

“HAVE YOU HEARD THE ONE ABOUT THE PUNIC SHIP IN THE SONORAN DESERT?” A CASE STUDY IN ADDRESSING ARCHAEOLOGICAL MISINFORMATION

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There is a great deal of archaeological misinformation out there in the world and Arizona is no exception. In this article, we outline the history of pseudoarchaeological claims about the past in Arizona and the Southwest generally. We then describe our efforts to document the history of one claim regarding a petroglyph of a supposed Iberian Punic Ship that was said to have been left at the Deer Valley Petroglyph Preserve by people traveling from the Mediterranean in the ancient past. We debunk this claim (and related claims) by describing the many problems with interpretation and evidence. Using this case study as an example, we then explore recent research in social psychology and related fields focused on addressing the spread of misinformation and pseudoscience to develop a few principles that we suggest may be useful in addressing archaeological misinformation for public audiences.

“Can you take me to the ship petroglyph?” This project began innocently enough with this question by a visitor to the Deer Valley Petroglyph Preserve (DVPP), which was later relayed to Matt Peeples and Emily Fiocoprile by Chris Reed, a long-time volunteer docent at the preserve. Located along the eastern slope of the Hedgpeth Hills northwest of Phoenix, the DVPP is one of the largest concentrations of petroglyphs in southern Arizona (Figure 1). The petroglyph landscape includes over 1,500 individual elements, most of which fall along a 400-m stretch of east-facing basalt boulders recorded during an archaeological investigation conducted in advance of the construction of the Adobe Dam by J. Simon Bruder and colleagues with the Museum of Northern Arizona (Bruder 1983). The majority of the petroglyphs are associated with the Hohokam, Patayan, Archaic, and historic Yavapai traditions, and the site

also contains some modern elements (often initials and years). Within Bruder’s motif typology for the site (Bruder 1983:Figure 32) there are no ships or boats. One could spend days sifting through the extensive archive of photographs, drawings, full-size tracings and other materials from this project—curated at the DVPP—and never find a reference to a ship or anything similar, and Bruder herself was not aware of the supposed ship when asked in 2018 (J. Simon Bruder, email communication with Matthew Peeples, November 25th, 2018). To what, then, was our visitor referring?

In this article, we delve into the murky world of pseudoscience, fakes, frauds, and fringe science in the archaeology of Arizona to address the origins and spread of this ship story and other misinformation about the past. Fantastic claims about the history of Arizona are certainly not new, but as we illustrate, the spread of pseudoscientific ideas about the past and the proportion of people who believe such ideas have increased in recent years. Until fairly recently, this was an issue that the majority in the archaeological and historical community largely ignored while a relatively small number of dedicated scholars addressed such claims directly (see Feder 2006). We argue that it is increasingly important for archaeologists to be aware of the misconceptions and misinformation about archaeology, in particular in the areas where they work and intersect with the public. Using “the ship” at DVPP as a case study, we suggest some potentially profitable approaches that may help us curb the spread of such archaeological misinformation.

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Figure 1. The Deer Valley Petroglyph Preserve landscape in the Hedgpeth Hills in Glendale, Arizona.

Pseudoscience in Archaeology: We Have a Problem

Pseudoscience can be defined as ideas that purport to be factual and guided by scientific principles but which do not adhere to the scientific method or other tenets of logical reasoning (see Hansson 2017; Pigliucci 2013). Pseudoarchaeology is a more specific term used by many researchers to refer to interpretations of archaeological sites or artifacts that are not grounded in the principles of archaeological method or context (other related terms include fantastic archaeology, fringe archaeology, or alternative archaeology; [see chapters in Fagan 2006; Jordan 2001]). Defining the boundaries between science and pseudoscience is not always easy (Pigliucci 2010; Popper 2002; Sagan 1997) and archaeology is no exception. There are certainly instances of speculation and untestable ideas in the pages of respected archaeological journals (see Bahn 2006 for a particularly relevant discussion of the history of science and speculation in rock art research). Even when interpretations veer quite far from the confines of typical archaeological frameworks or represent outright frauds, non-specialists often have difficulty separating “real” archaeology from pseudoarchaeology. This difficulty arises in no small part because pseudoarchaeology is often “performative” (see Pruitt 2016) in that proponents take on the trappings of archaeological method, language, and scientific documentation (generating reports, using jargon, and even sometimes the selective use of tools common in scientific archaeology like radiocarbon dating). This performance often gives such work an air of legitimacy, and many proponents of fraudulent or demonstrably unsupported ideas are adept at using such perceived legitimacy to harness the media to great effect. As Tera Pruitt (2009) notes, however, simply labeling certain work as pseudoarchaeology does not deal with the complex academic and social

forces that intersect in such claims or the reasons why they are or are not accepted by a broader audience. Effective approaches to addressing uninformed or misguided notions about the past would likely differ from approaches to addressing fraud and lumping all of these claims together has had the effect of most archaeologists ignoring the issue altogether.

