

“Missionary lizards” – Palaeontological exhibits and the creationist agenda

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The use of fossils, and especially dinosaurs, in the exhibits of creationist museums, and their use in the programming efforts of these and similar outlets has become increasingly common. Museum professionals, including scientists, curators and educators should be aware of the appropriation and misuse of palaeontological specimens and data for use in the promotion of a narrow theological and political agenda, that of biblical inerrancy and young earth creationism. By its very nature, this effort attempts to undermine the scientific and educational underpinnings of modern society as part of a larger culture war. The growth of museum-style exhibitry and programming by the creationist community for partisan purposes risks damaging the credibility of natural history and science museums in the eyes of the general public, as the line between data-driven presentation and advocacy becomes blurred.

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Introduction

For well over 150 years, the exhibition of fossils was exclusively the province of natural history museums and institutions of higher education. In 1868, the unveiling of *Hadrosaurus foulkii* at the Academy of Natural Sciences in Philadelphia (Ruschenberger and Tryon 1879; Prieto-Márquez et al. 2006) initiated a public love of the museum dinosaur hall, and dinosaurs consistently rank among the most popular attractions at natural history museums and science centres today. In most traditional museums, fossils are exhibited within the modern scientific context and presented as among the best documentary evidence for a deep-time geologic record and for organic evolution. Because of this very popularity, however, some proselytising religious ministries that lie outside of mainstream theological belief now have weaponised fossil displays, including dinosaurs, as part of their specific religious message. Whereas dinosaurs often dominate natural history museums and science centres, creation museums are increasingly now also exhibiting dinosaurs and other fossils in an effort to present their beliefs regarding biblical creation. Creationist institutions use fossils to attract visitors, particularly families with children, and to present a strict literalist approach to scripture whereby it is claimed that all organisms were created by God, have not evolved, and that fossils are the result of a single biblical flood, in contradiction to mainstream scientific thought. Differences in interpretation between scientists and creationists are merely one of perspective, these exhibits say, and scientists are misguided because of their evolutionary “bias”.

According to many creationists, only the Christian Bible presents the a priori truth when it comes to the origin of life’s diversity (Scott 1997). For example, the statement

of faith required of all employees of Answers in Genesis (AIG), a fundamentalist apologetics ministry which owns and operates the Creation Museum in Petersburg, Kentucky, USA, claims that “no apparent, perceived or claimed evidence in any field, including history and chronology, can be valid if it contradicts the Scriptural record” (Anonymous 2020a). Biological evolution and other aspects of modern science are therefore challenged in the Creation Museum and similar exhibits where they cannot be reconciled with a literalist interpretation of the Bible. The fear of these creationists is that if one part of the Bible is not literally true, what other parts may be false (Figure 1)? Fossils here are presented in this narrow theological context and often used, not only to attract an audience, but claimed as evidence for this position.

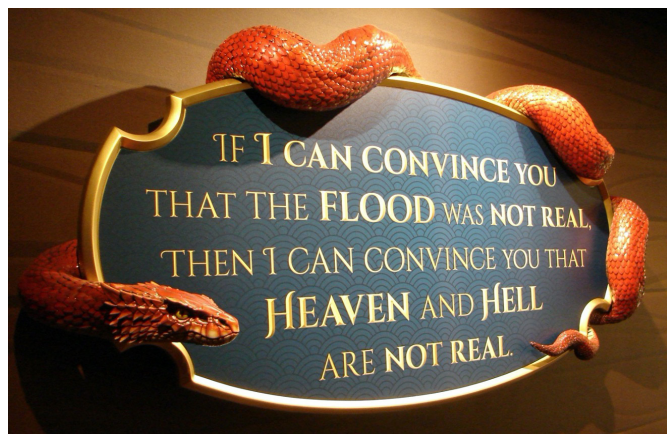


Figure 1. A sign at the Answers in Genesis Ark Encounter portrays the devil as the serpent from the Garden of Eden. Photograph courtesy of Daniel Phelps.

