

THE GRAND CANYON AS AN ICON OF MODERN CHRISTIAN FUNDAMENTALISM

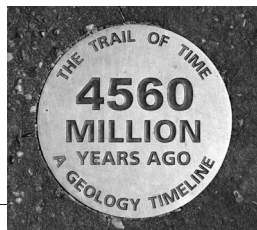
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EVEN A CASUAL VISITOR at Grand Canyon National Park (GCNP) soon learns about Grand Canyon's vast age. At the South Rim's Grand Canyon Visitor Center, which is toured by millions of people every year, a permanent exhibit tells visitors of the Canyon's antiquity. Miles away, along GCNP's Trail of Time, hikers can learn about the ages of Grand Canyon's oldest rocks (e.g., 1.84 billion years, marked with a sign and medallion 120 meters east of Verkamp's Visitor Center), Earth (4.56 billion years, marked with a sign and medallion 200 meters east of Maricopa Point), and the universe (13.75 billion years, marked with a medallion at Pima Point).¹ Elsewhere in GCNP, books, signs, brochures, models, and other exhibits document decades of research revealing Grand Canyon's vast age.²

The rugged walls of Grand Canyon record billions of years of our planet's history, shelter plants and animals, and have sustained people for thousands of years.

Fig. 5-1. Every year, millions of visitors at GCNP learn about Grand Canyon's vast age from this and other permanent exhibits at the Grand Canyon Visitor Center. To young-Earth creationists, this message is heresy. Courtesy of the author.

Fig. 5-2. This medallion along the South Rim's Trail of Time documents Earth's vast age. Young-Earth creationists believe that Earth is 760,000-times younger than GCNP claims. Courtesy of the author.



Most people accept these science-based ages of Earth and Grand Canyon. However, to a growing number of other people at Grand Canyon and elsewhere, these ages are wrong because they can be known not by scientific inquiry, but instead (and only) by a literal and selective reading of the Bible. These Christian fundamentalists, once known as "flood geologists" and "scriptural geologists," and now as

"young-Earth creationists" (YECs), are identified by their insistence that Earth was created about 6,000 years ago and that Grand Canyon was formed not by slow and gradual processes or the Colorado River, but instead "by the receding waters of the catastrophic global Genesis Flood"³ about 1,654 years later (i.e., 4,368 years ago, as of 2019). Their claims are unequivocal:

Grand Canyon's basement rocks "were set in place on Day 3 of the creation week" and "represent the crust of the early earth during the first part of Creation Week."⁴

The Great Unconformity represents the onset of Noah's Flood, and the Grand Canyon Supergroup provides "evidence of sedimentary and tectonic processes which occurred during and after Day Three of Creation Week." "Grand Canyon is not a memorial to the beauty of God's creation, but a memorial to the judgment of the Flood" and "a somber reminder that God judges sin."⁵



Fig. 5-3. This popular site in Blacktail Canyon (River Mile 120.6) features an eye-level view of the Great Unconformity, where 550-million-year-old Tapeats Sandstone (above the 10-cm ruler) sits atop 1.6-billion-year-old Vishnu Schist (below ruler). YECs claim that the Great Unconformity formed at the onset of Noah's Flood (about 4,370 years ago) as God killed all but eight people on Earth and "all life under the heavens" (Genesis 6). Courtesy of the author.

*Paleozoic strata at Grand Canyon are "broad sedimentary deposits...from the early part of Noah's Flood."*⁶

*These Bible-based claims are true, regardless of "whatever scientists may say," because "the Bible says that the earth is only about 6,000 years old, Grand Canyon could not have formed millions of years ago."*⁷

YECs, who reject modern geology and other sciences,⁸ declare that these beliefs are "the only logical and viable explanation" for Grand Canyon because "the evidence from Grand Canyon does fit with Creation and Noah's Flood" and that "Scripture is scientifically reliable." Doubters "willingly are ignorant" and "deliberately choose to reject the evidence" because Grand Canyon "brings us to the feet of our Lord Jesus Christ."⁹

YECs' claims about the ages of Earth's and Grand Canyon are incompatible with evidence gathered for decades by mainstream geologists at GCNP and elsewhere. Refutations of YECs' claims are detailed, thorough, and abundant,¹⁰ yet these claims about Grand Canyon and other subjects remain surprisingly popular. Indeed, since at least the early 1980s, 38-47% of Americans have embraced YEC.¹¹

This paper discusses how young-Earth claims originated, how they relate to Grand Canyon, and how advocates of YEC have made Grand Canyon an icon of Christian fundamentalism.

WHERE DID YOUNG-EARTH CLAIMS COME FROM?

