet" for doing science. However, we may not express ourselves well enough for nonscientists to make these distinctions as readily as we do. We must write and speak about science, place engaging educational materials into the intellectual marketplace of the Internet, and most urgently, explain why intelligent design (ID) is not science—and do so in clearly defined terms.

Although speaking broadly about science communication, Sorensen’s call for clarity is easily applied to this staff complaint about exhibiting evolution.

Many of the creation science tours are conducted by independent groups, individuals visiting the museum as much for fun as for educational purposes, while other tours are conducted by creationist school groups⁶⁴. Museum employees report that Christian school groups often come in and conduct tours that reinterpret the museum exhibits. One individual told me they “once heard a teacher from a private, Christian school tell her students to take what was in the exhibit ‘with a grain of salt’ because of course they knew that God had created the universe,” [MS082].

This group was clearly re-interpreting the exhibits to undermine scientific authority in favor of scriptural authority, but remained relatively unintrusive. By contrast, at other museums creationist school groups were actively encouraged by their instructors to challenge the staff about evolution. One museum educator I spoke with reported “that occasionally school groups would be in here and the students had actually been told to go in and sort of quiz the staff and volunteers in that area about evolution,” [Interview, education staff member].

The challenges to scientific authority and potential for conflict inherent in these tour groups have resulted in some museums conducting conflict resolution training for staff and volunteers who may be encountering disruptive pro-creation tour groups. Many institutions have, as a direct result of creationist tour groups, crafted institutional policies or statements which clearly articulate the museum’s position on evolution. One survey participant shared that at their museum, “Anti-evolution groups used to occasionally lead their own tours in the gallery, reinterpreting specimens, etc., through their own lens. And on Science Buzz, the level of debate reached such a fever pitch that we had to craft an

⁶⁴ This category also includes homeschool groups who visit museums and visits by groups from fundamentalist colleges such as Liberty University (Hendrix 2009).

institutional policy re: evolution and direct people to that, rather than engage in the debate further,” [MS157].

Indeed, many museums have created pro-evolution statements in response to antagonistic run-ins with tour groups and other anti-evolution visitors. For example, the Carnegie Museum of Natural History features a section labeled “Affirming Evolution” on their website, which states:

Carnegie Museum of Natural History is a scientific institution and strongly supports evolution as the only scientifically rigorous and strongly corroborated explanation for the amazing diversity of life on Earth—now and in the past. Evolution is a process of inherited change that takes place over time. Evolution explains both the diversity of life on Earth as well as universal similarities among all living things. It is based on observable evidence from the fields of biology, paleontology, and geology. We join with our colleagues at natural history, academic, and science institutions worldwide in affirming evolution. [Carnegie Museum of Natural History n.d.]

Likewise, the National Museum of Natural History has a much more extensive statement on their website, but makes a point of stating “As one of the world’s leading research museums, the National Museum of Natural History has the responsibility to share with the public the latest research on the process of evolution. It is not the Museum’s responsibility or intent to determine how visitors relate this information to their own religious or personal views,” (National Museum of Natural History 2007). This places the onus back on the visitor to determine for themselves how they intend to process this information with respect to their personal views, yet clearly articulates the museum’s stance with respect to upholding the science of human origins.

These are but two examples of museums which have dealt with antievolutionism and have constructed statements in response to these challenges⁶⁵. These statements serve

⁶⁵ Other examples of museums with these statements include the Science Museum of Minnesota, the Denver Museum of Nature and Science and the Natural History Museum of Los Angeles County.

not only to affirm scientific authority, but give the museum a training tool for non-expert individuals (volunteers, docents, and others who may not be intimately familiar with evolution and thus may struggle when challenged). One employee I spoke with touched on both of these ideas, telling me they decided to craft an institutional evolution statement because:

we were getting some questions... I would hear one of the problems we have is that the people who work in the field of evolution are not down on the floor with the public. So people come in the door, they ask the gallery interpreters or the volunteers, and those people are totally unprepared. And it's not their fault, but they don't know what to say. They don't have any recourse... So we wanted to have a clear statement on who we were and what we believed out there somewhere and we didn't have one. [Interview, curatorial staff member]

At a different museum, I was told the institutional policy was crafted not for public viewing, but to be “a position of answer if this comes up with a visitor, this is what you can say as a response,” [Interview, volunteer].

Museum guidebooks and group tours arguably have the same purpose (to subvert scientific authority in the secular museum) but result in two very different institutional responses. The performative aspect of these tours has forced action on the part of many museums. A quiet individual with a guidebook can easily go about their business in the museum undisturbed. On the other hand, tour groups that loudly proclaim a worldview contrary to the teachings of the museum and obstructs visitor access to an exhibit and requires attention from museum staff. Training on evolutionary theory and the institution's official written “stance on evolution” statements enable museum staff and volunteers to be prepared for potential challenges to the academic authority of the museum.

Technology and Creationist Visitors

Walk into any museum today, and you're likely to see a visitor with a smartphone or tablet in hand. The ubiquity of these devices has not gone unnoticed by museum staff. Rather than discouraging the use of technology in the museum, many museums have begun incorporating mobile devices and applications into the museum experience (Tsai and Sung 2012). QR codes, easily accessed Wi-Fi, and a variety of digital resources have been developed to enhance interaction with the exhibits while in the museum or at home.

The increased availability of digital devices and their usage with museum-related content has not been overlooked by creationist groups. There are a variety of published resources for creationist visitors to use before, during, and after their visits to secular museums, and the pervasiveness of the smartphone has prompted the development of digital resources for creationist interpretation of museum topics. Like the published resources, these mobile applications and websites vary – some are for specific museums, while others provide a general creationist spin on common topics for natural history museums.

On the Creation Trail Let Creation Sing is an organization dedicated to the promotion of Christianity and creation science education in the United States. A visit to their website⁶⁶ reveals a number of resources for the creation-minded individual. The organization's purpose is:

To spread the gospel along with creation science education to create informed young people who can stand up against the lies of the secular educational system and give a reason for their faith... It is a unique resource that unites creation science ministries across North America - putting at your fingertips numerous opportunities for involvement and education. You can learn about events in your area, get you and your family involved in outdoor adventures, and take advantage of various educational opportunities. Eyes will be opened and faith will be

⁶⁶ <http://letcreationsing.weebly.com>

strengthened as the evidence for our Creator and confirmation of the Scriptural record is unveiled. [Let Creation Sing 2014]

As a part of this organizational goal, members of the group have dedicated time to creating virtual resources in the style of the Answers in Genesis “Museum Guide”: something that a visitor can take to a museum⁶⁷ and use to interpret displays within the framework of scriptural authority. I spoke with one of the group’s members, who described the early development process of this resource:

I’m actually working on a website that will create virtual signage for any museum. So you walk into the Smithsonian, you’re looking at triceratops, you can go to our website, pull up the web app, pull up triceratops, and you read a creation-based sign. So I’m looking at it and I have signage and that’s part of what the network is working on. Is some virtual signage for any museum anywhere in the world. It’s in process...everybody will populate the database with information with the standard format. And so you could go to any museum anywhere and eventually we’ll have all the dinosaurs in there with basically a web app driven kind of sign. [Interview, museum administrator]

Tsai and Sung (2012:96) write that “one of the most popular uses for mobile devices in a museum setting is to provide on-demand interpretation of exhibits. In an attempt to replace prerecorded audio tours, multimedia tours are quickly becoming the mobile interpretation format of choice.” Let Creation Sing’s The Creation Trail app is a good example of such on-demand interpretation. Currently, The Creation Trail⁶⁸ features three distinct sections – zoos, parks, and aquariums – but a museum section is not yet publicly available.

The mobile application as it exists now is filled with fact- and Bible-based information for each topic included. In the “Zoo” section, for example, the visitor can select from various groups of animals (amphibians, birds, reptiles, mammals) and within each category can choose a group they might see in the zoo on their visit. Under

⁶⁷ There are additional resources for zoos, aquariums, and parks.

⁶⁸ Accessible at <http://m.creationtrail.com>

“Chimpanzee”, the app provides a mixture of information. Visitors are given much of the same kind of information they may see on a zoo exhibit label (information on diet, habitat, and anatomy), supplemented with the day of creation (according to the Genesis creation account) and descriptions of things that separate this species from our own. The beginning of the chimpanzee section, for example, proclaims “The chimpanzee usually does not take well to water, and most are not able to swim - now, that there separates them from us humans. God did create us different!”