Why is the traditional, and indeed indisputable, evidence for the antiquity of Earth and the fact of organic evolution, the fossils themselves, now so commonly misappropriated for use in creationist exhibits and programming? Clearly, part of the answer is the very popularity of fossils, and especially dinosaurs, among (although not exclusively) the young (Morgan 2017). Fossils are of interest to many in the abstract, as they allow the imagination to resurrect ancient organisms and ecosystems, but they are also popular collection items for the public. They are relatively easy to obtain and maintain, and often generate interest and excitement among those who own or view them. As a result, they are also powerful pedagogical tools broadly used by primary school teachers to promote interest among their students in topics ranging from geological and biological concepts to math (Anonymous 2020b; Anonymous 2022a, b). Creationists have recognized this fact and have adopted a similar strategy (Rosin 2007).

Creationists also recognise that in order to promote, and hopefully advance, their narrow religious and political views, they must attempt to proselytise to the young, and with what better tool than dinosaurs, even if used to promote non-scientific ideas? Fossils, of course, document the history of life and provide powerful evidence for evolutionary change, so from the creationist perspective, attempts must be made to provide alternative explanations from subsets of the available palaeontological data. A parallel benefit for the creationist agenda is that by a superficial application of palaeontology, through the use of attractive specimens, they are able to provide a veneer of science, actually pseudoscience (Bunge 1983; Shermer 1997; Greener 2007), to their efforts. This may obscure the obvious difficulties with their postulates and provide a superficial respectability to them in a world used to, if not entirely comfortable with, the application of science and technology.

What should dinosaurs teach?

In their own words, creationists hope to divert dinosaurs from their traditional presentation in natural history museums for use as “missionary lizards” in the promotion of the creationist agenda and in direct competition with the educational efforts of traditional science institutions (Anonymous 2014a, b). The phrase “missionary lizards” was coined by Ken Ham of Answers in Genesis, which is “dedicated to helping Christians defend their faith and proclaim the gospel of Jesus Christ effectively”. They “focus on providing answers to questions about the Bible - particularly the book of Genesis - regarding key issues such as creation, evolution, science and the age of the earth” according to the AIG website. Dinosaurs in a missionary context are referred to explicitly on the ministry’s website through dozens of posts, images and books for sale.

One such website entry is headed “How can we use dinosaurs to spread the creation gospel message?” (Davis 2008). It goes on to say:

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”.

Similarly, a post on the AIG Creation Museum website (Anonymous 2004) states:

We often refer to dinosaurs as “missionary lizards” because of the popularity they enjoy. Many people, especially children, are fascinated by these mysterious creatures and want to know how they lived and died. We hope the life-like dinosaur models that will find a home in the Creation Museum will draw in many people who will hear the truth, not only about dinosaurs, but also about other fossils, the age of the earth, human history and many other relevant topics.

Answers Magazine announced that “biblical creationists happily employ these regal giants [in reference to dinosaurs] as an effective teaching tool to proclaim the biblical view of earth history” (Anonymous 2014b). Finally, a webpage extolls the use of dinosaur images by the Creation Museum in billboard campaigns to attract visitors (Anonymous 2012). Indeed, dinosaur models and iconography are used throughout the Creation Museum (Figure 2).

The Answers in Genesis Creation Museum is not the only such institution to rely upon the attractive power of dinosaurs and fossils in general to promote a creationist message in the United States. AIG’s own Ark Encounter in Williamstown, Kentucky, similarly uses dinosaur models to suggest that the biblical ark of Noah carried pairs of these animals during the great flood (Bielo 2018). The Institute for Creation Research (ICR) recently opened a grand building to house its museum, the Discovery Center for Science & Earth History in Dallas, Texas (Morse 2020). The exterior architecture and grounds of the museum incorporate fossil and genetics iconography and it houses dinosaurs as casts and animatronics, and includes a planetarium. Notably, Ken Ham once worked for the ICR producing a “Back to Genesis” seminar series.