For centuries, theologians and scientists estimated Earth's age. For example, Benedictine monk Venerable Bede (672-735) claimed that creation occurred in 3952 BCE, and German astronomer Johannes Kepler (1571-1630) claimed that it occurred in 3993 BCE. After triggering the Protestant Reformation, German theologian Martin Luther (1483-1546) estimated that Earth is about 5,500 years old, and famed English scientist Isaac Newton (1643-1727) argued that Earth formed around 4,000 BCE.¹²

The most influential of the more than 200 early chronologies of Earth's history was that of James Ussher (1581-1656), the Archbishop of Armagh and Primate of All Ireland. Ussher, using the Bible, other books, and a variety of assumptions, concluded in 1650 that creation began on the evening of Saturday, October 22, 4004 BCE.¹³ More than 200 years after the publication of Ussher's book, Ussher's claims about a young Earth were resurrected by Ellen White (1827-1915), a founder and prophetess of the Seventh-day Adventist Church. Indeed, in one of her 2,000 or so "visions," White was returned by God to creation, where she saw that creation lasted a week and that "the world is now only about six thousand years old."¹⁴ White's ideas were developed by George McCready Price (1870-1963), who rejected mainstream science while promoting "flood geology" as a way to return to "primitive Christian principles." Although Price claimed that biblical literalism is the only explanation for creation that a Christian can accept, Price's ideas were ignored by

most Christians and by virtually all geologists as scientists developed new approaches for determining Earth's age. By the late 1800s, geologists accepted an old Earth because "the rocks do not lie."¹⁵ By the time religion and science clashed at the Scopes Trial in 1925, even many of fundamentalism's leaders (e.g., William Jennings Bryan) questioned claims of a young Earth.¹⁶

The age of Earth was established in 1956, when Claire Patterson used meteorites and ancient sediments to conclude that Earth is 4.56 billion years old.¹⁷ Nevertheless, just five years later, the publication of the influential *The Genesis Flood*¹⁸ again resurrected YEC, and eventually transformed YEC into mainstream creationism. Today, the most vocal, litigious, and well-financed creationists are YECs. It is these creationists who hope to replace science with religious dogma at Grand Canyon.

GRAND CANYON AND RELIGIOUS CONTROVERSIES

Grand Canyon has long been associated with religious controversies. One of the earliest of these controversies involved booklets published in the 1920s by the Oakland Museum of California¹⁹ that included a photo of a drawing of a dinosaur-like animal from Havasu Canyon. These religious booklets proposed that dinosaurs lived with humans, which is a foundation of YEC.²⁰

In 1959, the Grand Canyon Natural History Association began selling Rev. George Wahlin's popular *The Bible Creation Story and Grand Canyon*, which accepted "science in general" and an old Earth while claiming that "the grandest thing about the Canyon is that it confirms the creation story of the Bible."²¹ Wahlin's booklet outsold all other books in GCNP stores except Eddie McKee's *Ancient Landscapes of the Grand Canyon Region*.²²

In the late 1960s, a Phoenix convent donated three bronze plaques featuring inspirational Bible verses (Psalms 66:4, 68:4, and 104:24) that were posted in GCNP at Hermits Rest, Lookout Studio, and Desert View. After an ACLU complaint in 2003 prompted GCNP to remove the plaques, the ensuing outcry by the public (and protests by some members of Congress) resulted in the plaques being restored two weeks later to their original locations, where they remain today.²³

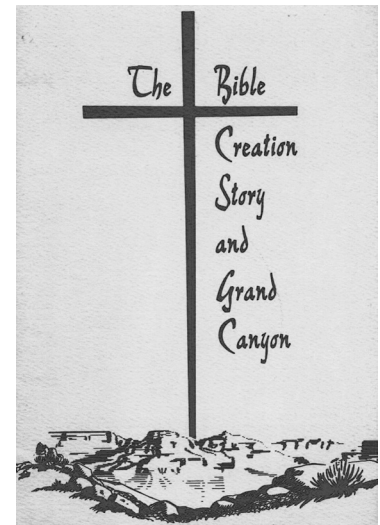


Fig. 5-4. George Wahlin's *The Bible Creation Story and Grand Canyon*, which reconciled science, an old Earth, and the Christian-Jewish creation story, was a best-selling book in GCNP in the 1950s, 1960s, and 1970s. Courtesy of Michael Moore, Augsburg Fortress.

YEC AT GRAND CANYON

Among the many YEC organizations that prominently use Grand Canyon to promote their fundamentalist claims is the Institute for Creation Research (ICR). According to Henry Morris (1918-2006), who founded ICR in 1970, “the Bible is a book of science” that contains “all the known facts of science,”²⁴ and someone can understand Grand Canyon only with “scientific interpretation following the plain Scriptural teachings.” Morris, who condemned anyone who disagreed with his claims as “aiding the enemy,” demanded that scientists at GCNP and elsewhere “stand... in submission to Scripture, interpreting scientific data in the light of the unchanging Word of God.” The stakes are high; as Morris’ son, John, claims in *The Young Earth*, “If the earth is old, then Christianity is wrong. These concepts are not just incompatible, they are opposites. They are mutually exclusive! Christianity makes no sense at all if the earth is old.”²⁵

To enrich their popular, longstanding, YEC-based tours of Grand Canyon, ICR in 1994 published Steven Austin’s *Grand Canyon: Monument to Catastrophe*; this was one of the first major books that used Grand Canyon as evidence of YEC. In that book, Austin—who is now ICR’s Senior Research Scientist—claims that Grand Canyon’s basement rocks were spoken into existence by God at creation, and that Grand Canyon’s Paleozoic rocks were deposited during and soon after Noah’s flood. Although mainstream geologists reject these claims because they lack supporting evidence, Austin insists that this “creationist perspective...is fully rational.” Austin, who believes that interpreting well-established methods of geology is “offensive to creationists,” condemns anyone who disagrees with his religious claims about Grand Canyon as “questioning the past judgment by God” and destroying “the foundation of the Gospel,” adding that such disagreements are evidence of our being “in the last days” when people will “deny the message of Creation, Noah’s Flood, and of the upcoming judgment by fire.” For Austin, “the real battle in regard to understanding Grand Canyon is founded not just upon Creation and Noah’s Flood versus evolution, but upon Christianity versus humanism.”²⁶