Unlike many of the other resources discussed thus far (and in contrast to the creation museums discussed in chapter 3), The Creation Trail does not rely on deconstructing an evolutionary narrative to subvert scientific authority. Instead, the creators of the app simply rely on universally agreed-upon facts for each species featured – for example, that chimpanzees live in Africa and subsist on fruit, insects, and some meat – and augment with biblical information that does not contradict anything discussed in the factual information (chimpanzees were created on day 6). This reframes the species in question while simultaneously providing the appearance of a no-nonsense, fact-based description in which the facts include biblical trivia.

Creation Vacations As Let Creation Sing focuses on developing an app for museums, Answers in Genesis has been steadily increasing its digital resources for secular museums. A visit to their “Creation Vacations” website reveals a set of resources for natural history museums across the United States⁶⁹. For each museum highlighted, AiG provides tips for visiting (including basic ticketing information and dining choices) alongside helpful reminders to “put on your biblical glasses!”

⁶⁹ The museums featured on this website include the National Museum of Natural History, the Cleveland Museum of Natural History, the Denver Museum of Nature and Science, the University of Nebraska State Museum, and the La Brea Tar Pits (a branch of the Natural History Museum of Los Angeles County).

For the Denver Museum of Nature and Science, AiG encourages young-Earth creationists to deconstruct the exhibits, writing:

Should Christians be afraid of natural history museums that promote evolution so heavily in their exhibits? Not when they are equipped with the truth about the earth's history and have a discerning eye. A trip to museums, like the Denver Museum of Science and Nature, can be a great time to teach your family or other Christians how to distinguish facts from interpretations. You'll also get to see some of the best modern displays of dinosaurs and other animals here as well.

This generalized call is followed up with some specific details on the museum's exhibits. For *Prehistoric Journeys*, AiG tells the visitor “explain to your children that fossils don't come with tags on them, telling us how old they are. The facts about the fossils must be interpreted based on a person's starting point—the Bible's truth or man's fallible reasoning and dating methods,” (Answers in Genesis 2011:n.p.).

Each of the natural history museums included in the Creation Vacations website is simultaneously praised for its collections and then disparaged for its evolutionary interpretation of the fossil record. This is a written version of what happens on a Biblically-correct tour: they are told that the collections are amazing and the scientists who construct the exhibitions are misinterpreting the facts based on secular reasoning, not biblical authority. The museums included in Creation Vacations are limited in number, but each snippet follows the same pattern of praising and undercutting the content of the exhibits. Visitors to the website are provided with instructions on how to “coach” their kids into seeing the incorrect nature of the museum exhibits.

The subversion of authority with these resources is a direct result of the actions of the mediator – in this case, the individual (or individuals) responsible for creating the resource. The mediator takes on a similar role of unquestioned authority as a tour guide, yet remains behind-the-scenes. Despite this, the mediator has tremendous influence on

the development of these materials. Sayre and Wetterlund (2008:85) explain that “in cases where technology is mediated by a person into museum experiences for visitors, the mediator most commonly fosters awareness, defines a sequence, or fully integrates technology into a learning plan.” In this respect, both Let Creation Sing and Answers in Genesis become the mediator between the visitor and the secular museum. These organizations impact the way a visitor views the exhibits and, without saying a single audible word, subverts the scientific authority of the museum exhibition.

The Virtual Museum Tour Technology can be used to subvert the authority of the secular museum even when the individual is not present in the museum. Video-sharing platforms such as YouTube and Vimeo have increased the ability of individuals to conduct virtual tours as well as seminars, showing the viewer how to interpret information in a secular museum from a biblical perspective. The ease of access and the lack of associated costs (museum admission, travel costs, etc.) can make the information accessible to millions of individuals.

A prime example such technological subversion can be seen in a YouTube video entitled “Tour a Natural History Museum with Eric Hovind and Daniel Johnson”. Posted in 2012 by Creation Today, this video features a tour of the Anniston Museum of Natural History in Anniston, Alabama and has received more than seven thousand views. The video starts with Hovind saying “What we’d like to do on this trip is show you what to expect when you go into a natural history museum and how you can educate your kids on the truth of the real history.” Thus, within the first thirty seconds, the viewer is told that the information within a natural history museum is incorrect and needs to be re-interpreted to match a biblical framework (the “real history” Hovind refers to).

The video tour goes through several of the museum's major exhibits, beginning with an exhibit on earth history. Johnson makes a point of telling the viewer that their kids are being "inundated with strange thoughts" at the museum, urging the viewer to visit for themselves and encouraging them not to get confused based on the "faulty" starting point of the museum's interpretation. Johnson then goes on to say "the nice thing is when your kids are growing up, even as adults, we walk through museums, and even zoos, and we don't read the stuff. We just walk through, we want to see the cool exhibit...they see all of that and they don't really stop down and read the indoctrination process, which is nice. So as long as they don't read the things, they can usually escape through pretty easy and not be too influenced by the religious teaching of the public system."

Hovind and Johnson repeatedly frame evolution and the concept of an old-Earth as a religious concept. In doing so, they are exhibiting what Locke (1999) describes as reflexive irony, wherein evolution is described as a component of a religious worldview. This technique can be quite powerful, as it "completes a turnaround such that evolution, rather than creation science, becomes the pseudoscience," (Locke 1999:141). Converting evolution into pseudoscience is critically important in supporting biblical authority as it enables creationists to embrace the religious foundation of creation science while simultaneously touting the supreme authority of their religious beliefs (Locke 1999).

A more recent example of the YouTube guided tour phenomenon was created by an individual named Megan Fox who takes the viewer on a 30 minute tour of the Field Museum's "Evolving Planet" exhibition⁷⁰. In the description of the video, she writes:

⁷⁰ The official name of the exhibition is "Evolving Planet", but Fox continually labels it the "Evolving Earth" exhibit.

In November 2014, Megan Fox toured the Field Museum's "Evolving Earth" exhibit to audit it for bias. She found many examples of inconsistencies and the Field Museum's insistence that people support opinion as fact without proof. The Field Museum pushes certain theories as if they are absolute proven law when that is not how the scientific method works. She found enough bias to show that the people who put this exhibit together at the Field Museum pushed an agenda with quasi-religious overtones: the cult of "science" where the "scientists" are more like high priests pushing a religion instead of using the correct scientific method. Aside from having time machines, there is no way these people can be this certain about things they speculate happened millions of years ago before recorded history.

Within even this brief description, Fox displays reflexive irony (Locke 1999) and utilizes common creationist arguments, primarily the lack of eyewitness testimony.

In the video itself, Fox and her cameraman tour the viewer through the exhibit. Fox repeatedly refers back to the lack of eyewitness testimony and the idea that “there is no such thing as a missing link” because anything that has been proposed as a missing link has been a hoax. Fox reinterprets labels, telling the viewer that “this is the dumbest theory I’ve ever heard in my whole life” and questioning who is writing the labels and how they know what they know. She also explains to the viewer that if humans have seen dragons (dinosaurs), there’s no way the museum would tell you so. This implies that the scientific establishment is intentionally suppressing the truth in an effort to elevate an old earth timeline.

In contrast to the Hovind and Johnson video, Fox’s video has gone viral, receiving (as of December 12, 2014) 1,078,028 views⁷¹ since November 17th. Hovind and Johnson take a rational, seemingly professional approach to dissecting the exhibits at the Anniston Museum. By contrast, Fox’s approach is one of open anger. She displays a relative lack of comprehension of even basic scientific concepts, continually claiming

⁷¹ It is unknown how many of these viewers are genuinely creationists, and how many are watching from an evolutionist’s perspective.

that fossils are not evidence and that there must be a “hidden videotape” that tells scientists what happened 470 million years ago. Interestingly, Fox never explicitly invokes God, Genesis, or the Bible. Instead, her video leans heavily on creationist talking points including the existence of dragons and the coexistence of dinosaurs and humans and frequently utilizes the phrase “in the beginning”, an allusion to Genesis 1:1.

Fox’s anger is most evident when she rants about the audacity of scientists filling her children’s heads with this information. This speaks to the issue of cultural reproduction among young-Earth creationists. Hovind and Johnson are trying to give viewers a creation-based understanding of the exhibits, utilizing creation science as a tool, but Fox is more concerned with the absolute authority of museum and the unwavering evolutionary perspective of the exhibits. Like many young-Earth creationists, Fox – and by extension, her supportive viewers – views the message exhibited at the Field Museum as potentially interfering with her ability to pass on her specific beliefs and worldview regarding evolution, creation, and the age of the Earth to her children.