Available evidence suggests that belief in pseudoscientific ideas about the archaeological past is increasing in prevalence. For example, since 2014 Chapman University has conducted an annual survey called the Chapman University Survey of American Fears (Chapman University 2018) designed to gather information on the fears, concerns, and attitudes of members of the US public. These surveys provide two statements directly relating to archaeology and ask respondents to “Strongly Agree,” “Agree,” “Disagree,” or “Strongly Disagree”: 1) Aliens have visited the Earth in our ancient past, and 2) Ancient advanced civilizations, such as Atlantis, once existed. The proportion of those surveyed that either “Agree” or “Strongly Agree” with these two statements have increased in the years available. Belief in ancient aliens increased from 20% to 41% and belief in Atlantis or other advanced civilizations increased from 40% to 57% of those surveyed. Notably the rates of belief in these ideas are higher than most other statements polled in the same category such as belief that bigfoot is a real creature, that fortune tellers can tell the future, that people can move objects with their minds, and that aliens have visited Earth in modern times. Belief in ancient aliens and Atlantis are most like the levels of belief reported in ghosts and guardian angels. Ken Feder (2006, 2017) notes that he has surveyed his undergraduate students periodically since 1983 and seen rates of belief in Atlantis and ancient aliens hovering between 10-30% with some fluctuations but no clear trajectory. It is particularly notable that this

is among students who self-selected to take university archaeology courses. Feder's (2006) surveys included an option for students to respond "don't know" which consistently made up a large chunk of responses. Peeples has seen similar rates of belief at 13–36% for these same two topics (Atlantis and ancient aliens) among undergraduate students in upper division archaeology courses at Arizona State University between 2015 and 2019 in informal first day of class anonymous surveys completed by over 400 students (an average of 20.2% students somewhat or strongly agree with statements regarding evidence for the lost continent of Atlantis and ancient aliens across all years).

Some of the increased prevalence of reported belief in pseudoarchaeological ideas can likely be attributed to the frequency with which these ideas are encountered in contemporary media. There are far more television shows focused on dubious archaeological interpretations and pseudoarchaeology being produced to air on channels like the History Channel, H2, the Travel Channel, and the National Geographic Channel than there are shows focused on scientific archaeology (see Anderson 2018). Checking the book sales rankings on *Amazon* as of early 2020 many of the top selling non-fiction selections including the keyword "archaeology" are likely to make scientific archaeologists cringe with topics like "ancient lost civilizations," "aliens," and "human giants" leading the pack. As described by David S. Anderson (2019) there is a growing ecosystem of podcasts, YouTube channels, Facebook groups, websites, and even conferences catering to the fans of pseudoarchaeological content and the numbers of subscribers and viewers are astoundingly high compared to traditional archaeological professional organizations or other scientific content.

Faced with these trends, how have professional archaeologists responded to this wave of pseudoarchaeology? With some notable exceptions, the answer is that they largely have not (outside of the odd book review or special journal section). There have been a small number of dedicated scholars who have taken these issues head-on over the years including Ken Feder (Feder 1984, 2017) and Garret Fagan (Fagan 2006; Fagan and Feder 2006) and more recently they have been joined by researchers like the archaeologists Jeb Card and David S. Anderson (Card and Anderson 2016) and the writer Jason Colavito (Colavito 2020). There are also excellent blogs, websites, and podcasts that review pseudoarchaeological content from books to television and provide serious deconstructions of these ideas accessible to diverse audiences (Table 1). At the same time, there has been little response from the professional archaeological community or major professional organizations as a whole. Interestingly, this lack

of a response differs from the professional response to other kinds of content such as television shows focused on buying and selling artifacts or metal detecting, which garnered greater initial response including widely circulated petitions and formal letters requesting action from the Society for American Archaeology directly to broadcasters (see Herr 2015 and other articles in special issue).

One sign that the tide of interest in addressing pseudoarchaeology is perhaps turning among professionals in the field is that a recent (November 2019) issue of the *SAA Archaeological Record* was dedicated to highlighting the current battle against bunk in archaeology (Anderson 2019; Card 2019; Colavito 2019; Feagans 2019; Hoopes 2019; Raff 2019). Importantly, many of the scholars who dedicate considerable effort toward confronting and debunking pseudoarchaeological ideas are also active on the platforms where these ideas spread like Twitter, Facebook, other social media, and podcasts.

The popularity of pseudoarchaeological ideas can be read several ways. It is hard not to see the steady to increasing rates of belief in interpretations of the archaeological record that are out of date or wholly rejected by the scientific community as anything other than a failure of public engagement and something we need to fix. Far more people are reading and consuming pseudoarchaeological content than scientific archaeological content and we are losing the battle for eyes and ears. The second angle from which one might view these data is that these trends suggest there is a large audience that is generally interested in archaeology and the ancient past and, if we were to find the right way to reach them, we could potentially find a new large public audience willing to support the field. The big question, of course, is how?