Although Austin’s book attracted much attention, it is Grand Canyon boatman Tom Vail who is responsible for most of YEC’s presence in and around Grand Canyon today. After becoming a boatman in 1982, Vail led trips that explained Grand Canyon with science and an old Earth. However, after becoming a Christian in the mid-1990s, Vail adopted a YEC-based “different view” of Grand Canyon being formed “in a matter of just days, shortly after the global flood of Noah’s day about 4,300 years ago.” To Vail, Grand Canyon is “a symbol of sin” and “evidence of God’s judgment...by water of a world broken by sin.” Vail admits that “Some would say [this] change [in my viewpoint] was just plain ridiculous.”²⁷

In 1997, Vail founded Canyon Ministries and began offering “Christ-centered trips through Grand Canyon” based on creation occurring 6,000 years ago and Grand Canyon being produced not by millions of years of erosion, but instead by the “world-convulsing judgment”

during the worldwide flood that is a testimony to “God rightfully judg[ing] a sin-ridden world.” Like Austin and other YECs before him, Vail claims that accepting an old Earth “undermines the authority of the Word of God.”²⁸ Canyon Ministries’ “Our Foundational Beliefs” affirms YEC by claiming that creation spanned six consecutive, 24-hour days, 6,000-10,000 years ago, and that a worldwide flood later sculpted “much of the earth’s geologic record... including the Grand Canyon.” These claims are then declared pure and unquestionable because the Bible is “the supreme authority” in science and history, not to mention immune to external evidence because “the final guide to the interpretation of Scripture is Scripture itself.”²⁹

In 2003, Vail published *Grand Canyon: A Different View*, a book whose goal was “to present a layman’s explanation of the scientific evidence for a young earth as seen in the Grand Canyon.” Vail excused his rejection of modern science by claiming that “just because the science presented in [my] book provides ‘a different view’ does not make it bad science.”³⁰ When the Grand Canyon Association (now Grand Canyon Conservancy) and the National Park Service approved Vail’s book and began selling it in GCNP, the presidents of seven major scientific organizations and many others (from around the world) protested. There were also counter-protests; at one point, Brad Wallis—who was the Executive Director of Grand Canyon Association at the time—was threatened with lawsuits by pro-book and anti-book groups on the same day.³¹ Today, both *Grand Canyon: A Different View* and its well-produced follow-up, *Your Guide to the Grand Canyon: A Different Perspective*,³² are popular around GCNP.³³ Ironically, the most reliable seller of Vail’s *A Different View* is Tusayan’s National Geographic Visitor Center, which advocates “the power of science...to change the world.”³⁴

In mid-2013, soon after becoming Executive Director of Canyon Ministries, Jon Albert began offering more river



Fig. 5-5. Grand Canyon researcher Breanna Ten Eyck points to Tom Vail’s YEC-based *Grand Canyon: A Different View* for sale at Tusayan’s National Geographic Visitor Center. This store has been the most reliable seller of Vail’s book for more than a decade. Courtesy of the author.

trips at Grand Canyon and a variety of “biblically based rim-tours” emphasizing “well-researched and peer-reviewed science.”³⁵ Canyon Ministries now carries more than 230 river-runners per year through Grand Canyon. Thanks to partnerships with well-funded YEC organizations such as AiG and ICR, business at Canyon Ministries is booming. For example, in 2015-2016 business grew 60%, and in 2017, business doubled. With plans to begin offering guided hikes, train rides, and other activities, Albert recently predicted that business will double again by 2020.³⁶ Canyon Ministries is now the predominant YEC organization in and around Grand Canyon; its various rim tours serve more than 1,700 (and counting) customers per year.³⁷



Fig. 5-6. One of the fastest-growing businesses at GCNP is Canyon Ministries, which uses Grand Canyon to promote YEC. This photo shows one of Canyon Ministries’ “A Different View” vans near Powell Point. Courtesy of the author.

SCIENCE, YEC, AND GRAND CANYON

Some YECs acknowledge that “every scientist worthy of the name should always be willing to adjust his thinking as new data come in, continually striving for a more complete understanding of reality.”³⁸ But because YECs accept “human reasoning” only if it is “sanctified human reasoning in the light of the Scriptures,”³⁹ they then replace the vast evidence for Grand Canyon’s antiquity with a young Earth based on undocumented events (e.g., a worldwide flood), untestable religious claims (e.g., that original sin is responsible for death, pain, suffering, and Grand Canyon’s fossils), never-before-observed chemical and physical processes (e.g., the acceleration of radiometric decay during a flood), untestable supernatural causes (“God’s terrible judgment”), and miracles, all deemed incontrovertibly true because “you can trust God’s word.”⁴⁰

The advocacy of Grand Canyon as an icon of YEC goes beyond mere religious dedication, for many YECs are required by their employers to endorse a YEC-based set of scientific claims. A prominent example is Andrew Snelling, a YEC who recently received permission to collect rocks in Grand Canyon to test his ideas about the ages of Earth and Grand Canyon. What will he conclude from his research?