Like AIG, it is a young earth apologetics organisation that promotes a literal reading of biblical history. It similarly conducts creation “research” and produces publications.



Figure 2. The gateway sign at the Creation Museum, Petersburg, Kentucky, features a silhouette of Stegosaurus. Photograph by Glenn Storrs.

Other notable examples of creationist museums with fossil exhibits include the Museum of Creation and Earth History in Santee, California, the Glendive Dinosaur and Fossil Museum in Glendive, Montana, run by the Advancing Creation Truth organisation, and the Creation Evidence Museum in Glen Rose, Texas. Smaller “mom and pop” style organisations such as the Mt. Blanco Fossil Museum in Crosbyton, Texas, the Bone Yard Creation Museum in Broken Bow, Nebraska, and the Grand River Museum in Lemmon, South Dakota also use fossils to promote creationism. The Creation Truth Foundation of Noble, Oklahoma, employs casts of dinosaurs and other fossils in spreading its message. It calls this effort the Mobile Museum of Earth History whereby it travels these items and its public presentations to church sanctuaries and halls that are receptive to its ideology. It also operates the Museum of Earth History as a ministry in Dallas, Texas. Dinosaur Adventure Land of Lenox, Alabama is a young earth creationist theme park opened in 2018 (after its earlier Florida incarnation was closed in 2009 following the conviction of its founder, Kent Hovind, on a variety of federal tax-related charges (Reilly 2013)).

The United States, however, is not alone in having organizations and individuals that link dinosaurs and/or fossils with creationism. For example, in Alberta, Canada, one can find the Big Valley Creation Science Museum in Big Valley and the DINOS Centre and Bible History Museum in Innisfail. All of the above, and many others, are listed on a website called Materializing the Bible (Bielo 2020).

Museums as gospel

Why is it that so many creationist organisations have built museums to spread their message, many in only the

last decade or two? Quite simply, because museums have credibility, and are amongst the most trusted institutions as rated by the general public (Dilenschneider 2017). They are viewed as delivering reliable information with integrity and without a political agenda. Furthermore, they are respected for their societal mission. Creationists have attempted to tap into this credibility and respect to deliver their own, narrowly focused message. The traditional role of not-for-profit museums, whether public or private in governance, has been to be institutions of informal learning for all audiences, and to hold and preserve local, regional and even global heritage in the public trust, without regard to political or religious affiliation. However, for-profit entities and religious organisations that have an overt corporate or political agenda risk undermining the public’s trust in museums. At the very least, these latter blur the boundaries between institutions that present credible scientific or cultural information and those acting as evangelists for a particular worldview.

Like traditional museums, creationist organisations provide programming at their home institutions, conduct outreach and produce publications and a variety of media for public consumption. These are sold in their gift shops, made available online, and distributed widely as mail-order products. In some cases, the institution is as much a distribution centre as a museum. Once again, fossils, and particularly dinosaurs, feature prominently in these programs and products. Some organizations even offer field programs or “dinosaur digs” that combine fossil excavation with creationist ideology and programming, such as the Creation Studies Institute of Fort Lauderdale, Florida, the Glendive Dinosaur and Fossil Museum, the Creation Evidence Museum, the Grand River Museum, and Answers in Genesis. These typically take place on private ranch land, where the owners are amenable to their mission and message, often in the Late Cretaceous Hell Creek Formation badlands of Wyoming, Montana, and the Dakotas. Of special interest here, however, is the saga of a creationist excavation in the Late Jurassic Morrison Formation of Colorado.