Pseudoarchaeology in Arizona

As is true of every region, there is no shortage of dubious tales centered on the history and prehistory of Arizona and the US Southwest. For the purposes of this paper, we highlight a few popular pseudoarchaeological ideas revolving around the origins of indigenous populations in the Southwest or the connections between the Americas and Eurasia and Africa prior to well-documented instances of trans-oceanic contact with the Norse settlement at L'Anse aux Meadows in Newfoundland and the subsequent arrival of Columbus. Such claims generally fall into what archaeologists have sometimes called "hyperdiffusionist" arguments suggesting that all (or most) major social and technological developments across the world are related to one or a few ancient civilizations (see Stengel 2000). Many of these ideas have their origins in the very earliest

Table 1. Blogs and websites that regularly engage in debunking or contextualizing pseudoarchaeological claims.

| Name | URL |
|---|---|
| Andy White Anthropology | https://www.andywhiteanthropology.com/ |
| Anthropology.Net: Beyond Bones and Stories | https://anthropology.net/ |
| Archaeological Fantasies (blog and podcast) | https://archyfantasies.com/ |
| Archaeology Review | https://ahotcupofjoe.net/ |
| ArcheoThoughts | https://archeothoughts.wordpress.com/ |
| Bones, Stones, and Books | https://bonesstonesandbooks.com/ |
| Jason Colavito: Blog | http://www.jasoncolavito.com/blog |
| John Hawkes Weblog: Paleoanthropology, genetics and evolution | http://johnhawks.net/weblog/ |
| Le site d'Irna | https://irna.fr/ |
| Paleobabble | https://drmsb.com/category/paleobabble-2/ |
| The Lateral Truth | https://www.skepticink.com/lateraltruth/ |

European historic accounts of the Americas. As Feder (2017:91–92) notes, as early as 1535 there were already accounts suggesting that the indigenous populations of the Americas were actually the descendants of lost European merchants or the followers of an ancient Spanish king. Thus, some argued that Columbus was not simply claiming the Americas but reclaiming them on behalf of earlier Spaniards. In 1552 via Francisco López de Gómara we see the earliest reference to the Americas being the mythical island of the Atlantis that Plato first wrote about in his dialogues (Feder 2017:163). Although there is considerable evidence that Plato wrote these descriptions as philosophical illustrations rather than literal accounts (Dunšanić 1982; Rosenmeyer 1956), people have tried to place Atlantis in the real world for centuries. Claims in this vein remained popular in the intervening years and the expansion of European colonies and later US settlers across the Americas.

In the early nineteenth century, numerous new claims began to emerge suggesting connections between the Americas and the Near East and other locations in Eurasia. Many such claims suggested that American cultures were related to the lost tribes of Israel or events described in the Book of Mormon (first published in 1830). This new wave of claims also was associated with several archaeological finds of dubious context or outright forgeries (stones with apparent inscriptions in Hebrew and other languages, etc.) that were initially presented as material evidence of connections between the Old World and the New World (see Colavito 2020). In more recent years, we have also seen

no shortage of claims of trans-oceanic contact between the Americas and numerous locations across the world prior to documented instances of contact. Many of these arguments recycle Victorian-era racist ideas of indigenous populations in the Americas as incapable of civilization and they often attribute cultural achievements of Native Americans to outsiders from other ancient (and perhaps lost) cultures (e.g., Fell 1976; Hancock 2019; Van Sertima 1976) or even aliens (von Däniken 1968). Troublingly, even if this is not the intent of authors, these ideas frequently intersect with and fuel extremist ideas connected to White Nationalist and neo-Nazi groups in the Americas and elsewhere (Bond 2018; Zaitchik 2018).

Perhaps the most famous and well-documented hyperdiffusionist claim of trans-oceanic contact with Arizona revolves around a set of artifacts generally referred to as the Tucson artifacts or the Silverbell Artifacts. These objects, encountered in an abandoned limekiln on the northwest side of Tucson in 1924, consisted of a series of lead crosses, spears, and other objects with text in Hebrew and Latin and images (even including a dinosaur!) engraved on them. These objects were initially reported as evidence of a Jewish-Roman colony in Tucson between AD 775 and 900 and they were such a sensation they made the front page of the *New York Times*. Don Burgess (2009) has written an excellent account of these artifacts, the controversy around them, and the substantial evidence that they are forgeries (from Latin texts copied from textbooks to the archaeological and geoscientific context to historic

letters referencing the objects). Despite the serious problems with these finds that are readily apparent now, in the 1920s Byron Cummings and others at the University of Arizona took the finds seriously enough to conduct excavations and even consider a purchase of the site where they were recovered. By 1930, however, whatever support these objects might have initially had from the scientific community appears to have largely evaporated as they were rejected as fakes by Cummings and others in their final assessment due to problems with the texts, the materials and technologies used to make the objects, and the archaeological context. As Burgess (2009) notes, although there is plenty of evidence that these objects were fakes, there is still considerable ambiguity in terms of who may have been responsible for producing them. Despite the mountain of evidence that the objects were hoaxes, as recently as 2016 fringe publications like *The Epoch Times* (Maclsaac 2016; *Epoch Times* was recently banned from Facebook due to misleading political advertising [Alba 2019]) and *Ancient Origins* have run stories suggesting that the Tucson artifacts are authentic.