Snelling is Director of Research at AiG and an advisor

to Canyon Ministries.⁴¹ As such, he has sworn to obey a creed that predetermines his conclusions, namely, “...that all persons employed by the ministry in any capacity, or who serve as volunteers, should abide by and agree to our Statement of Faith...” That “Statement of Faith,” in turn, claims that Earth is about 6,000 years old, that Creation took six, twenty-four-hour days, that the worldwide Genesis Flood happened, and that these claims are immune from external evidence because “the final guide to the interpretation of Scripture is Scripture itself.” Furthermore, “by definition, no apparent, perceived or claimed evidence in any field, including history and chronology, can be valid if it contradicts the Scriptural record.”⁴² This means that no matter the evidence, YEC claims are, “by definition,” true. Such creeds demanding predetermined conclusions, regardless of the evidence, typify YEC (e.g., Canyon Ministries) and are antithetical to science. Federal courts have ruled that YEC-based “creation science...is not science” and “has no scientific merit or educational value as science.”⁴³ Nevertheless, to remain on the payroll, employees at AiG, ICR, Canyon Ministries, and other YEC organizations must claim—no matter the “apparent, perceived or claimed” evidence—that Earth, and therefore Grand Canyon, is young.

BEYOND GRAND CANYON

The inseparability of Grand Canyon from YEC extends far beyond Grand Canyon. ICR began taking people through Grand Canyon in the early 1980s, and ICR’s Creation and Earth History Museum, which opened in 1992 in Santee, California, prominently features Grand Canyon to validate Noah’s Flood. By the mid-1990s, ICR had expanded the museum (and its Grand Canyon exhibit) and taken thousands of people on YEC-based tours of Grand Canyon.⁴⁴ Virtually all of the dozens of other YEC-based creation museums and theme-parks that have opened in recent years have promoted Grand Canyon as evidence of their YEC claims. For example, AiG’s popular “Creation Museum” devotes a large walk-through area to Grand Canyon as evidence of Noah’s Flood. Nearby, AiG’s fantastic (and expanding) “Ark Encounter” features Grand Canyon as a testament to Noah’s Flood. Ark Encounter officials predict that attendance in 2019 could exceed two million people.⁴⁵ In September, 2019, ICR opened its \$38-million, debt-free “Discovery Center for Science & Earth History,” which includes a giant exhibit showing how Noah’s flood “carved the Grand Canyon in a matter of weeks” and “how science confirms creation.” Nearby in the museum is an exhibit of the drawing found by the Oakland Museum in Havasu Canyon (see endnote 19). Even the bathroom sinks at the Discovery Center are shaped like Grand Canyon. According to an exhibit in the Center, it may have taken longer to make and install these sinks than it took for Grand Canyon to form.⁴⁶

Wherever you find them, YEC-based statements explaining Grand Canyon are presented as being scientific.

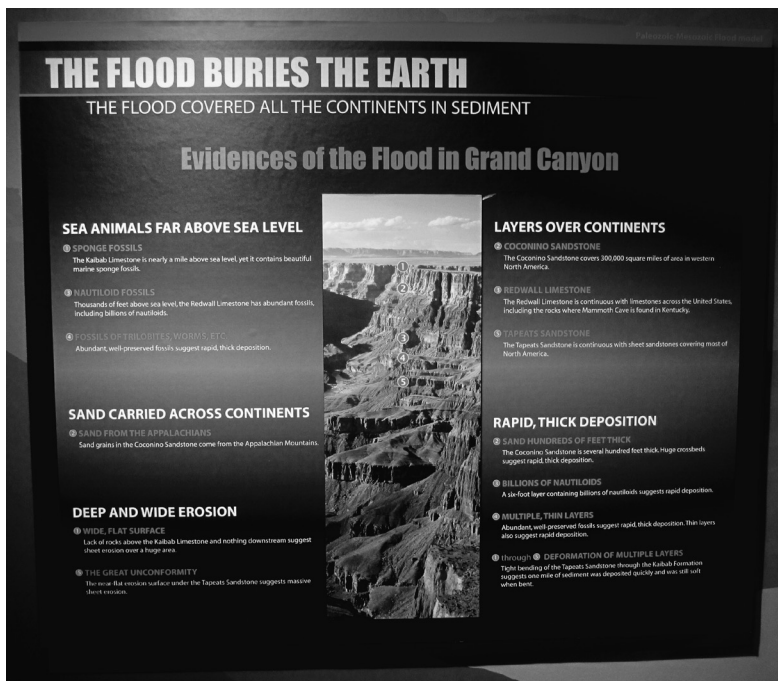
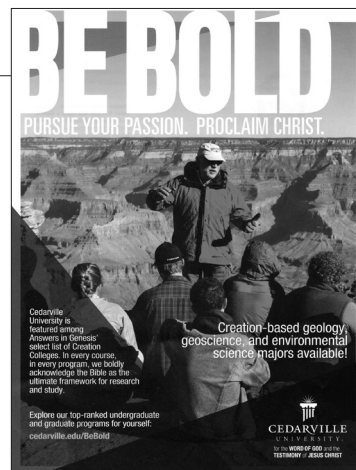


Fig. 5-7. Virtually all of the many creation museums and theme parks prominently feature Grand Canyon as evidence of young-Earth creationism. This display about Grand Canyon stands at Kentucky's Ark Encounter. Courtesy of the author.