A third approach is taken in a Creation Today video featuring Carl Kerby of Reasons for Hope. Kerby’s video is not a case-by-case video tour of the National Museum of Natural History⁷², but instead talks about the strategies he uses to engage students when he takes them on tours of the museum. If the Hovind and Johnson tour is more similar to a detailed creationist guidebook to a secular museum, Kerby’s brief discussion with Creation Today closely mirrors the magazine articles which provide a structure for how to use the museum and interact with staff, but don’t go through the nuances of each exhibit. Kerby claims that he neither uses creationist materials nor does

⁷² The video is entitled “A Creation Museum in Washington, D.C!” This is intentional, designed to inform the viewer that any museum can become a creation museum with the proper outlook.

he need to do so, implying that the perceived faults with evolution and the contradiction between religious and scientific knowledge is enough to decimate the authoritative knowledge on display at the museum.

Internal Subversion

Up until this point, I have focused this chapter on literature, activities, and tours used to subvert scientific authority in secular museums. Subversion can also come from within the museum itself. As explored in chapter four, exhibition and programming decisions can be impacted by donors, board members, and administrators with creationist leanings, though these individuals are not often in direct contact with the visiting public. Within the public-facing ranks of the museum, it is generally volunteers and docents (whether paid or unpaid) that are interacting with visitors, answering questions, and – at times – veering sharply off of the institutional position regarding human evolution.

Among creationist museum volunteers and docents, there appear to be two distinct subversive groups. Intentional subversives attempt to volunteer for the museum so they can present creationism as an official museum representative, while indirect subversives volunteer for the museum but believe in various iterations of creationism.

Intentional Subversion Volunteers (or attempted volunteers) that fall into the “intentional subversion” category are individuals who have signed up to volunteer for a secular museum with the specific goal of derailing discussions of evolution. The number of such individuals is small. One museum staff member shared two separate instances; both related to an exhibit entitled “Lucy’s Legacy”⁷³. One individual “approached me during volunteer training for exhibits that featured evolution, specifically Lucy's Legacy.

⁷³ “Lucy’s Legacy” was a traveling exhibit featuring the Lucy fossil. The exhibit opened at the Houston Museum of Natural Science in 2008 and closed at the Bowers Museum in 2013.

They asked if they could teach the controversy. I told them no they could not,” [MS035], while another informed them that “he had signed up with the museum just so he could be in the Lucy exhibit to push the creationist point of view,” [MS035].

In both of the encounters described above, the individuals were direct and open about their intentions in volunteering for the museum, which ultimately led to them not being permitted to volunteer in the exhibit. These cases may be isolated incidents, but other volunteers may be more subtle about their intentions and thus make it through volunteer training and out onto the floor.

Indirect Subversion A less obvious – and within the context of this project, much more common – version of internal subversion comes from the volunteers who genuinely enjoy working for the museum and yet hold beliefs which run contrary to the scientific viewpoint upheld at their institution. Experiences with these individuals were far more common among my interview and survey participants.

The experiences of museum professionals with these individuals are highly variable. At times, the individuals in charge of staffing the museum with volunteers and docents are asked directly by the volunteers if they will have the opportunity to contest evolution on the museum floors. One employee shared that they receive “Occasional requests from visitors and volunteers to be allowed to present "the other side of the debate," or "to point out the flaws" in evolution. In other words, requests to bring in creationist talking points that have been debunked forever.” [MS035].

These kinds of requests, in contrast to the intentional subversion discussed previously, come from volunteers who are already associated with the museum. They are not necessarily directly involved with evolution-based exhibits, but appear to want the

option to challenge the status quo. A different iteration of this same idea comes from another museum, where a docent didn't want to discuss creationism on his tours, but "indicated that he is not allowed to discuss evolutionary theory in his tour." [MS029].

On the other hand, there are several reports of volunteers not necessarily sharing their beliefs with those in charge of doing the staffing. One individual recounted one of their teen volunteers "on the floor as a gallery host, talking to two of his fellow gallery hosts and was discussing, at length, about how evolution never happened and that it's 'just a theory.' " [MS058]. At a different institution, a docent that typically gives museum-wide tours shared her experience with a colleague:

I started to talk before the tour with my co-worker docent and so I said something about, you know, like starting which way would we start? Would we start at the Big Bang and she said "well, we could, but that's just a theory." And so I started to ask her what she meant about it was just a theory, I mean, technically everything is a theory. But she really was saying it in the way that it was creation, that you know, we don't really know about this and this is all very, you know, not accurate. I can't remember because this happened about three years ago. But I was just, I was taken aback because clearly, she really didn't believe that things were – I said something about a million years old. I said, what about Lucy? And she said well, um, you know, they just can't be sure. And I said they have carbon dating and they have all of these scientific things, means of telling how old things are now and it's pretty accurate and there are lots of different methods, even, to even confirm and re-confirm what's going on. And so it was, I sort of never really understood. She liked, I guess, all the other things about the culture and about the animals and about that, but she was clearly not on board about the evolution of the universe and the terms and the scientific way and so I don't know what really happened. [Interview, March 29, 2014]

Why do individuals who hold a central piece of the museum's viewpoint in contempt still want to engage the institution from within? There are a number of reasons why individuals choose to volunteer at museums. In an examination of volunteers at Australian museums, Edwards (2005) found that the three most commonly agreed-with reasons for volunteering were "Interest in art/science/natural history", "Interested in the

activities of the organization”, and “Wanted to do something worthwhile.” None of these reasons are in conflict with an individual having issues with evolutionary theory (and certainly, as discussed in previous chapters, even creation museum employees may consider themselves as having a strong interest in science or natural history).

Conclusion

In the introduction to the *Creationist Guide to the Houston Museum of Science and Natural History*, Baird (2010:12) writes:

Something is wrong; something keeps gnawing at your gut as you walk from room to room filled with volumes of information. Then it hits you like a ton of bricks. Everything presented in this place goes against everything you KNOW to be true; everything your parents taught you, and everything you trust. You have a conflict welling up inside of you that promises to be a long, hard battle between everything you have been taught at home and church and now everything that is being presented to you at a natural science and history museum. The displays are all so convincing that as you move from room to room you start to doubt what you know to be true and start to wonder if others have been lying to you or simply don't know the “real” answers like this museum is offering you. You struggle with the answers, but they start to fail you. The authoritative natures of the displays within the museum were designed by scientists, and certainly they would not lie about the evidence; they are supposed to be objective. That leads to only one solution: Either the information you have been presented prior to this is faulty and wrong or better yet, you can combine the information from the museum with the information that your church and parents have taught you. You have just decided to compromise your position on your values and in essence compromised yourself.

The scenario described in Baird's introduction highlights a very real fear among young-Earth creationists: that the authoritative nature of secular museums will cause crises of faith, most critically among the children. Among YECs, the concerns are not merely about evolution, but for preserving the evangelical worldview. Colson and Pearcey (2001:x) note:

Genuine Christianity is more than a relationship with Jesus as expressed in personal piety, church attendance, Bible study, and words of charity. It is more

than discipleship, more than believing a system of doctrines about God. Genuine Christianity is a way of seeing and comprehending *all* reality.

Thus, while the struggle in museums may appear on the surface to be just about evolutionary origins, there is more at stake than a belief in the age of the earth. The crises of faith described by Baird may inhibit cultural reproduction and are precisely what young-Earth creationists are attempting to thwart by reinterpreting secular museum exhibits. The facilitation of cultural reproduction is the undercurrent to the numerous guidebooks, tours, and technological resources which are used by young-Earth creationists to subvert the authority of the secular museum.

Importantly, the materials discussed in this chapter highlight just one approach taken by Biblical literalists in dealing with content in secular museums. The approach emphasized in this section is not the actual objections to evolutionary content. Rather, strategies for subverting the scientific authority of the museum are about preservation of faith. The creators of creationist materials and participants in these activities acknowledge that their objections are not necessarily going to impact the exhibition choices of their local museum. They provide the willing public with tools for reinforcing scriptural authority in the face of contradictor information, tools which assist in the ongoing struggle for cultural reproduction among young-Earth creationists.

CHAPTER 6

ON FIRE FOR THE LORD

At the beginning of this project, I set out to understand how the authority of the museum form is used as a tool for young-Earth creationism and its quest for cultural reproduction. Technology has changed and secular museums have increased in numbers, but the underlying objections to evolution in natural history museums have remained constant since the 1920s. Even then, antievolution crusaders recognized the inherent value in the museum as an authoritative venue and fought against having depictions of humans related to the apes alongside discussions of evolutionary theory (Rader and Cain 2014).