In the fall of 2000, a local landowner discovered the partial remains of an *Allosaurus* skeleton in Morrison Formation rocks outside of Dinosaur, Colorado. A young-earth creationist himself, he arranged for its excavation by Joe Taylor of the Mt. Blanco Fossil Museum. What followed was an acrimonious fight over control of the fossil and the “origin” story of its discovery, including claims of misrepresentation in a video production surrounding the specimen (Bethea 2019). The sordid affair also includes the purchase of the property by former White House Chief of Staff, Republican congressman, and chair of the Freedom Caucus, Mark Meadows (NC-11), and its subsequent sale to Answers in Genesis without congressional financial disclosure as required by federal law. Finally, control of the skeleton was acquired by the Elizabeth

Streb Peroutka Foundation, a family charity established by far-right lawyer and political activist, Michael Peroutka and his brother Stephen. Michael Peroutka, who once ran for United States President as the candidate of the Constitution Party and has ties to the secessionist League of the South, donated the *Allosaurus* to AIG's Creation Museum in 2014 on behalf of the foundation (Bethesda 2019). "The intact skeleton of this allosaur is testimony to a catastrophic, rapid burial, which is confirmation of the global Flood a few thousand years ago as recorded in the Bible," says the AIG website (Anonymous 2020d). In fact, the skeleton comprises only a partial vertebral column and the skull, although it is fully restored in the Creation Museum's premier exhibit (Figure 3).



Figure 3. *Allosaurus* skeleton at the Answers in Genesis Creation Museum. Photograph by Dustin Nash via license: Creative Commons Attribution 4.0 International. <https://creativecommons.org/licenses/by/4.0/>

Attacking the fossil record

Fossils, and notably vertebrate fossils, have long been part of the public discussion concerning the acceptance of organic evolution by scientists. For example, it is now known that the vertebrate fossil record provides some of the best illustrations of evolutionary transformations available, such as the non-avian dinosaur to bird transition (e.g. Chiappe 2007, 2009), the sequence from "reptilian" synapsids to mammals (e.g. Kemp 1981, 2005), the "fish" to tetrapod transition (e.g. Clack 2009, 2012), and the acquisition of secondarily aquatic adaptations by cetaceans from terrestrial ungulates (e.g. Thewissen et al. 2007, 2009), among many others (Sues and Anderson 2007).

Creationists have been hard-pressed to counter the weight of palaeontological evidence for biological evolution, without making specious arguments or misrepresenting data. As a result, they must first attack the overwhelming palaeontological evidence that supports the fact of evolutionary change. In order for the fossil record to be discounted as evidence for evolution and against special creation, creationists are forced to ignore large parts of the record while misrepresenting "cherry-picked" fossil examples. For instance, they trumpet as alternative "fact" a supposed lack of transitional fossils and the many gaps

in the fossil record, when in fact, palaeontologists do not expect the record to be without such gaps (Morris 1974; Rennie 2002; Anonymous 2020c; Bailey 2020). Indeed, it is true that for every new transitional fossil discovered, where one "gap" formerly existed, two have now been created. This ignores the obvious fact that these gaps are now smaller, that predictable sequences of fossils are commonly found, and that clear transitions can be documented while the record, even though containing gaps, becomes ever more complete.

The most famous and one of the earliest known transitional fossils, the paravian dinosaur *Archaeopteryx*, once considered the earliest bird, has feathered wings yet retains numerous plesiomorphic reptilian features (Hecht et al. 1985; Elzanowski 2002). To creationists, the presence of feathers makes *Archaeopteryx* a bird, not a reptile, and thus not a transitional fossil. Palaeontologists, however, because of a wealth of new palaeontological data, know that feathers alone do not make a bird. Only when taking exclusively extant taxa into account, is there a clear distinction between birds and other vertebrates where only birds have feathers.

Creationists ignore the many recent discoveries that indicate many increasingly avian animals in the fossil record and multiple examples of bird-like characters in traditional dinosaurs that obscure any clear boundary between reptile and bird (Chiappe 2009). Because of their transitional relationship, birds are at the same time birds and dinosaurs too, one group a subset of the other. Clearly, not all dinosaurs are birds, but all birds are dinosaurs with which they share an evolutionary heritage.