For example, a recent article by ICR's geologist, Tim Clarey, simultaneously declares that his research is "for the serious science reader" and that Grand Canyon's Paleozoic rocks were deposited by Noah's Flood, while also conspiratorially adding that "secular scientists deliberately forget that the global Genesis Flood was responsible for most of the rock 'history' of all the continents on Earth..."⁴⁷

As one would predict, many YEC-based colleges and universities use Grand Canyon to lure students and donors, as well as to promote their fundamentalist agendas. AiG now recognizes more than 30 such "Creation Colleges" (e.g., Bob Jones University, Bryan College)⁴⁸ that it features in its publications and at an annual two-day "Creation Colleges Expo." Schools such as Cedarville University (Cedarville, Ohio) offer courses about Grand Canyon in their YEC-based science programs.⁴⁹

Fig. 5-8. Many Christian fundamentalist colleges and universities promote Grand Canyon as evidence of young-Earth creationism. Cedarville University uses this advertisement to recruit students and donors. Courtesy Thomas White, Cedarville University.



GRAND CANYON AS AN ICON OF CHRISTIAN FUNDAMENTALISM

The prominent and consistent use of Grand Canyon by YEC to promote Christian fundamentalism continues to grow in, around, and beyond GCNP. At Grand Canyon, YEC organizations such as Canyon Ministries reach thousands of people each year with newsletters, raft trips, books, advertisements, rim tours, train rides, brochures, and websites. Beyond Grand Canyon, other YEC organizations (e.g., ICR, AiG), fundamentalist colleges and universities, conferences, home-school conventions, churches, creation museums, websites, travel agencies, blogs, theme parks, DVDs, syndicated radio and television programs, and bureaus of popular speakers also use Grand Canyon to spread their religious message.

Just as YECs have "taken back the dinosaurs"⁵⁰ from scientists claiming that humans and dinosaurs never coexisted, so too have YECs "taken back the Grand Canyon" from scientists who claim that Earth is ancient. This branding of Grand Canyon to promote religious fundamentalism has, by all indicators (e.g., increasing revenues, expanding markets, growing enrollments), been successful, and suggests that Grand Canyon will become an ever-more-visible symbol of religious fundamentalism for years to come.⁵¹

ENDNOTES

1. Randy Moore and Kara Felicia Witt, *The Grand Canyon: An Encyclopedia of Geography, History, and Culture* (Santa Barbara, Calif.: ABC-CLIO, 2018), 345-346.
2. Wayne Ranney, *Carving Grand Canyon: Evidence, Theories, and Mystery*, Second Edition (Grand Canyon, Ariz.: Grand Canyon Association, 2012).
3. Answers in Genesis, "Sedimentary Layers Show Millions of Years of Geological Activity," accessed August 23, 2018, <https://answersingenesis.org/geology/rock-layers/sedimentary-layers-show-millions-of-years-of-geological-activity/>; Ken Ham, ed., *The New Answers Book 3: Over 35 Questions on Creation/Evolution and the Bible* (Green Forest, Ark.: Master Books, 2010 [2009]), 175-187; see also Tim Clarey, "Grand Canyon Carved by Flood Runoff," *Acts & Facts*, 47 (12) (2018): 10-13.
4. Ham, *The New Answers Book*, 176; Answers in Genesis, "Grand Canyon in Arizona Brochure," accessed September 12, 2018, <https://answersingenesis.org/store/product/grand-canyon-arizona/?sku=90-4-029>; see also Steven A. Austin, ed., *Grand Canyon: Monument to Catastrophe* (Santee, Calif.: Institute for Creation Research, 1994), 2, 3, 57, 59.
5. Austin, *Monument to Catastrophe*, iii, 57, 66-67; Mike Matthews and Chris Neville, "Grand Canyon: Nine Days Below the Rim," *Answers*, 12(4)(2017):50-67; Andrew A. Snelling, "Clues from Creation Week," *Answers*, 13 (1)(2018):38-40; Answers in Genesis, "Brochure." See also Kyle Justice, *Awesome Science Episode 1: Explore the Grand Canyon with Noah Justice* (Green Forest, Ark.: Master Books, 2012) 29:39,