Another series of popular claims with connections to Arizona comes from the publications of Harvard marine biologist turned amateur prehistorian Barry Fell. In the 1970s and 1980s Fell (1976, 1980, 1982) published a series of books purporting to show evidence that, among other things, the Americas were colonized about 3,000 years ago by Iberians from Spain and Portugal or perhaps other Mediterranean cultures. Fell claimed to have found Bronze Age Punic, Celtic, Libyan and other scripts in geometric designs of petroglyphs across much of the Americas. He further claimed to be able to decipher them. Fell proposed a massive trade of copper, fur, and other raw materials between the Americas and Europe and Africa suggesting frequent trips by ship across the Atlantic Ocean (Fell 1976:93-110). Although he is often described as an epigrapher, Fell had no formal training in epigraphy or prehistory and has been widely criticized by experts in these fields for making fundamental mistakes in his interpretations and translations and for the use of poor quality material cultural evidence (e.g., Goddard and Fitzhugh 1978; McMenemy 2000; Stengel 2000). Among the many claims made in these books Fell (1976:172) suggests that certain songs in the Pima language (O'odham) of the Sonoran Desert within the Uto-Aztecan language family can be read using a "Semitic" dictionary. He further claims that the Zuni language (a linguistic isolate; see Hill 2007) was descended from a poorly known Libyan language family (Fell 1976:175). He uses these supposed linguistic connections to attribute cultural developments in the US Southwest to migrants from the Mediterranean. These claims were immediately

rejected by archaeologists and linguists working in the area including a review published by the Department of Anthropology of the Smithsonian Institution that outlines the serious problems with the linguistic claims suggesting that Fell has no knowledge of the grammatical rules of the American Indian languages he claims to connect to Europe and Africa (Goddard and Fitzhugh 1978; see also Feder 1984). Despite this, Fell's ideas remained popular in certain fringe circles, in large part due to the Epigraphic Society organization which Fell founded to publish occasional papers on epigraphic analyses often veering into the fringe and certainly not representing a source widely used by academic linguists. We will return to the claims of Barry Fell and his disciples in the case study below.

In more recent years, there are almost too many claims to enumerate. We could add to the list those ranging from the recently revitalized claims based on a 1909 hoax published in the *Arizona Gazette* that the Smithsonian Institution has been hiding evidence that Ancient Egyptian, Tibetan, and other Old World remains were found in a cave in the Grand Canyon (see discussion in Colavito 2013) as well as publications by John Ruskamp Jr., who claims to have identified Chinese writing in petroglyphs in the Southwest (Ruskamp 2013; see Quinlan 2015 for an archaeological criticism) for an archaeological criticism). Arizona has also featured prominently in pseudoarchaeological content on television with claims of lost Anglo-Saxons in Arizona (*America Unearthed*, season 1, episode 2; see Williams 2015 for a thorough debunking and Medrano 2020 for a popular account in *Arizona Highways*) or alien visitors to the Hopi Mesas (*Ancient Aliens*, season 5, episode 4). In addition to these claims for such trans-oceanic (or even trans-galactic) contact, Arizona and the Southwest are also often implicated in what we might call "catalogs of evidence." A common format in the world of fringe archaeology is to present a long list of supposed evidence for a claim, providing little to no context for each individual piece of evidence and inviting the reader to make up their own mind. The sheer volume is designed to make the point where specific information is lacking (for example see Handke 1978). It is in one of these catalogs of evidence that our case study for this article originates (Farley 1994). In the discussion below, we see what happens when we start to pull the thread on a couple of items in such a list of claims.

Case Study: The Ships of Tarshish?

So, what was our visitor talking about when he asked to see the ship at DVPP? After a bit of digging and searching on the internet, we eventually located the likely source of this question. In 1994, Gloria Farley self-published a book called *In Plain Sight: Old World*

Records in Ancient America. In this book, Farley outlines work that she conducted over the course of nearly 50 years to document inscriptions and drawings that provide evidence of ancient visitation to the Americas by populations other than indigenous Native Americans. After working alone for many years, Farley eventually connected with Barry Fell prior to the publication of his first major book and the two apparently worked closely together over the years as colleagues and friends. Indeed, Barry Fell's son Julien Fell wrote an obituary for Gloria Farley when she died in 2006 noting her special relationship with his father (Fell 2006).