Previous studies have examined the reasons why young-Earth creationism has found its way into museums, arguing that creation museums have developed as a way to legitimize the belief structure through co-opting the authoritative museum form (Asma 2011, Duncan 2009). The purpose of this study was to examine the use of the museum's authority as a component of cultural reproduction in young-Earth creationism. To properly address the interconnectedness of museum authority and cultural reproduction in young-Earth creationism, I addressed four questions regarding the relationship between authority and museums as it relates to young-Earth creationism:

1. How is the museum form used to construct authority for the creation message?
2. How is scientific authority contested by creationist visitors to secular museums?
3. How are creationist tours and other resources used to undermine scientific authority in the secular museum?
4. How is creation science utilized to create the appearance of scientific authority while maintaining biblical authority?

In answering these questions, the issue of creationist authority in museum settings been highlighted, as well as the larger social issue of the cultural reproduction of young-Earth creationism. While not the only tool available to young-Earth creationists, museums have become an integral tool for facilitating the process of cultural reproduction. The institutionalization of creationism, combined with the authority of the museum form, enable the transmission of the sociocultural system surrounding young-Earth creationism in the United States.

Summary of Major Findings

In the post- “Genesis Flood” era of young-Earth creationism, there has been an ongoing push for the incorporation of a biblical perspective into public school curricula. These efforts have been consistently rebuked, with court challenges failing to produce the hoped-for results. Certainly YECs have created their own faith-based schools and homeschool curriculum to pass on their beliefs. However, these institutions are not patronized by the public at large. As a result, young-Earth creationists concerned with the cultural transmission of their beliefs among wider swaths of the population have turned to the museum form as a way of creating an authoritative, accessible format to ensure the reproduction of their core cultural beliefs.

Creation museums fill one hole in the quest for cultural reproduction among young-Earth creationists. These museums are developed with the goal of co-opting the museum form to construct an authoritative venue to allow for the transmission of biblical literalism outside of both the pulpit and private schools. But this is not the only way in which museums factor in to the cultural reproduction of young-Earth creationism. Natural history museums are also important in the facilitation of cultural reproduction. Because

natural history museums represent a threat to the bid for cultural reproduction, believers in the young-Earth worldview have taken to contesting the scientific authority of the natural history museum and secular evolutionary science.

The final mode of promoting the cultural reproduction of young-Earth creationism also involves natural history museums. Rather than objecting to the content of the exhibits and engaging with museum staff, many individuals choose to subvert the scientific authority of the natural history museum altogether, instead making their own meaning. To do so, young-Earth creationists participate in tours, utilize apps, and rely on written guides to re-interpret and remove the scientific authority from the museum, creating a much more personal – and more direct – dissemination of young-Earth ideas from one individual to the next.

Because the cultural reproduction of young-Earth creationism is the result of three distinct strategies dependent on the museum form, I have considered each of these tactics in turn. In the following section, I summarize the construction, contestation, and subversion of authority by young-Earth creationists. In addition, I assess the role of creation science as a pseudo-academic discipline in the transmission of young-Earth ideas.

Constructing Authority The construction of authority in creation museums rests on the fact that museums are viewed as authoritative, scholarly institutions which act as repositories of knowledge (Cameron 1971, Colati and Colati 2009, Karp 1992). As such, the simple act of exhibiting creationist concepts in a museum imbues them with a form of pseudoscientific authority. The physical structure assists in the mission of establishing educational authority. The goals and content of creation museums work via three

mechanisms to construct authority in a museum setting: they engage in evangelistic education, they establish scriptural authority, and they undermine evolutionary science.

The first two mechanisms (evangelizing & establishing scriptural authority) are situated within the stated mission of each creation museum⁷⁴. The word of God is presented in the halls of the museums and augmented by volunteers and employees, with the ultimate goal of glorifying and honoring Him. This mixes two forms of authority - divine authority derived from the Bible and academic authority derived from the museum structure – in an effort to convey the message that a literal interpretation of Genesis and the concept of a young earth have both theological and academic support.

The establishment of the Bible as the ultimate source of authoritative knowledge is a critical piece of the construction of creationist authority. Even more important is the extensive effort put into undermining scientific authority. Alongside exhibits featuring scripture and discussions of the Genesis creation narrative, creation museums feature exhibits which aim to discredit an evolutionary model of human origins. Creation science is used to support the authoritative word of God and is employed under the guise of being a better, Christian-friendly tool for understanding the natural world. Secular science is dissected, with examples of fraud and change in the scientific community being held up as exemplars of the changing (and therefore incorrect) nature of science. By contrast, the word of God is viewed as constant and perfect.

The comparison of biblical inerrancy versus scientific change is a major component of the construction of authority in creation museums. Evolution is portrayed as fraudulent, while creation is portrayed as an absolute truth which has been suppressed as a part of a larger atheistic agenda. Creation museums lean heavily on the idea of

⁷⁴ For a review of each museum's mission statement, please refer back to Chapter Three.

evolution as fraud, displaying Piltdown next to Lucy in a false equivalency designed to bolster support for the creation message. It is in this contrast that creation museums are able to create doubt, and it is in the creation of doubt that the message of authoritative scripture reinforced by authoritative science emerges.

Contesting Authority One of the most significant findings to emerge from this study is the extent to which museum staff members are dealing with anti-evolution activities in their museums. From the data gathered for this project, two main conclusions emerged on these issues. First, it became clear that creationist activities in secular museums are far more widespread than earlier imagined, with nearly half of the surveyed museum staff reporting personal experiences with anti-evolutionism. These experiences were almost always with individual creationist visitors rather than organized tours or protests by a larger organization, and tended to fall into one of three kinds of interaction (indirect contact, direct confrontation, and stealth opposition).

The second conclusion to emerge from this data is that creationists are visiting natural history museums, a fact which runs contrary to popular perception. Many natural history museum staff members indicated their belief that creationists simply weren't visiting their institutions. This was attributed to an invisible "filter at the door" which resulted in the audience being more scientifically literate than the general populace. This project suggests that this filter is more permeable than imagined. Creationists visit natural history museums at a higher rate than staff members perceive, and are not hesitant to voice their concerns in viewing evolution-based exhibitions.

Subverting Authority Given the scarcity of creation museums compared to the ubiquity of secular natural history and science museums, it is substantially easier for

someone to visit a secular museum even when they are sympathetic to the worldview presented at American creation museums. For the creationist visitor who recognizes that attempting to effect change in the museum by contesting secular scientific authority may be an exercise in futility, there exist a suite of tools for subverting that authority and constructing a narrative which is more representative of their personal beliefs.

The tools and tours used to subvert scientific authority in the museum are designed with a social purpose. To join up with a tour group or to use a creation-based guide book with your family and friends means to engage in a public performance of the young-Earth doctrine. Even in small groups, audible discussions about the “incorrect” nature of natural history exhibits become opportunities to undermine the academic authority of the materials presented in the museum. Importantly, this performative aspect of using these tools and visiting a natural history museum as a young-Earth creationist is not only for subtly proselytizing, but demonstrating to others that being a biblical literalist doesn’t mean rejecting the fossil record or the geologic column. Instead, it becomes about interpretation. The views presented in secular museums reject a literal interpretation of Genesis not because of the evidence, but allegedly because secular science is rooted in atheism.

The social aspect of such tours is critical to the ultimate goal of ensuring cultural reproduction of young-Earth creationism. In describing museums and museum visitors as engaging in ritualized behaviors, Duncan (1995:13) notes that “a ritual experience is thought to have a purpose, an end. It is seen as transformative: it confers or renews identity...museum visitors come away with a sense of enlightenment, or a feeling of having been spiritually nourished or restored.” This is precisely the aim of creationists in

the secular museum: engaging in a ritualized behavior (for example, a B.C. Tour) in an attempt to spiritually nourish both themselves and those around them.

A secular academic center such as a museum, exhibiting scientific content and sharing the knowledge without bringing God into the picture, may instill a fear that visiting the museum ill-equipped to defend the faith will ultimately harm the passage of the Christian fundamentalist religious traditions into the next generation. If cultural reproduction is dependent on having appropriate structures to ensure the transmission of ideas (Nash 1990), a Bible-based tour (whether personally facilitated or done using written or technological resources) of a natural history museum becomes a useful tool for young-Earth creationists to employ in an attempt to ensure the continual transmission of their beliefs and identities as YECs.