- 31:04; Larry Vardiman, *Over the Edge: Thrilling, Real-life Adventures in Grand Canyon* (Green Forest, Ark.: Master Books, 1999), 149. YECs deny the existence of the many other unconformities above the Great Unconformity because these unconformities would mean that there were long, repeated periods of exposure and erosion in the middle of the year-long flood. See Carol Hill, Gregg Davidson, Tim Helble, and Wayne Ranney, eds., *The Grand Canyon: Monument to an Ancient Earth* (Grand Rapids, Mich.: Kregel Publications, 2016), 99-101.
6. Andrew E. Snelling, *Earth's Catastrophic Past*, Vol. 2 (Dallas, Texas: Institute for Creation Research, 2009), 493-499. See also Austin, *Monument to Catastrophe*, 2, 51; Answers in Genesis, "Brochure"; J. H. Whitmore, ed., *Proceedings of the Eighth International Conference on Creationism* (Pittsburgh, Pa.: Creation Science Fellowship, 2018), 249; Randy Moore and Mark Decker, *More Than Darwin: An Encyclopedia of the People and Places of the Evolution-Creation Controversy* (Westport, Conn.: Greenwood Press, 2008), 172-173.
 7. Moore and Decker, *More Than Darwin*, 261-264; Answers in Genesis, "Brochure." See also Roger Patterson, 2016, "It All Adds Up," accessed September 24, 2018, <https://answersingenesis.org/age-of-the-earth/it-all-adds>; Kyle Justice, *Explore the Grand Canyon with Noah Justice Study Guide & Workbook* (Green Forest, Ark.: Master Books, 2010), 4, 11, 32.
 8. For example, many YECs reject radiometric dating of Grand Canyon's ancient rocks by claiming that they have "scientific and Biblical evidence for accelerated nuclear decay" that occurred "just a few thousand years ago in conjunction with the Genesis Flood." See Larry Vardiman, Andrew A. Snelling, and Eugene F. Chaffin, *Radioisotopes and the Age of the Earth: A Young-Earth Creationist Research Initiative* (El Cajon, Calif.: Institute for Creation Research and St. Joseph, Mo.: Creation Research Society, 2000), 12, 22, 43, 33, 275, 276, 351, 356, 357; see also Andrew A. Snelling, "Radioisotope Dating of the Grand Canyon Rocks: Another Devastating Failure for Long-Age Geology," *Impact: Vital Articles on Science/Creation* (October, No. 376)(2004):1-4, available at <http://www.icr.org/i/pdf/imp/imp-376.pdf>. There is no evidence that radiometric decay accelerates when rocks get wet in a flood, or that half-lives change over time. See Hill, *The Grand Canyon*, 93, 97.
 9. Ham, *The New Answers Book*, 176; Tim Chaffey, "A Flood of Evidence," *Answers* 13(3)(May-June)(2018):15-16; Austin, *Monument to Catastrophe*, 3; Tom Vail, *Grand Canyon: A Different View* (Green Forest, Ark.: Master Books, 2003), 5; Institute for Creation Research, "The RATE Project," accessed on November 18, 2018, www.icr.org/research/rate.
 10. Stephen O. Mosher, Gregg Davidson, Joel Duff, and Tim Helble, "Flood Geology and the Grand Canyon: What Does the Evidence Really Say?" accessed on September 10, 2018, <https://biologos.org/blogs/archive/flood-geology-and-the-grand-canyon-what-does-the-evidence-really-say>; Hill, *The Grand Canyon*; Moore and Witt, *The Grand Canyon*, 78-86.
 11. Gallup, "Evolution, Creationism, Intelligent Design," accessed September 9, 2018, <https://news.gallup.com/poll/21814/evolution-creationism-intelligent-design.aspx>.
 12. Moore and Decker, *More Than Darwin*, 367-368.
 13. James Ussher, *Annals of the World: James Ussher's Classic Survey of World History* (Green Forest, Ark.: Master Books, 2003 [1650]), 1. Ussher's famous date is the chronologic foundation of YEC; see Moore and Decker, *More Than Darwin*, 348-350.
 14. Moore and Decker, *More Than Darwin*, 367-368; Hill, *The Grand Canyon*, 10.
 15. Geologists had discredited Noah's Flood as the sculptor of Earth's topography decades before John Wesley Powell's first expedition through Grand Canyon in 1869. During that expedition, the Canyon's vast age was obvious to John Colton "Jack" Sumner (1840-1907), who noted that "If geology is true—and it certainly is, if anything is...The testimony of the rocks cannot be impeached. I think Moses must be mistaken in his chronology as recorded in Biblical history"; see "Jack Sumner's Account" [written ca. January 1907], in Robert Brewster Stanton, *Colorado River Controversies* (New York: Dodd, Mead & Company, 1932), 192. See David R. Montgomery, *The Rocks Don't Lie: A Geologist Investigates Noah's Flood* (New York, N.Y.: W.W. Norton & Co.), 15-29, 115-141; Edward Dolnick, *Down the Great Unknown: John Wesley Powell's 1869 Journey of Discovery and Tragedy Through the Grand Canyon* (New York, N.Y.: HarperCollins Publishers, 2001), 216-217.
 16. Ussher's date printed in the Bible was introduced as evidence at the Scopes Trial. Nevertheless, when questioned at the Scopes Trial by Clarence Darrow on Monday, July 20, 1925, Bryan (one of John Scopes' prosecutors) mentioned Price, but admitted that creation "might have continued for millions of years"; Bryan College, *The World's Most Famous Court Trial* (Dayton, Tenn.: Bryan College, 1990 [1925, 1978]), 297, 298, 303; see also Randy Moore and William F. McComas, *Images of America: The Scopes Monkey Trial* (Charleston, S.C.: Arcadia Publishing, 2016).
 17. Clair Patterson, "Age of Meteorites and the Earth," *Geochimica et Cosmochimica Acta*, 10(4)(1956):230-237.
 18. John C. Whitcomb and Henry M. Morris, *The Genesis Flood: The Biblical Record and Its Scientific Implications* (Philadelphia, Pa.: Presbyterian and Reformed, 1961). Whitcomb and Morris later insisted that "every one of the objections raised [by critics] is without foundation" (pp. xxv, xxvii). Morris became the most influential creationist of the 20th century, and *The Genesis Flood* became the founding document of modern YEC.
 19. E. L. Doheny, *Discoveries Relating to Prehistoric Man by the Doheny Scientific Expedition in the Hava Supai Canyon, Northern Arizona, with Supplement* (Oakland, Calif.: Oakland Museum, 1927); Samuel Hubbard, *The Doheny Scientific Expedition to the Hava Supai Canyon, Northern Arizona, October and November, 1924, with Supplement* (Oakland, Calif.: Oakland Museum, 1925); Anonymous, "Put Man's Age Back Ten Million Years: Scientists So Interpret Rude Drawings of Long-Extinct Dinosaurs Found in Arizona," *New York Times* (April 20, 1925):5; Moore and Witt, *The Grand Canyon*, 146-147.
 20. YEC claim that dinosaurs and humans coexisted because both were created on Day 6 of Creation Week (Genesis 1:24-31), and a poll in 2015 reported that more than 40% of Americans agree. Among people who describe themselves as "born again," this percentage rises to 56%. See Peter Moore, "Over 40% of Americans Believe Humans and Dinosaurs Shared the Planet," accessed on September 9, 2018, <https://today.yougov.com/topics/lifestyle/articles-reports/2015/06/18/jurassic-world>.
 21. George W. Wahlin, *The Bible Creation Story and Grand*