Much of Farley's work focused on Oklahoma and adjacent areas, and in particular the Heavener Runestone from her own hometown. The Heavener Runestone is a purported Norse runic inscription with characters in Elder Futhark (a writing system from northern Europe that predated the Viking era). Farley and others have suggested it is authentic evidence of a Norse presence in Oklahoma while other archaeologists and epigraphers have suggested it is more likely a nineteenth century carving due to differences in ornamentation, problems with the translation (which probably reads Gnome Dale), and the lack of any other material evidence for a Norse presence in the area (see Lovett 2015). Despite all of this, Gloria Farley was a key player in getting the Heavener Runestone area declared a state park, which was later transferred to the City of Heavener in 2011 and now run by a local non-profit. The park is now the location of an annual Viking Festival and fund raiser.

Much of Farley's (1994) work is focused on contextualizing the Heavener Runestone and other purported inscriptions in the region by drawing on references to many other similar potential examples from across the Americas. One of the book's chapters, entitled "They Came in Ships," presents her thoughts on the potential ocean and river pathways that ancient sea farers would have taken to reach the interior of North America. This also includes a catalog of 24 supposed ship petroglyphs from throughout North America. Farley argues that many of these potential ships show features that are common in Old World ships as well as other seafaring technology. With two exceptions these are presented as drawings with text descriptions (two are also shown with photographs).

Among these many examples is one labeled "The Ship of Tarshish." This is a reference to Barry Fell's (1976:93-110) book *America B.C.: Ancient Settlers in the New World* and his discussion of a Bronze Age Iberian city in what is now Spain (elsewhere referenced as being in North Africa) called Tarshish or Tartessos, which was known for producing large seagoing vessels. Fell describes a petroglyph and inscription in Rhode

Island, which he claims shows a boat and an inscription that read "Mariners from Tarshish this stone proclaims" before it was vandalized (thus destroying the text and any chance of investigating this claim further). Farley's (1994) reference to a ship of Tarshish comes from a letter she received from Lyle Underwood of Tucson, Arizona. She published an excerpt of an undated and unpublished manuscript by Underwood stating:

"Here we have two wavy lines of ocean upon which sits a two-decked ship with rectangular sail. Backstays for the mast are shown, but no forestays. To the left of the ship we find some abstract symbols. Identified by Dr. Berry Fell as South Iberian Punic, the letters are '**S S-F-N**.' The Punic has no '**F**' and like the Hebrew, uses a form of '**P**' to create the '**F**' sound. Modern Arabic does have an '**F**' and would have spelled this as '**S S-F-N**' which is '**ES SAFN**,' or in English, '**The Ship**.' So we have here a drawing of a ship on a rock and caption which identifies it as '**The Ship**,' there being no question as to the intent of the artist. This inscription has been 'core sampled' by archaeologists who have carelessly allowed the borings to dribble down the face of the rock and dry like cement. Why they did not wash this off while it was still wet is to their eternal shame. Here on the Arizona desert is a pre-Columbian carving of a ship. Evidence pure and simple of perhaps many pre-Columbian voyages, is it to be destroyed?" (Farley 1994:31; quoting Underwood, bold in original).

This excerpt is accompanied by a drawing which Farley says was traced from the photographic enlargement provided by Underwood but she also says that Underwood "found and sketched the entire petroglyph before the archaeologists' damage was done" (Farley 1994:31). It is not clear if details from Underwood's drawing that were invisible in the photographs were incorporated into the drawing published by Farley (see Figure 2).¹

The text from Underwood makes a series of arguments that need to be unpacked. First, he suggests that the image clearly represents a boat with identifiable features related to a seagoing vessel. Next, he suggests that the symbols represent a clear statement "The Ship." It is not readily apparent if Fell provided the translation or simply identified the script as South Iberian Punic. Finally, Underwood accuses the archaeologists of being careless and perhaps even intentionally destroying evidence of pre-Columbian voyages.

With the information above in hand, our team then set out to discover what we could learn about this claim



Figure 2. Drawing of “The Ship of Tarshish” from DVPP as it appeared in Farley’s book (redrawn from Farley 1994).

by studying the DVPP archives and the site itself. We started by examining the archives for the core-sampled petroglyphs from the project. This sampling was part of a dating experiment designed to test the viability of hydrogen profile analysis (Taylor 1983). After searching through drawings, tracings, and photographs, we were eventually able to find the inspiration for the drawing published in Farley’s book (panel I110A; DVPP Archives). Although this panel is not listed in Taylor’s hydrogen profile analysis report, an archival drawing of the petroglyph panel shows that two of Taylor’s core-samples, samples 016 and 017, were collected on and adjacent to the petroglyph identified by Underwood and Farley as a ship. Taylor (1983:292, 296) notes that five samples drilled from petroglyph panels could not be used; only those that survived this destructive method and yielded data are listed in the table of results (Taylor 1983:297, Table 25), and samples 016 and 017 are conspicuously absent suggesting that these did not yield usable data.