The Role of Creation Science Unlike the previous three questions, this final research question was designed to examine the utility of creation science as a tool for creating, contesting, and subverting authority in the museum context. Creation science is a discipline which mimics the form of traditional scientific inquiry in a bid for academic respectability while still upholding scripture as the ultimate authoritative voice for understanding the world. Creation science negotiates between the sacred and the secular, and it is in this negotiation that this version of science finds its power among believers.

In the construction of creation museums, creation science is leaned on to provide quasi-scientific support in a bid to confirm biblical authority. Biblical authority remains the primary concern of creation museums, but it is creation science which can provide believers with reassurance that their religion is supported by a scientific paradigm.

Likewise, it is creation science which holds the potential to sway non-believers⁷⁵ towards young-Earth creationism by presenting religion as tested and verified by science.

Harré (1985:184) contends that “science is a social activity. It is carried on by groups of people for groups of people. Its results are used by communities.” It is this fact which makes creation science particularly valuable. The concerns of the individuals employing creation science as a tool are twofold: both reassuring believers and convincing non-believers of the ultimate authority of the Bible and ensuring cultural reproduction. Creation museums and related creation-based materials have become an institutionalized form which employs creation science and enables individual advocates to demonstrate the legitimacy of the young-Earth point of view.

In mirroring the form of mainstream science, creation science emboldens young-Earth creationists to present evidence in support of claims of a young Earth and the doctrine of special creation. Creation science enables Biblical literalists to feel secure in their faith from what they perceive as an academic standpoint: creation science disproves evolution and supports various components of their faith; therefore, creation science reinforces the authority believers derive from scripture. Likewise, creation science becomes a tool for evangelizing, providing believers a form of support that mirrors academic authority without compromising the young-Earth creation message.

Biblical Creationism, Cultural Reproduction, and the Museum

The results of my four research questions support the claim that young-Earth creationists use museums, whether scientific or creationist, as authoritative venues which promote the continuance of young-Earth creationism. Many of my creation museum

⁷⁵ In this context, “non-believer” refers to anyone who does not adhere to a Christian fundamentalist view of the world as young and the doctrine of special creation.

interview participants spoke to this, reiterating the idea that part of the goal of a creation museum is to show the younger generations that Biblical creationism is the accurate way to understand the world. Likewise, creationist tours, literature, and technology-based tools including virtual tours and apps available for use in secular institutions enable the construction of a young-Earth creationist worldview within a secular institution.

Cultural reproduction is the fundamental reason as to why so many visitors to natural history/anthropology/science museums feel it is pressing to object to the presence of evolutionary theory in the halls of the museums. The ubiquity of secular museums presenting an evolution-based understanding of the origins of life, juxtaposed against the paucity of creation museums in the United States, facilitates the impression that the beliefs held sacred by biblical literalists are being suppressed and cultural reproduction inhibited by mainstream museums. It is this sentiment which drives objections to content in secular museums. By presenting evolution instead of creation, secular museums are endangering the cultural reproduction of young-Earth creationism. As a result, they become targets for advocates of young-Earth creationism and are scrutinized for their choice not to tell “the other side of the story”.

Study Limitations & Future Research

One of the lingering questions derived from this project is that of success. If the purpose of YECs using museums is to facilitate their own cultural reproduction, how can we tell if this goal has been achieved? The increase in creation museums over the last decade indicates that, at least among YECs, this type of outreach is considered successful. However, there is little evidence that creationists are successful in evangelizing. Examining the Gallup poll’s data over the past thirty years, for example,

shows an average of 45% of respondents agreeing that “God created humans in their present form within the last 10,000 years” (Newport 2014). This number has fluctuated between 40% and 47% since 1982. Thus, understanding the efficacy of creation museums and creationist usage of mainstream museums in propagating YEC is an important future research direction.

The information presented here represents only the beginning of understanding museums as assisting with the cultural reproduction of young-Earth creationism. One of the fundamental questions raised by this project is the nature of creationist visitors. What do visitors to creation museums believe? How do visitors to secular museums respond to content which conflicts with their worldview? Much of the research presented here focuses on professional experiences with creation and evolution in the museum context, but little is known about the motivations of visitors. My small survey suggested that creationists are visiting secular museums at a higher rate than previously believed. A better understanding of creationist museum visitors could be gleaned from a much larger survey.

Understanding visitor motivations, beliefs, and use of museums is a critical part of understanding the cultural reproduction of young-Earth creationism. Museum exhibits are designed to inform, educate, and engage visitors on a variety of topics, and understanding how visitors respond to and interact with exhibits is critical to the public face of the museum. Many natural history museum professionals told me that they were under the impression that there were few (if any) creationist visitors in their museums, yet even the brief survey administered as a part of this project highlights the fact that this is not the case. This is in part due to differences in individual experiences among the staff, but

merits further in-depth exploration Future research should therefore build on the foundation laid within this study, focusing on the visitors themselves.

Another research direction which merits consideration is the interconnectedness of the creation museums and other Christian apologetics organizations. Creation museum labels relied on the same pool of resources, sometimes writing labels which were word-for-word the same as labels at other institutions. The interrelated nature of these museums and the scarcity of resources warrant further examination in order to gain insight into the social network of the young-Earth creationist movement.

Conclusion

To hear the staff at the Creation and Earth History Museum tell it, their primary goal is to be a resource, to represent a community struggling to find a voice in a domineering atheistic society. They tell of their experiences with visitors, already Bible-believing Christians but unable to proclaim their faith in creation until they encounter the museum exhibits. As one employee at the museum told me, “one thing that I’ve seen from being here is that Christians will come in here, not really knowing a lot about this. And they will become on fire for creation and for Jesus and they take that passion back to their church. And there’s lots of churches in San Diego that have started Bible studies based on creation. And we are a resource for that,” [Interview, February 13, 2014].

Zierman (2011) describes being “on fire” for God as being “enthusiastic, passionate and devoted to God in a way that is obvious to everyone around.” It is in driving this transformation that creation museums thrive. Converting the faithful into living examples of young-Earth creationists is particularly important for the cultural reproduction of the doctrine. Museums act as monuments to this faith and become

authoritative reinforcement for the young-Earth narrative. Tours, mobile applications, and literature likewise become mechanisms for educating about special creation, the ultimate authority of God, and the errancy of secular science. It is this ignited fire which drives anti-evolution activities in secular museums, motivates the transmission of belief in the literal nature of the Genesis creation narrative.

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Appendix A: List of Creationist Organizations

The following is a list of U.S. based creationist organizations, compiled through creationism.org as well as the NW Creation Network website. This table excludes the creationist museums which are featured in Table 2 in the text.

Organizations	Location
4th Day Alliance	ID
A Key Encounter	FL
Access Research Network	CO
Alpha Omega Institute	CO
American Portrait Films	OH
American Scientific Affiliation	MA
Animal Alley Ministries	NY
Answers in Genesis	KY
Antelope Valley Creation Science Association	CA
Apologetics Forum of Snohomish County	WA
Apologetics Press	AL
Apologia Outdoors	AL
Arizona Origin Science Association	AZ
Associates for Biblical Research	PA
Atlanta Creation Group	GA
Auxt Biblical Creation Resources	MD
Bible and Science Ministries	WA
Bible Science Safari	OH
Bibleland Studios	NY
Bible-Science Association	CA
Bible-Science Association of San Fernando Valley	CA
Biblical Discipleship Ministries	TX
Biology Versus Evolution	CA
Black Hills Creation Science Association	SD
Blue Marble Journeys	IA
California Institute of Omniology	CA
Camp Gilead	FL
Canoe Creation	OH
Canyon Ministries	AZ
Catie Frates	FL
Center for Origins Research and Education	OR
Center for Scientific Creation	AZ
Center for Theology and Natural Resources	CA

Organizations	Location
Common Sense Science	GA
Compass.org - Pointing to Christ	ID
Core Academy of Science	TN
Counterbalance Foundation	WA
Creation Adventures	WA
Creation Apologetics	WA
Creation Association of Puget Sound	WA
Creation Astronomy Now	IL
Creation Biology Society	TN
Creation Coalition of Connecticut	CT
Creation Compass	OR
Creation Concepts	IL
Creation Connection	MO
Creation Connection Ministries	TN
Creation Dinosaurs and the Flood	NC
Creation Education Association	WI
Creation Education Center	WI
Creation Education Materials	TX
Creation Education Ministries	OR
Creation Education Resources	FL
Creation Encounter Creation Fieldtrips	OR/WA
Creation Engineering Concepts	OR
Creation Family Ministries	NC
Creation Foundations	WA
Creation Illustrated Magazine	CA
Creation Instructional Association	NE
Creation Kingdom Zoo	VA
Creation Ministries International	GA
Creation Ministries of the Ozarks	MO
Creation Moments, Inc.	MN
Creation Outreach	WA
Creation Research	TN
Creation Research of the North Coast	CA
Creation Research Science Education Foundation	OH
Creation Research Society	AZ
Creation Resource Foundation	CA
Creation Resource Library	KS
Creation Revolution	?