- Canyon (Rock Island, Ill.: Augustana Book Concern, 1960), 7. Wahlin's booklet, which included a foreword by Paul Schulz (Chief Naturalist of GCNP), claimed that Grand Canyon "was formed by the cutting of the Colorado River during a period of seven to nine million years" (8). Schulz stressed the compatibility of the Bible with Grand Canyon's vast age (4).
22. Todd R. Berger, ed., *Reflections of Grand Canyon Historians: Ideas, Arguments, and First-Person Accounts* (Grand Canyon, Ariz.: Grand Canyon Association, 2005), 101-111.
 23. Julie Cart, 2004, "Religion, Geology Collide at Grand Canyon," *Los Angeles Times* (January 7, 2004):A13; Moore and Witt, *The Grand Canyon*, 312-313.
 24. Moore and Decker, *More Than Darwin*, 261-264.
 25. John Morris, *The Young Earth: The Real History of the Earth—Past, Present, and Future* (Green Forest, Ark.: Master Books, 2007 [1994]), 137.
 26. Austin, *Monument to Catastrophe*, 3, 7, 8, 9-20, 51, 92. Austin also claims that the petrified logs in Petrified Forest National Park are driftwood from the Flood and that "the single biggest reason for environmental degradation is our sin," all while condemning "liberal churches which have led the way in compromising Scripture" (7, 8, 79). See also Steve Austin, "Geological Evidences for Very Rapid Strata Deposition in the Grand Canyon," DVD (Hebron, Ky.: Answers in Genesis, 2006), 52:30.
 27. Vail, *A Different View*, 6, 90, 98, 99.
 28. Tom Vail, *Grand Canyon: What is the Biblical Message?* (Parks, Ariz.: Canyon Ministries, 2015), 2, 5, 6, 23; Vail, *A Different View*, 4, 8.
 29. Canyon Ministries, "Our Foundations Beliefs," accessed on October 3, 2018, <https://www.canyonministries.org/beliefs>. For its part, ICR's "Principles of Biblical Creationism" states that the Bible is "free from error of any sort, scientific and historical..." See Institute for Creation Research, "Principles of Biblical Creationism," accessed on September 18, 2018, <http://www.icr.org/tenets>.
 30. Vail, *A Different View*, 1. See also Canyon Ministries, "Controversy Surrounding the Book," accessed on September 28, 2018, <https://www.canyonministries.org/controversy>.
 31. Brad Wallis, personal communication, December 5, 2018.
 32. Tom Vail, Michael J. Oard, John Hergenrather, and Dennis Bokovoy, *Your Guide to the Grand Canyon: A Different Perspective* (Green Forest, Ark.: Master Books, 2008); see also Glenn Branch, "Flood Geology in the Grand Canyon," accessed on September 7, 2018, <https://ncse.com/library-resource/flood-geology-grand-canyon>. Vail's books and Austin's *Monument to Catastrophe* originated with *The Genesis Flood*; see Hill, *The Grand Canyon*, 23.
 33. Vail's *A Different View* disappeared from Grand Canyon Association's stores by 2012 because of poor sales. Grand Canyon Association did not approve Vail's *A Different Perspective* because 1) the limited shelf-space in the Association's stores was already well-stocked with excellent guidebooks, and 2) Grand Canyon Association, GCNP, and/or the National Park Service could not fact-check some of the book's claims. Susan Schroeder, personal communication, December 17, 2018.
 34. National Geographic, "About Us," accessed on November 20, 2018, <https://www.nationalgeographic.org/about>.
 35. Whitmore, *Proceedings*, 251.
 36. Whitmore, *Proceedings*, 251. According to GuideStar, ICR's revenues in 2017 (\$14,300,279) were 130% greater than those in 2015 and exceeded expenses by \$6,715,149; see "Institute for Creation Research," accessed on October 23, 2018, <https://www.guidestar.org/profile/95-3523177>. For comparison, AiG's revenues in 2017 (\$36,834,815) were 62% greater than those in 2016 and exceeded expenses by \$13,854,388; see "Answers in Genesis, Inc.," accessed on October 24, 2018, <https://www.guidestar.org/profile/33-0596423>.
 37. Whitmore, *Proceedings*, 252. According to GuideStar, Canyon Ministries' revenues in 2017 (\$398,903) increased 54% over that in 2016. The director of Canyon Ministries' Rim Tour Operations and Technology (and the founder of Genesis Creation Science Institute) is Nate Loper, a descendant of famed river-runner Bert Loper (1869-1949).
 38. Morris, *The Young Earth*, 15; Vardiman, *Radioisotopes*, iii.
 39. Creation Library Series, *Grand Canyon: Testimony to the Biblical Account of Earth's History* (Hebron, Ky.: Answers in Genesis, 2009), 1:10:51.
 40. Hill, *The Grand Canyon*, 14, 15, 55, 189; Vail, *A Different View*, 8, 94; Whitmore, *Proceedings*, 248-254; Vardiman, *Radioisotopes*, iv; Austin, *Catastrophe*, 3; Snelling, "Clues," 39; Answers in Genesis, "Brochure." Some of the evidence at Grand Canyon for YEC is apparently visible only to those who have faith, as evidenced by Tom Vail's admission that he "wouldn't have seen it if I hadn't believed it." See Vail, *A Different View*, 42.
 41. Answers in Genesis, "Dr. Andrew A. Snelling: Geologist, Speaker, Author, Researcher, Editor-in-Chief of *Answers Research Journal*," accessed on September 25, 2018, <https://answersingenesis.org/bios/andrew-snelling>. Snelling is among the many YEC who claim that nuclear decay increased dramatically (e.g., up to a billion-fold) during Noah's Flood, thereby—and conveniently—shrinking "the alleged 4.5-billion-year radioisotope age of the earth down to 6,000 years." See Vardiman, *Radioisotopes*, 12, 275, 276, 356, 357; Snelling, "Radioisotope Dating," 1-4; D. Russell Humphreys, "Nuclear Decay: Evidence for a Young World," *Acts & Facts* 31(10)(2002), accessed on November 15, 2018, www.icr.org/article/302; D. Russell Humphreys, "New RATE Data Support a Young World," *Acts & Facts*, 32(12)(2003), accessed on November 18, 2018, www.icr.org/article/114.
 42. Answers in Genesis, "Statement of Faith," accessed on October 9, 2018, <https://answersingenesis.org/about/faith/>. Other YEC organizations have similar creeds. For example, ICR's "Principles of Scientific Creationism" claims that 1) "most of the earth's fossiliferous sediments were formed in an even more recent global hydraulic cataclysm," 2) the Bible is scientifically "free from error of any sort," 3) God made everything in the universe "in the six literal days of the Creation Week," and 4) the Bible's description of "the worldwide cataclysmic deluge in the days of Noah" is perspicuous, "infallible and completely authoritative...[and] free from any scientific or historical error."
 43. *McLean v. Arkansas Board of Education*, 529 F. Supp. 1255 (E.D. Ark., 1982). See also *Edwards v. Aguillard*, 482 U.S. 578 (1987).
 44. Vardiman, *Over the Edge*, 9; Austin, *Monument to Catastrophe*, iii; Anonymous, "Save the Date: Grand Canyon Adventure Raft Trip with Landmark Events," *Acts & Facts*, 47(5)(2018):9.
 45. In its second year, Ark Encounter (which opened in 2016) hosted 1,000,000 visitors; that same year, AiG's Creation