Repeatable sequences of fossils in the stratigraphic record are typically dismissed by creationists through a variety of rationalisations that support their version of the past. Young-earth creationists who invoke a single world-wide Noachian flood to explain the complexity of Earth's geology often ascribe these sequences to density differences in the once-living organisms and/or their variable geographic proximity to the putative biblical deluge and place of burial (Price 1923; Whitcomb and Morris 1961). The absurdity of such claims underlies the unscientific need for uncomfortable observations to be forced into a creationist worldview (Young 1995). Flood geology and its lack of grounding in the totality of geological data is itself a further area of concern for scientists and educators (Weber 2008). Creationists, if not fully accepting each extreme rationalisation themselves, do nevertheless rely upon the general public's often unsophisticated understanding of the nature of science and its limited geological/palaeontological knowledge in order to make a creationist interpretation appear outwardly reasonable.

Radiometric dating of fossils, fossiliferous units, or bracketing beds is erroneously considered unreliable or invalid

in the creationist paradigm (e.g. Hebert 2020). Miraculous alterations to, or suspensions of, known physical laws are often invoked to account for evidence to the contrary. Reliance upon poor data or the selective use of bad absolute dates is another tactic (Dalrymple 2008). This is akin to discounting the reliability of clocks if some few are slightly fast or slow and perhaps another stopped altogether, when the vast majority are keeping accurate time.

An extreme, and unfalsifiable, position taken by some creationists is that fossils have been created by God (or Satan) in order to test one's faith (Hitchins 2007). There can be no rejoinder to this argument, other than that it may be rejected out of hand by critical thinkers as pertaining to faith rather than to reason. Because of the obviously non-scientific nature of this creationist position, most creation museums avoid its use altogether and concentrate on a veneer of pseudoscientific presentation. Part of this veneer is the exhibition of fossils in a creationist context. Fossils used by creationist organisations are typically presented without logical context as examples of "perfect creation", life before "the fall", or rapid burial during the "flood".

Fossils: Anti-evolutionary evidence?

The most common way that fossils are presented in creation museums is as examples of organisms that are claimed to have succumbed to and been buried by the flood of Genesis (e.g. Whitcomb and Morris 1961). In such cases, well-preserved, often pristine fossils are cited as evidence of rapid burial by a single worldwide event. Indications of current and flow orientation in fossil assemblages are similarly provided as "evidence" for this narrative. Nowhere is there discussion that extraordinary preservation may occur in a variety of sedimentary settings, nor that scientists are aware that flow, current alignment, and burial of organisms and other particles are constantly underway in the modern world (Miall 2016).

Fossils in creation museums may also be used to suggest that deep time is an illusion and that the earth is young, and only on the order of 6,000 years old. In such cases of young earth doctrine, fine preservation may be invoked to claim rapid fossilisation without the need for large tracts of time, but more commonly "living fossils" are exhibited to suggest that they are identical to modern organisms and that no evolution has occurred (e.g. Morris 2020). Fossil horseshoe crabs, sycamore leaves or herring, representing extinct species that nevertheless may be closely related to living taxa, are readily available and commonly used for this purpose.

Fossils or recreations of ancient life are sometimes presented as examples of creation perfection before original sin and as the types of creatures suggested to have coexisted with Adam in the biblical Garden of Eden. This can

include dinosaurs, because as the story goes, prior to sin there was no death, and hence no carnivory (e.g. Anonymous 2009; Ham 2001). Even to the casual observer the presence of dinosaurs in the Garden of Eden can seem incredible. A diorama depicting Adam and/or Eve happily coexisting with non-avian theropods cannot hide the latter's sharp claws and dagger-like teeth. Analytical standards of functional morphology, form following function, are not addressed in creationist exhibits that espouse this co-occurrence.

Is there an ethical responsibility?