As Figure 3 shows, there are some key differences between Farley’s (1994) published drawing and the photographs and drawings of panel I110A in Bruder’s (1983) report and in the DVPP archives. To resolve

these inconsistencies, we returned to the site, located the boulder in question, and photographed and filmed it to make a 3D photogrammetric model (Figure 4; see Peeples 2020 to view the interactive model). In Bruder’s original recording, the large set of lines at the right side of the panel, which Underwood and Farley call a ship, are classified as a possible winged insect (Bruder 1983:243, Plate 24). Notably, the wavy lines which Underwood interpreted as the ocean do not continue under the insect/ship petroglyph as they do in the drawing in Farley’s book; instead, the latter extends downward past the wavy lines. On the left-hand side of the panel, we can see abstract shapes that are somewhat similar to the “letters” depicted on Farley’s drawing. Notably, however, these lines are far less distinct than they are presented in Farley’s drawing, and it is unclear why some potentially modified surfaces were drawn while others were not. Comparing photographs in the archives, we also determined that the boulder on which this panel is found fell downslope several feet sometime between 1993 and 2018. In addition to the core-sample marks, there are also other damaged areas of the surface which appear to be bullet marks (unfortunately

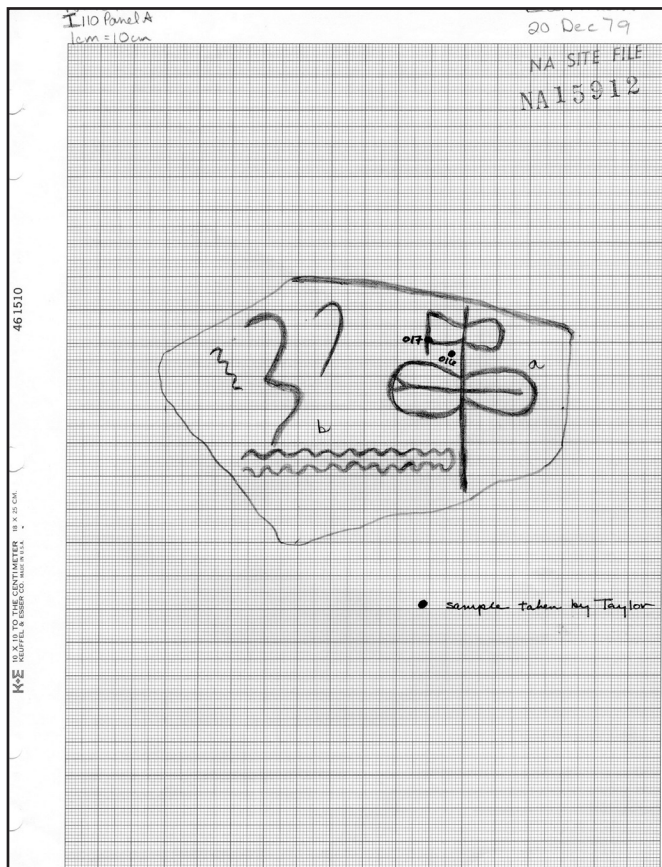


Figure 3. Original in-field drawing of DVPP panel I110A showing core samples taken by Taylor.

common at DVPP), which were also visible in the 1979 and 1980 archival photos.

Turning to the features claimed to be an inscription reading “The Ship,” there are several issues—apart from the simple lack of clarity and distinctness in the lines—that make this interpretation strained. Specifically, the supposed translation includes the letter “S” twice, but the abstract markings do not appear to repeat. Beyond this, even if we take the drawing at face value, in order to interpret this as S-S-P (or F)-N as the text claims, we would need to allow for variation among two letters claimed to reference the same character (S), additional unexplained lines in another character (P), and finally that the final supposed character (N) that is so faint on the surface it was even drawn with dotted lines in Farley’s (1994) book is reversed (compare to Punic letters in Dinger 1953:237). This is certainly a stretch and a far cry from the quite clear Iberian Punic inscriptions found in Europe, where letters are unambiguous and distinct. Indeed, the abstract shapes on this boulder are typical of many of the petroglyphs in southern Arizona and in the remainder of DVPP. If this was someone’s attempt at writing “The Ship,” it was not a very successful effort.

Next, Underwood suggested that the core-sampling process resulted in material drying on the surface “like cement.” It is unclear what Underwood may have encountered as there are archival photos from the 1979-1980 project after the sampling was done with the core-samples visible but with no material on the face of the boulder. We have found that suggestions of archaeological conspiracy and cover-up are common in interpretations of archaeological evidence outside of the mainstream and are often used to deflect criticism, but without access to Underwood’s photos it is hard to know what to make of his statement.