- Museum hosted 800,000 visitors; see Cameron Knight, "Ark Encounter Reports 1 Million Visitors in Second Year," *Cincinnati Enquirer* (July 5, 2018), accessed on October 1, 2018, <https://www.cincinnati.com/story/news/2018/07/05/ark-encounter-reports-1-million-visitors-2nd-year/759704002/300>.
46. Institute for Creation Research, "ICR Discovery Center Update," *Acts & Facts*, 47(11)(2018):14.
 47. Tim Clary, "Rapid Limestone Deposits Match Flood Account," *Acts & Facts*, 47(6)(2018):9.
 48. Answers in Genesis, "Creation Colleges," accessed on September 15, 2018, <https://answersingenesis.org/colleges/>; Answers in Genesis, "Creation College Expo 2018," accessed on September 19, 2018, <https://answersingenesis.org/outreach/event/creation-college-expo-2018>.
 49. Cedarville University, "Be bold. Pursue your passion. Proclaim Christ." *Answers*, 12(4)(2018):39.
 50. Ken Ham, "Dinosaurs—We're Taking Them Back," *Answers with Ken Ham*, 74(July 20)(2007), accessed on November 21, 2018, <https://answersingenesis.org/media/audio/answers-with-ken-ham/volume-74/dinosaurs-were-taking-back/>.
 51. I thank Breanna Ten Eyck, Sydney Smutzler, Kara Witt, and Jennifer Sprague for their help with surveys of businesses in and around GCNP selling Tom Vail's books. I also thank Thomas White (Cedarville University) and Michael Moore (Augsburg Fortress) for graciously granting me permission to use their images. I am grateful to Brad Wallis and Susan Schroeder for talking with me about the controversies surrounding Tom Vail's books, and to Wayne Ranney and Richard Quartaroli for reviewing this manuscript.