In many cases, notwithstanding the logical fallacies presented in creationist exhibits, the fossils and the exhibits themselves may be of high aesthetic quality. In addition to highlighting specimens that may have been collected during field projects, many creationist fossil exhibits present beautifully prepared examples of specimens that are, or have been, abundant in the commercial fossil market. Moroccan trilobites, Green River Eocene fish, Chinese dinosaur eggs, Crawfordsville Mississippian crinoids, and Romanian cave bear bones, are just some examples. Others can be rare, and like the AIG *Allosaurus* skull, relatively significant examples of their kind, acquired through purchase or donation. Exhibits are often augmented with cast dinosaur bones, tracks, and skeletons and/or other fossil replicas. These can often be recognised as having come from readily identifiable commercial sources.

Does the commercial fossil market and community of fossil dealers and preparators bear some responsibility in aiding in the promotion of a religious, non-scientific agenda? A number of ethical questions arise related to the use of such palaeontological specimens and exhibit items, aside from their promotion of anti-scientific views. For example, how might the purchase of specimens add to the continuing growth or sustainability of the commercial fossil market? Commercialisation of palaeontological resources is a major area of concern for some palaeontologists that is beyond the scope of this article (Webster 2009). However, do commercial firms, that often profess to be in business for the promotion of palaeontology and the salvage and preservation of fossils while emphasising the educational value of their materials, have an ethical obligation to avoid the use of their specimens in an arena that so obviously is anathema to actual science? The widespread use of cast dinosaur and other skeletons, otherwise typically found in natural history museums, suggests a purely business-first attitude among some purveyors and a disregard of the use to which these exhibits are ultimately put. Plausible deniability aside, if the ultimate use of these specimens is known to the dealers, this is a question that they should be asking of themselves. Science museum curators may ask this of them also.

Aside from their anti-science usage, where original fossils

are exhibited in creation museums, it is fair to ask if these have been ethically obtained and if they remain available to the scientific community. Do the specimens in creation museums constitute part of a global database, or have they been removed from the public trust? Curators in natural history and science museums preserve specimens in collections ultimately for the use of future generations. These must be available for future study by researchers in order for the science that is based upon them to be testable and repeatable. Few, if any, of the fossils in creation museums can be said to be available for scientific scrutiny, as their preservation “in perpetuity” cannot be guaranteed in institutions that are not governed by museum best practices and have no accountability to the public (e.g. Society of Vertebrate Paleontology 2022). This argument is akin to that which has sometimes debated the value of fossils held in private collections (Barrett and Munt 2014; Sokal 2019). If observations on fossils cannot be reliably repeated due to lack of guaranteed availability, most observers and peer-reviewed journals would say that they cannot be used in publication (e.g. Journal of Paleontology 2020). Additionally, if individuals with more interest in the creation story than in dispassionate data collection are leading creationist field projects, and minimally trained participants are actively encouraged to join them, are the interests of science and the preservation of our natural heritage being served? No doubt other issues could be raised.

Conclusion

Palaeontologists, curators and science educators should be aware of the misrepresentation of palaeontological data in the cause of creationist evangelism and how such anti-science tactics are undermining early education in the United States and elsewhere. They should also be aware of the danger that such activities pose to the traditional credibility of museums and museum professionals, while making efforts to present authoritative information based upon data and science. Because of the popularity of fossils, and dinosaurs in particular, creationist organisations are able to misuse palaeontological themes in exhibits and programs that masquerade as science-based, while seeking to promote a narrow religious doctrine. This popularity is invoked by creation museums while they employ convoluted arguments to delegitimise the scientific foundations of evolutionary biology and the scientific consensus regarding the geological record.

While the most common use of fossils in these settings is as “evidence” for Noah’s flood, dispassionate examination of the geological record clearly indicates that a single, catastrophic event is unnecessary for the preservation of fossils and, indeed, is contradicted by the disposition of the fossils themselves. cursory examination of these fossils illustrates that, like entombed organisms today, they are buried in a variety of sedimentary regimes ranging, for example, from freshwater lakes and river systems to ma-

rine rocks, and even terrestrial settings (Weber 2008). Of course, none of these depositional facies is globally contiguous. Curators and educators would be well advised to be aware of creationist programs/exhibits and be ready to counter them with factual evidence in their own efforts. Similarly, when fossils that are closely related to living taxa are used to demonstrate a supposed lack of evolutionary change, traditional museums should be prepared to address this misinterpretation of the data. Audiences should know that, irrespective of the fact that while change may have been slow in those lineages, no true stasis exists, as each fossil represents a demonstrably different species or even genus from its modern counterpart.