Finally, and this may go without saying to an archaeological audience, if there really were Iberian Punic seafarers in Arizona 3,000 years ago, then where are all the artifacts? As they say, absence of evidence is not evidence of absence. At the same time, later European *entradas* into the Americas certainly left a visible mark. Coronado’s journey through the Southwest is dotted with caret-headed iron nails, crossbow bolt heads, horseshoes, and other objects dropped like a trail of breadcrumbs. There is similar evidence in the Southeastern United States along the trail of Hernando de Soto. If enough Iberians were here that, as Fell (1976) claims, the Pima language was connected to Semitic languages from the Mediterranean, then it begs credulity to suggest that there would be no other physical remains left behind.

What can we do about it?

Perhaps some readers are scratching their heads at this point. Did we really just spend several pages addressing such an outlandish claim? Is anybody really fooled by this stuff? Sure, to someone versed in the archaeology of the region or archaeological method and theory generally, it is easy to dismiss such fantastical claims as obvious misinterpretations, wishful thinking, or just downright ridiculous. The problem, however, is that people who do not have a background in archaeology often have no frame of reference to interpret claims like this. As Feder (2006) notes, most people who encounter such ideas are not the “true believers” dedicated to identifying trans-oceanic contact and archaeological conspiracy, but instead “fence sitters” who entertain such claims as possible without deeply engaging. These people are the majority that we need to try to reach.

Before we went through the process of tracking down information about the DVPP ship as outlined above, when our volunteer came and asked about it the only answer that we could offer was, “We’re not sure what you’re talking about.” This would certainly be less than satisfying to an interested visitor, and perhaps further proof of a conspiracy to some. We conducted this research because we wanted to be able to answer this



Figure 4. Photograph of DVPP panel I110A. The top image is the original photograph and the bottom photograph was edited in ImageJ using the DStretch extension (Harman 2009) to emphasize petroglyphs.

question, but even with the information above in hand, it is not entirely clear how to best convince a general public that there is a difference between real archaeology and the kinds of wild interpretations that we have covered here. In the remainder of this article, we briefly turn to the literature focused on conspiracies and the spread of misinformation in social psychology and related fields to try to glean an answer.

Studies focused on how and why individuals believe things not backed up by empirical evidence suggest that people come to such beliefs for many reasons that have little to do with a logical weighing of evidence (see Scheufele and Krause 2019). There is little evidence that suggest intelligence or general cognitive ability (however measured) is strongly predictive of belief in pseudoscientific ideas. Further, although education and scientific training are negatively correlated with belief in pseudoscientific ideas, the changes observed over the course of a college education for individuals are small ([and smaller than initial differences between science and non-science majors] see Impey 2013). Indeed, people with more education tend to actually be more polarized in their beliefs, especially around controversial topics (Drummond and Fischhoff 2017). There is, however, some evidence that the degree to which an individual values rationality may mediate relationships between cognitive ability and unfounded beliefs (see Ståhl and van Prooijen 2018). Belief in things like unmonstrated conspiracies also may be related to other kinds of individual values and attitudes. For example, the self-reported predilection of an individual to participate in a conspiracy on their own is predictive of belief in conspiracies generally (Douglas and Sutton 2011). As this suggests, there is compelling evidence people do not believe pseudoscientific ideas because they are cognitively limited or uneducated, but rather because of the complex ways specific beliefs intersect with their own identities, values, and attitudes.

In light of the work outlined briefly above, there is a growing literature in social psychology focused on how to best correct misconceptions given that such ideas are often tied to identities and values. One common and seemingly attractive (on the surface at least) strategy for correcting misinformation is simply supplying factual information to replace it. Unfortunately, this can often have unintended consequences. Psychologists describe a “backfire effect” that occurs when misconceptions are addressed by simply presenting new facts to replace them without context. Over the course of hours, days, and weeks, there is substantial evidence that many people will simply remember misinformation as true and vice versa, especially when they have limited experience with the topic at hand (e.g., Nyhan and Reifler 2010; Peter and Koch 2016). Indeed, misinformation

is often recalled more readily than factual information as surprising ideas (whether right or wrong) are often retained due to their novelty. In the medical arena, there have been studies exploring how people respond to information combating myths about vaccines. In one such study, a common “Flu Myths vs. Flu Facts” flyer was shown to patients and individuals were asked to recall information at several temporal intervals later. This study demonstrated that such an approach actually reinforced and increased the prevalence of ill-founded beliefs, doing more harm than good (Pluviano et al. 2017). We do not want to discourage effort in this respect, but it seems the archaeological myths vs. archaeological realities memes we have seen floating around on social media are unlikely to be effective.