Organizations	Location
Creation Safaris	CA
Creation Science Alive	?
Creation Science Association for Mid-America	MO
Creation Science Association of Central IL	IL
Creation Science Assoc. of Orange County	CA
Creation Science Assoc. of Ventura County	CA
Creation Science Club of NJ	NJ
Creation Science Defense	GA
Creation Science Defense	MT
Creation Science Evangelism	FL
Creation Science Fellowship	CA
Creation Science Fellowship	NM
Creation Science Fellowship Inc.	PA
Creation Science Ministries	MI
Creation Science Ministries of OR	OR
Creation Science Network	WA
Creation Science Research Center	CA
Creation Science Seminars	MN
Creation Science Society of Milwaukee	WI
Creation Social Science and Humanities Society	KS
Creation Speaks	NE
Creation Studies Institute	FL
Creation Study Group	SC
Creation Study Group of NJ	NJ
Creation Summit	OK
Creation Super Library	AZ
Creation Today	FL
Creation Training Initiative	KY
Creation Truth Foundation	OK
Creation Worldview Ministries	FL
Creation, Evolution, and Science Ministries	AZ
Creationism.org	IN
Creationist Company	OR
Creationist Fellowship	PA
Crying Rocks Ministry	AZ
Darwin is Dead	CA
Dave's Creation Resources	IL
David Rives Ministries	TN

Organizations	Location
Days of Noah Ministries	TX
Declare God's Wonders	ME
Defending Genesis	WV
Design Science Association	OR
DFW Metroplex Institute for Origins Science	TX
Discovery Institute	WA
Earth History Research Center	TX
Earth Science Associates	TN
East TN Creation Science Association	TN
Eden Communications/Films for Christ	AZ
Education Research Analysts	TX
Evolution Facts, Inc.	TN
Evolution, a Fairytale for Grownups	CO
Faith and Reason Ministries	CA
First Days Ministries	CT
Fish Don't Walk	CA
Foundation Advancing Creation Truth	MT
Foundations in Genesis Idaho	ID
Fox Valley Creation Science Information Ministry	WI
Frederick Creation Society	MD
Genesis Creation Science Institute	CA
Genesis Forum Academy	CA
Genesis Park	NH
Genesis Proclaimed Association	VA
Geoscience Research Institute	CA
Gigaflood	OR
Greater Houston Creation Association	TX
His Creation	CO
In the Beginning	WI
In the Beginning Ministries	CA
Indiana Creation Science Association	IN
Institute for Biblical and Scientific Studies	PA
Institute for Creation Research	TX
Institute for Creation Science	OR
Institute for Neo-Creationism	VA
Institute for Scientific & Biblical Research	PA
Intelligent Design and Evolution Awareness Center	CA
Intelligent Design Network - NM	NM

Organizations	Location
Intelligent Design Network, Inc.	KS
Intelligent Design Undergraduate Research Center	TX
Interdisciplinary Biblical Research Institute	PA
International Society for Complexity Information and Design	NJ
Kanawha Creation Science Group	WV
Life & Light Foundation	CA
Living Science	GA
Living Waters Bible Camp	WI
Logos Research Associates	CA
Lutheran Science Institute	WI
Masterpiece Creations	SD
Master's International School of Divinity	IN
Media Angels	FL
Metroplex Institute for Origins Science	TX
Mid-Missouri Chapter of M.A.C.	MO
Midwest Creation Fellowship	IL
Mission: Imperative!	PA
Missouri Association for Creation	MO
Molecular History Resarch Center	WA
Monarch Creation Ministry	
Montana Origins Research Effort	MT
Mr. Stephen Caesar	MA
Niagara Falls & Noah's Flood Ministries	NY
Norm's Place	IN
Northeast Creation Ministries	ME
Northwest Creation Conference	OR
Northwest Creation Network	WA
Northwest Treasures	WA
Ohio Valley Creation Education Assoc.	OH
Origin Science Association	VA
Origins Club at Penn State	PA
Origins Resource Association	LA
Philadelphia Society for Creation Science	PA
Points of Origins Ministries	TN
Project Creation	TN
Project Von Bora	WA
Promise Land Farm Ministries	NC
Quad-City Creation Science Association	IA

Organizations	Location
Reasons for Faith Ministries	OR
Reasons to Believe	CA
Return to God	WA
Returning to Genesis	KY
Revealing Evidence of Creation	FL
Revolution against Evolution	MI
Rick and Sidney	OR
Rocky Mountain Creation Fellowship	CO
Safari Zoological Park	KS
Saltwater Studies	FL
San Antonio Bible Based Science Association	TX
Science Against Evolution	CA
Science Excellence for all Ohioans	OH
Science Ministries, Inc.	VA
Science Partners	FL
Science Splat	TX
Scientific and Biblical Creationist Fellowship	DE
Search for the Truth Ministries	MI
Sioux Falls Creation Fellowship	SD
Snakes Alive!	OH
South Bay Creation Science Association	CA
Southern MN Association for Creation	MN
Southern Plains Creation Society	OK
Space Coast Creation Club	FL
Tamarack Valley	MI
The ARK Foundation of Daytona	OH
The Biblical and American Archaeologist	CA
The Creation Research Society	MO
The Genesis Foundation	WI
The Insect Man	WV
The Monkey Trial	
The Sourcebook Project	MD
The Stone's True Story	MI
The Susquehanna Valley Biblical Creation Center	PA
The True Origin Archive	TX
The Young Earth Creation Club	OH
Triangle Association for the Science of Creation	NC
Tri-County Association for Creation	MO

Organizations	Location
Truth and Science Ministries	MI
Twin Cities Creation Science Association	MN
Understand the Times	CA
Van Andel Creation Research Center	AZ
Wilderness Ministry Institute	CO
X-Evolutionist.com	OK

Appendix B: Museum Survey

Section 1: For all participants

Question	Type of response
1. Where is your museum located?	Free response
2. What institution do you work for?	Free response
3. Approximately how many visitors come to the museum on an annual basis?	Select one: <100,000; 100,000 – 500,000; 500,000 – 1,000,000; 1,000,000+; I don't know
4. How long have you been affiliated with the museum?	Free response
5. What is your current position at the museum?	Select one: volunteer/docent, member services, administration, marketing, educator, collections management, curatorial, exhibits department, visitor services, development, registrar, other.

If answer to #5 is volunteer/docent, membership/member services, marketing, development, visitor services, or other they will be directed to the following set of questions:

Question	Type of Response
1. Does your museum discuss the topic of human evolution in any exhibits or programs?	Yes/No/I'm not sure
1a. If yes: which specifically?	Free response
2. Does your museum discuss general concepts of evolution in any exhibits or programs?	Yes/No/I'm not sure
2a. If yes: which exhibit specifically?	Free response
3. Have visitors ever complained about scientific content in exhibits or programs?	Yes/No/I'm not sure
3a. If yes: what kinds of complaints have you personally received?	Free response
4. Has anyone ever contacted you (or a colleague) with specific objections to any exhibit or program at the museum?	Yes/No
4a. If yes: what have these objections been and why?	Free response
5. Have you (or your colleagues) ever experienced any negative feedback with	Yes/No

respect to any of your exhibits?	
5a. If yes: what was this feedback?	Free response
6. Have you personally ever experienced any anti-evolution comments or objections by visitors at the museum?	Yes/No
6a. If yes: please provide details.	Free response

If answer to #5 is education, administration, collections management, curatorial, exhibit development, registration, they will be directed to the following questions:

Question	Type of Response
1. Does your museum discuss the topic of human evolution in any exhibits or programs?	Yes/No/I'm not sure
1a. If yes: which specifically?	Free response
1b. If no: If your museum does not currently feature a discussion of human evolution, are there any exhibits or related programming being planned that cover the topic?	Free response
2. Does your museum discuss general concepts of evolution in any exhibits or programs?	Yes/No/I'm not sure
2a. If yes: which exhibit specifically?	Free response
2b. If no: If your museum does not currently feature a discussion of evolution, are there any exhibits or related programming being planned that cover the topic?	Free response
3. Have visitors ever complained about scientific content in exhibits or programs?	Yes/No/I'm not sure
3a. If yes: What kinds of complaints have you personally received?	Free response
4. Has anyone ever contacted you (or a colleague) with specific objections to any exhibit or program at the museum?	Yes/No
4a. If yes: what have these objections been and why?	Free response
5. Have you (or your colleagues) ever experienced any negative feedback with	Yes/No

respect to any of your exhibits?	
5a. If yes, what was this feedback?	Free response
6. Have you personally ever experienced any anti-evolution comments or objections by visitors at the museum?	Yes/No
6a. If yes, please provide details.	Free response
7. If your museum does not currently feature a discussion of evolution, are there any exhibits or related programming being planned that cover the topic?	Free response
8. If your museum does not currently exhibit human evolution, is there a reason why not?	Free response
9. Have you ever had any professional interactions with proponents of intelligent design/creation science? If so, please describe.	Free response
10. To the best of your knowledge, have any creationist organizations ever protested your museum with an organized demonstration? If so, please provide details.	Free response
11. Are you aware of any instances in which a segment of the public objected to an exhibit at your museum prior to your tenure at the museum? If so, please provide details.	Free response
12. Are you personally involved in the development of new exhibits or programs?	Yes/No

If answer to #10 in previous section is "Yes":

13. How big of a role does public opinion play in your institution's exhibit development process?	Free response
14. Does your museum actively solicit feedback from the public with respect to exhibit content?	Free response

Appendix C: Creationist Survey

This survey combines original questions as well as items previously used in the EALS survey.

Section 1: Background

Question	Type of response
1. How old are you?	Free response
2. What is your gender?	Free response
3. Where do you live?	Free response
4. What is your highest level of education?	Select one: Some high school, High school diploma/GED, Some college, Associate's degree, Bachelor's degree, Trade certification/apprenticeship, Master's degree, Doctoral degree, Professional degree (MD/DO, JD, DNP, DDS, etc)
5. Have you ever worked or volunteered at a museum?	Yes/No
5a. If so, what kind of museum was it?	Free response
6. What is your religious affiliation?	Free response
7. How often do you attend religious activities?	Select one: never, rarely, monthly, weekly, more than once a week
8. Do you have children?	Yes/No
8a. If yes, do you homeschool your children?	Yes/No
9. Would you describe yourself as a creationist?	Yes/No
10. Do you think evolution is a scientifically valid idea?	Yes/No

For the following items, please assess yourself using a 1-to-5 scale with 1 = completely disagree/not at all like me/not at all, 3 = neutral and 5 = completely agree/exactly like me/a lot

To what degree are you political?	1 2 3 4 5
To what degree do your political views influence your daily life?	1 2 3 4 5
To what degree do your political views influence your decisions?	1 2 3 4 5
To what degree are you religious?	1 2 3 4 5
To what degree does religion impact your daily life?	1 2 3 4 5
To what degree does your religion influence your decisions?	1 2 3 4 5
To what degree does your religion influence decisions you make regarding your children's education?	1 2 3 4 5
To what degree are you conservative?	1 2 3 4 5

For the following items, please assess yourself using a 1-to-5 scale with 1 = very conservative and 5 = very liberal

In general, how do you self-identify politically? 1 2 3 4 5
 In general, how conservative are you on economic issues? 1 2 3 4 5

Section 2: Museums

Question	Type of response
1. Have you been to a museum in the last year?	Yes/No
1a. If yes, what kind of museum was it?	Select all that apply: art museum, historical museum, natural history museum, children's museum, religious museum, anthropology museum, creation museum, science and technology museum, other
2. How often do you typically visit natural history museums?	Select one: never, less than once a year, annually, monthly, weekly
3. Why do you visit natural history museums?	Select all that apply: for fun, for personal education, to educate my children, as a chaperone on a school field trip, because I like them, because my kids like them, I don't visit natural history museums, other
4. Do you think evolution is an appropriate subject for exhibition in natural history museums?	Yes/No
4a. If yes, why?	Free response
4b. If no, why not?	Free response
5. Have you ever made a complaint to museum staff about an exhibit?	Yes/No
5a. If yes, what was your complaint?	Free response
6. (If no for #4) If you visit a museum and they discuss evolution, how do you interact with that exhibit?	Select all that apply: I skip it, I read it, I use it as a teaching opportunity for my kids, I would complain about it to the staff
7. Have you ever visited any of the following museums?	Select all that apply: Creation Museum (Petersburg, KY), Creation & Earth History Museum (Santee, CA), Glendive Dinosaur & Fossil Museum (Glendive, MT), 7 Wonders Creation Museum (Silverlake, WA), Akron Fossil & Science Center (Copley, OH), Creation Adventures Museum (Arcadia, FL), Creation Discovery Museum (Ft. Lauderdale, FL),

	Creation Evidence Museum (Glen Rose, TX), Discovery Center (Abeline, TX), Lost World Museum (Phoenix, NY), Wyatt Museum (Cornersville, TN), Grand River Museum (Lemmon, SD), Cook's Natural Science Museum (Decatur, AL), Greater Ancestors World Museum (Jacksonville, FL), Museum of Earth History (Dallas, TX), Creation Museum of the Ozarks (Strafford, MO)
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For the following items, please assess yourself using a 1-to-5 scale with 1 = completely disagree/not at all like me/not at all, 3 = neutral, and 5 = completely agree/exactly like me/a lot

As a child, I visited natural history museums on field trips or with family	1	2	3	4	5
As an adult, I visit (or have visited) natural history museums on my own or with my family.	1	2	3	4	5
I use natural history museums as a part of my children's education.	1	2	3	4	5
I use creation museums as a part of my children's education.	1	2	3	4	5
As a child, I attended science and/or nature camps.	1	2	3	4	5

Section 3: Worldview

For the following items, please assess yourself using a 1-to-5 scale with 1 = completely disagree/not at all like me/not at all, 3 = neutral, and 5 = completely agree/exactly like me/a lot

Adam and Eve of Genesis are universal ancestors of the human race.	1	2	3	4	5
God created humans in their present form.	1	2	3	4	5
All modern species of land vertebrates are descended from those original animals on the ark.	1	2	3	4	5
The earth is approximately 6,000 years old	1	2	3	4	5
Present animal diversity can be explained by the Flood.	1	2	3	4	5
People who accept evolution as fact are immoral.	1	2	3	4	5
Darwinism strips meaning from our lives.	1	2	3	4	5
If you accept evolution, you can't believe in God.	1	2	3	4	5
Mutations are never beneficial.	1	2	3	4	5
All plants and animals have DNA.	1	2	3	4	5
Humans share a majority of their genes with chimpanzees.	1	2	3	4	5
Humans share more than half of their genes with mice.	1	2	3	4	5
Humans developed from earlier life forms.	1	2	3	4	5
In most populations, more offspring are born than can survive.	1	2	3	4	5
Mutations occur all of the time.	1	2	3	4	5
Characteristics acquired during the lifetime of an organism are passed down to that individual's offspring.	1	2	3	4	5

Evolution means progression towards perfection.	1	2	3	4	5
Evolution is a linear progression from primitive to advanced species.	1	2	3	4	5
For scientific evidence to be deemed adequate, it must be reproducible by others.	1	2	3	4	5
Good theories give rise to testable predictions.	1	2	3	4	5
Scientific explanations can be supernatural.	1	2	3	4	5
Humans and other living things have evolved over time.	1	2	3	4	5
Humans and other living things have existed in their present form since the beginning of time.	1	2	3	4	5
Evolution is the best explanation for human life on earth.	1	2	3	4	5

Appendix D – Sample Interview Questions

Included below is a sampling of interview questions used at the different museums. Please note that these interviews were semi-structured; thus, not everyone was asked every question.

Part 1: Creation Museum Interviews

Section 1: General Questions

1. What is your formal title at this museum?
2. How long have you held this position?
3. Have you held any other positions at this institution?
4. What are your primary job responsibilities?
5. Can you describe your typical interaction with the museum-going public?
6. Are you involved with exhibit development?