Even while attacking scientific positions and evidence, creation museums very commonly adopt a scientific veneer in an effort to increase their apparent credibility. This will often include the adoption of scholarly titles or jargon that may be difficult for the general public to distinguish from actual scientific activities. If they employ “researchers” or “curators” these people may provide perceived respectability for the institution, but in actual fact operate in a decidedly different fashion to employees of science museums. For example, natural history curators maintain research collections apart from their public exhibits that form part of the global database of science, and that can be referenced and used by researchers around the world. They are commonly consulted as data points in scientists’ quest to understand not only organic evolution, but biodiversity, palaeoenvironments and climate change over time, among many other current and potential areas of research.

Creation museums and their activities are not scientific precisely because they operate from a preconceived conclusion. They invoke supernatural explanations and are only cloaked in the appearance of science, thus representing pseudoscience (Bunge 1983; Shermer 1997; Greener 2007). By definition, scientific hypotheses must have natural explanations and must be falsifiable, while the goal of science is to advance knowledge by overturning and modifying ideas in the light of new observational data (Popper 1959; Chalmers 1976; Maxwell 2017). Therefore, the self-proclaimed research conducted by creationist organisations falls within the realm of pseudoscience.

As if to highlight the pseudoscientific nature of creation “research” and teachings, in 2008 the Academic Excellence and Research Committee of the Texas Higher Education Coordinating Board, in referring to the Institute for Creation Research, stated that “the institute’s program is infused with creationism and runs counter to conventions of science that hold that claims of supernatural intervention are not testable and therefore lie outside the realm of science” (Branch 2008; Haurwitz 2008).

Scientists know that no idea is sacrosanct, yet certain ide-

as have become progressively more difficult to disregard after the accumulation of a wealth of supporting data over time. This circumstance allows for greater predictive power within the intellectual framework of the idea. Atomic theory is one such idea. Organic evolution is another and as such, is overwhelmingly accepted by scientists because of its great power of explanation for the observed diversity of life (e.g. Prothero 2017). Scientists do not “believe” in evolution (a common creationist trope claims that science is a belief system thus an alternate religion); they accept it because that’s what the great preponderance of evidence indicates. Creationists, on the other hand, must have faith in their belief. They attempt retroactively to force select observations into their a priori “truth” in order to appear more acceptable to modern audiences and often use fossils and their popularity for this purpose. It is incumbent upon science educators to teach this distinction to their public audience. That is, what is science, how does science work, and what are its strengths as well as limitations?

Because the fossils in creationist exhibits are often misrepresented in order to support a preconceived conclusion, such exhibits and beliefs create a false dichotomy between science and religion where one does not exist. As such, creationist teachings are not only unscientific, but also fall outside of mainstream religious beliefs (Miller 1999). Many Judeo-Christian denominations, for example, consider literalist creationism to be theologically flawed as well as unscientific, and most religions do not find biological evolution to be incompatible with their core beliefs (Pew Research Center 2014). They contend that while there is a God, “theistic evolution” was the tool employed to produce life’s diversity, culminating in *Homo sapiens*, and that the biblical creation stories are allegorical.

Most, if not all, of the creationist organisations involved in the promotion of their religious ideology using disingenuously exhibited fossils are knowingly engaged in the preparation of “culture warriors” with a view to influence society. They form a very visible part of the highly ideological Christian Right (Trollinger and Trollinger 2016). That some are very sophisticated and well-funded may come as a surprise to many. The scientific and educational communities must remain vigilant and not be silent in their objections to this brand of pseudoscience, but should ensure that their own outreach efforts clearly demonstrate the process of science and the current scientific consensus as derived from data.

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