Fortunately, there are several approaches for which there is evidence of effective corrections of misinformation. Importantly, different approaches are well-suited to different contexts where we might encounter misinformation about the archaeological past. First, there is strong evidence that teaching critical thinking skills in a classroom context has a significant impact on the belief in pseudoscientific ideas (McLaughlin and McGill 2017). Work in this vein suggests that effective teaching needs to not simply deliver facts but focus on the history and epistemology of those ideas. Such teaching should ask and answer the question “How do we know what we know?” Beyond this, there is evidence that teaching students strategies that are frequently used to mislead (or by which people frequently mislead themselves) can help to “inoculate” individuals against beliefs in unsubstantiated claims (e.g., Banas and Rains 2010). There is a growing literature focused on psychology in the public arena that suggests knowing the source of biases can help to predict the most likely effective strategy to combat misinformation (Lewandowsky et al. 2012). Thus, part of the solution to combating archaeological misinformation may be to proactively produce content that addresses common pitfalls in archaeological interpretation to help prime members of the public for critical thinking.

The strategies above suggest some effective approaches when dealing with students in a classroom setting or other arenas where there may be an extended interaction with the public, but what about the short-term and ephemeral interactions we have with members of the public? Dealing with misinformation in such limited-contact situations can be more difficult, but a recent meta-analysis suggests a few promising approaches (Chan et al. 2017). Some recommendations offered in relation to this body of social psychological research suggest that a successful correction of misinformation typically directly assesses claims made in sources of misinformation in ways that

foster conditions for scrutiny and counterargument by the listener. Specifically, if people can be led towards counterarguments on their own, the debunking effect tends to be stronger and misinformation less likely to persist. Beyond this, there is evidence that the level of detail in the debunking message is important. Generally, a debunking that simply says “it isn’t so” is not likely to be effective. A more detailed debunking that addresses many aspects of the source of misinformation tends to produce a stronger debunking effect. Notably, such a detailed debunking can sometimes backfire if an individual is predisposed to view the misinformation positively, so it is also important to know your audience. Finally, there is considerable evidence that when scientific information, including attempts at debunking misinformation, is delivered using narrative formats and storytelling, information is often better comprehended by non-specialists and thus, such efforts may be more persuasive (see Dahlstrom 2014).

We certainly do not suggest that there is a one-size-fits-all answer to addressing archaeological misinformation. We also argue that there is a great need for research that directly addresses the ways in which people form, retain, or change ideas about archaeology and the past generally to complement research on other well-studied topics like medicine and climate change. From the literature briefly outlined above and our own experiences in this case study and in teaching such topics generally we can generate a few suggestions. First, we suggest that it is important to be aware of the common misconceptions regarding the archaeological contexts or regions you study and be prepared to address them when they arise. If you know what the bad arguments are, you will be better prepared to answer questions in a productive way when asked. Further, when debunking claims, be as specific as possible and try to help your listener draw conclusions from the evidence you produce rather than just telling them what they have heard is not true. For example, in our DVPP case study, we have found it helpful to show people examples of real Punic writing and the Punic alphabet as well as other abstract geometric features present at DVPP. Most people start to draw the conclusions we outlined above on their own, which we hope strengthens the debunking effect. Finally, try to tell a story. We have found that providing a detailed history of where a piece of misinformation originated and all of the players involved over time can provide a story that members of the public find compelling, and hopefully, one that will help them remember the details of the debunking. In our DVPP case, this includes discussing Barry Fell and Gloria Farley, and the relationships among their work and older Victorian and contact-era ideas about the ancient Americas. Importantly, all of these approaches require that archaeologists familiarize

themselves with what is happening in the world of fringe archaeology in their own backyards and beyond.

ACKNOWLEDGMENTS

We would like to thank Celeste Scott and Elizabeth Gerold at the Arizona State University, Deer Valley Petroglyph Preserve for facilitating access to the DVPP site and facilities. We would also like to thank Curators Arelyn Simon (retired) and Melissa Powell with School of Human Evolution and Social Change Collections for providing access to the archival materials, collections, and photographs from archaeological projects at the DVPP. We are especially indebted to long-time DVPP volunteer docent Chris Reed, who was the first to bring “the ship” story to our attention and who has graciously shared his knowledge of DVPP with us. Thank you to J. Simon Bruder and David S. Anderson for constructive and useful comments on this article and thanks to Doug Mitchell for serving as editor. This project started as an Honors project for students in “ASB 333: Mythbusters: Frauds and Fakes in Archaeology” taught by Peeples at ASU. Thank you to the ASU Barrett Honors College for supporting this project and the student participants.

ENDNOTE

- I Portions of Gloria Farley’s (1994) book are reproduced on her website, though some of the images and captions on the website are incorrectly reproduced from the print book. This includes the DVPP petroglyph that is the subject of this article. The image that appears online (<http://www.gloriafarley.com/chap2.htm>) captioned “Fig. 2-36 A ship petroglyph, Arizona. Redrawn from photograph by Lyle Underwood” is actually the image in the print book described as “Fig. 2-37 The Vernal Ship Petroglyph, Vernal, Utah.” The original image of the ship that is the subject of this article is not included on the website. A hard copy of Farley’s book is available in the Arizona State University, West Campus Fletcher Library and other publicly circulating libraries.

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