Section 2: Exhibit Development (contingent upon involvement with exhibit development)

1. Who is typically involved with the construction of permanent and/or temporary exhibits at this museum?
2. How long does the process typically take for your institution?
3. What types of surveys are employed prior to and during the development of an exhibit?
4. Does public feedback and interest in a topic play a role in the development of your exhibits?
5. How is this type of information from the public solicited?

Section 3: Exhibit Specific Questions

1. Which exhibits at your institution feature a discussion of evolution (from any perspective)?
2. How long have they been in place?
3. What has the public response to this exhibit been?
4. Were you involved in the development of these exhibits?
5. If so, what role did you play in the process?
6. Have formal visitor studies ever been conducted with this exhibit (at any point)? If so, what were the results?
7. Do you have educational programming that relates to this exhibit?
8. Why did the museum decide to discuss evolution?

Section 4: Creation Message in Museums

1. What are the most common complaints your museum receives?
2. Who typically receives the complaints from the public (is there a designated person)?
3. Do complaints typically come from individuals or organizations?
4. Have people complained about the accuracy of information being presented in any exhibit?
5. Do you think it is important to exhibit both perspectives on the origins of life on Earth?

6. Why do you think museums are an important aspect of the creation message?
7. How do you feel your institution compares to more traditional natural history museums?
8. Do you regularly visit other museums?
9. How do you feel your institution compares to traditional natural history museums?
10. (For individuals who do visit natural history museums) When you visit natural history museums, how do you deal with information that contradicts Genesis? (particularly with children)

Part 2: Mainstream Museum Interviews

Section 1: Subject Information

1. What is your formal title at this museum?
2. How long have you held this position?
3. Have you held any other positions at this institution?
4. What are your primary job responsibilities?
5. Can you describe your typical interaction with the museum-going public?

Section 2: Exhibit Development (contingent upon the subject's involvement with exhibit development)

1. Who is typically involved with the construction of permanent and/or temporary exhibits at this museum?
2. How long does the process typically take for your institution?
3. What types of surveys are employed prior to and during the development of an exhibit?
4. Does public feedback and interest in a topic play a role in the development of your exhibits?
5. How is this type of information from the public solicited?

Section 3a: Exhibit Specific Questions (for museums that discuss evolution but exclude humans)

1. Which exhibits at your institution feature a discussion of evolution?
2. Are these exhibits permanent or temporary?
3. How long have they been in place?
4. What has the public response to this exhibit been?
5. Were you involved in the development of these exhibits?
6. If so, what role did you play in the process?
7. Have formal visitor studies ever been conducted with this exhibit (at any point)? If so, what were the results?
8. Do you have educational programming that relates to this exhibit?
9. Why does the museum/this exhibit not feature a discussion of human evolution?

Section 3b: Exhibit Specific Questions (for museums that focus on human evolution)

1. Which exhibits at your institution emphasize human evolution?
2. Are these exhibits permanent or temporary?

3. How long have they been in place?
4. What has the public response to this exhibit been?
5. Were you involved in the development of these exhibits?
6. If so, what role did you play in the process?
7. Have formal visitor studies ever been conducted with this exhibit (at any point)?
If so, what were the results?
8. Do you have educational programming that relates to this exhibit?

Section 3c: Exhibit Specific Questions (specific to traveling exhibits relating to evolution)

1. What exhibit did your institution host and for how long?
2. What was the public response to this special exhibit?
3. Why did your institution decide to host this exhibit?

Section 4: Experiences with the Antievolution Movement

1. What are the most common complaints your museum receives?
2. Who typically receives the complaints from the public (is there a designated person)?
3. Do complaints typically come from individuals or organizations?
4. Has this museum ever encountered strong resistance from a particular source?
5. Have you (or your colleagues) ever had complaints related specifically to religion (Christianity in particular)?
6. Have people complained about the accuracy of information being presented in any exhibits?
7. Are you familiar with the concept of “Biblically correct tours”? Have any occurred in your institution?
8. What kind of complaints come in about your evolution exhibit?
9. Are the individuals who have complained affiliated with any particular political, cultural, or religious organization (that you are aware of)?
10. Have there ever been any organized demonstrations or protests against your museum for any reason?
11. Have any of these efforts been directed at your evolution exhibits in particular?

Appendix E: Responses to three natural history museum survey questions.

	Yes	No	Not Sure	Total
Have visitors ever complained about scientific content in exhibits or programs?	72 (49.7%)	39 (26.9%)	34 (23.9%)	145
Has anyone ever contacted you with specific objections to any exhibit or program at the museum?	67 (46.5%)	60 (41.7%)	17 (11.8%)	144
Have you ever experienced any negative feedback with respect to any of your exhibits?	75 (52.4%)	41 (28.7%)	27 (18.9%)	143

CURRICULUM VITAE

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Education

M.S., University of Wisconsin-Milwaukee, May 2009
 Major: Anthropology
 Graduate Certificate: Museum Studies

B.A., University of Wisconsin-Madison, May 2005
 Major: Anthropology; Latin American, Caribbean, and Iberian Studies; Spanish
 Language and Literature

Publications

- 2014 Barone, L.M., Petto, A.J., Campbell, B.C. Predictors of evolution acceptance in a museum population. *Evolution: Education and Outreach* 7(23): 1 – 11.
- 2014 Barone, L.M., Campbell, B.C. Visitor opinions of human evolution in the Milwaukee Public Museum. *Museums and Social Issues* 9(2): 84 – 93.
- 2014 Barone, L., Buntin, M. Human evolution acceptance among visitors to the Milwaukee Public Museum. *Informal Learning Review* 124: 9 – 13.
- 2013 Barone, L.M. Sex differences in mental illness among Mexican transnational migrants. *Field Notes: A Journal of Collegiate Anthropology* 5(1): 22 – 39.
- 2012 Campbell, B.C., Barone, L.M. Evolutionary basis of human migration. In: Campbell, B.C., Crawford, M., editors. *The causes and consequences of human migration: An evolutionary perspective*. Cambridge: Cambridge University Press. Pp. 45 – 64.

Awards and Honors

- 2013 Human Anatomy and Physiology Society Student Travel Award
 2013 UWM Graduate Student Travel Award
 2012 UWM Graduate Student Travel Award
 2012 Center for Latin American and Caribbean Studies Research Travel Award
 2009 UWM Graduate Student Travel Award

Conference Presentations

- 2015 “Creationists don’t come here”: An examination of perceptions about museum visitors’ religious beliefs. Society for Applied Anthropology Annual Meeting, March 24 - 28.

- 2014 Contesting authority in the museum: An examination of anti-evolutionism and natural history museums. American Anthropological Association Annual Meeting, December 3-7.
- 2014 Factors influencing evolution acceptance among museum visitors. Central States Anthropological Society Annual Meeting, April 9 – 12.
- 2014 “Teach Both”: Evolution, creationism, and the obligation to museum visitors. Society for Applied Anthropology Annual Meeting, March 18 – 22.
- 2013 Evolution acceptance among visitors at the Milwaukee Public Museum. University of Wisconsin-Milwaukee Museum Studies Program 50th Anniversary Symposium, October 4.
- 2013 Teaching human anatomy: An evolutionary perspective. Human Anatomy and Physiology Society Annual Meeting, May 25 – 30.
- 2012 Sex differences in mental illness among Mexican transnational migrants. Mental Health and Cultural Estrangement: (Re)Integrating Culture into Frameworks for Understanding Issues in Mental Health, April 20.
- 2009 Digit ratio (2D:4D) and Ponderal index as predictors of half-marathon performance. American Association of Physical Anthropologists Annual Meeting, March 31 – April 4.
- 2009 Anatomical predictors of half-marathon performance. Anthropology Student Union Annual Symposium, March 7.

Teaching Experience

Sanford-Brown College Online. Physical Anthropology (Instructor of Record, Fall 2009; Spring, Summer, Fall 2010 – 2014, Spring 2015).

Southern New Hampshire University. Global Society (Instructor of Record, Spring 2015).

University of Wisconsin-Milwaukee. Human Evolution and Variation (Instructor of Record, Fall 2011, Spring 2012, Fall 2012, Spring 2013).

University of Wisconsin-Milwaukee. Human Evolution and Variation (T.A., Fall 2010, Spring 2011).

University of Wisconsin-Milwaukee. Anatomy and Physiology 1 (T.A., Fall 2007, 2008, 2012, 2013, 2014; Spring 2008, 2009, 2013, 2014).