Chapter 6

Further Analysis of Western Academic Equine Science

As has been demonstrated, the discrepancy between the Western Academic version of the history of the horse in the Americas and the version put forth by many of the Indigenous Peoples of the Americas is stark. The data gathered from project participants combined with information gathered from previous historical records and some much-needed cross-cultural translation lends credence to the Native perspective. Historically, a high level of cultural bias and cross-cultural confusion has been present within many of the research methodologies and methods utilized regarding this subject. These issues appear to be compounded by an overall propensity to interpret conclusions based upon prior Western Academic authority. 349 Due to these factors, it becomes imperative that further research is done to investigate, seek to understand, and resolve the anomalies that are present. As “science does not allow assumptions, but rather rests on experimental proof,” 350 theoretically more objective data can be determined in looking to science. However, the above issues seem to have permeated the Western scientific community with regard to this subject, as well. Chapter 6 will examine the scientific work that has been done with regards to dating (or not dating) petroglyphs, fossil remains, and DNA. It will also further examine inconsistencies and anomalies within the scientific field on the subject at issue, and the conclusions drawn therefrom.

6.1 Presence of Cultural Bias Within Equine Science

As Heather Pringle explains in her book titled In Search of Ancient North America: An Archeological Journey to Forgotten Cultures, the foundation of archeology has been shaped by bias against Indigenous communities. She explains as follows:

The rabid quest for artifacts and the excavation of tombs … yielded scant information about the lives of those who roamed the continent in times past. But North American researchers were slow to see this as a problem. Like many other members of nineteenth-century society, they saw native tribes as primitive and naive, childlike wastrels who had long preferred the adrenaline of the hunt to the drudgery of building civilizations. Native people, concluded Ohio scholar Caleb Atwater in 1820, were “men in a savage state, little

350 Baily and Brooks, Horse Genetics, 186.
versed in the arts of civilized life” 351 … Throughout the nineteenth century, this racism actively shaped archeological thought … Before long, English scholar Sir John Lubbock published a highly influential book … concluding that European culture represented the pinnacle of human cultural evolution; tribal groups in North America, on the other hand, occupied the lowest rungs. 352

Indeed, the side effects of this approach can be seen today in the legal realm of Cultural and Intellectual Property Rights (CIPR). The instances where the CIPR of Native Peoples have been denied by researchers, companies, and the dominant Western culture in general, are numerous 353 354 355 356 357 Indeed, as Donna Ngaronoa Gardiner explains in her article “Hands Off Our Genes: A Case Study on the Theft of Whakapapa,” the process of colonization has played a significant role in the denial of Indigenous Peoples’ intellectual property rights:

The most fundamental right to determine what Indigenous People see as being their intellectual property has been destroyed through the processes of colonization. The long history of the export and destruction of artifacts (the ‘cultural’ property) of Indigenous peoples grew out of this imperial belief in the right to define. 358

Pringle explains that “few [archeologists/anthropologists] seriously believed that North American tribal cultures were ancient … suggest[ing] that Asian immigrants colonized the continent relatively recently – within the past 4,000 years or so.” 359 However, with the help of some later technologies, such as “mapping –three dimensional positions of artifacts and features; classifying finds such as projectile points and pottery shards; dating diverse layers by methods as varied as radiocarbon, archeomagnetic, tree-ring, thermoluminescence, and obsidian hydration

358 ibid., 48.
359 Pringle, In Search of Ancient North America, 6.
tests, and sifting through analysts’ reports on such arcane subjects as DNA analyses of ancient hair samples or microscopic wear patterns on tools” some “liberal researchers now place the arrival of humans between 21,000 and 42,000 years ago.”

Indeed, in the article titled “Indian Pony Mystery,” Yuri Kuchinsky describes what he sees as cultural bias within academia with regard to the history of the horse in the Americas as follows:

Many Native Americans insist that they were riding and breeding horses many centuries before the Spanish ever made it to America. Their tribal memories are customarily put down, ignored, and disregarded by our mainstream scholars … At this time, an assumption among the historians is nearly universal that there were no horses in America before Columbus (except, of course, for those that became extinct very early on.) But very few professional historians, indeed, have investigated this subject firsthand. They all just work from a previous received assumption that there were no horses in America before Cortes arrived to Mexico in 1519, because this is “what everybody already knows.” And yet, there are very substantial problems with this view.

With such bias serving as the underlying foundation of an academic field, it would not be surprising to find evidence of bias throughout the history of the development of such field. However, when the field in question is “Western science,” it can be very surprising and concerning. As the examples within this section show – surprise and concern aside – such cultural bias has permeated the realm of Western science with regard to the history of the horse in the Americas.

6.2 Rock Art and Other Traditional Methods of Recording

Native Peoples across the Americas recorded their traditions, values, and belief systems over many hundreds and thousands of years. Some of these recordings included images and representations of the horse. Their recordings took a number of forms. These forms included but were not limited to petroglyphs and pictographs on rock formations, geoglyphs, “winter counts” on animal hides, sculptures, and paintings and etchings on pottery, cave walls, burial sites, and other areas that were used in ceremony. As most Indigenous cultures within the Americas utilized organic materials to create their sacred objects they quickly decayed, and in many

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360 Ibid., 7-8.
instances, they are not available to be dated. However, countless petroglyphs and other forms of rock art have survived. Sadly, most of these depictions that include horses have yet to be dated, as it is assumed by the dominant Western culture that “anything with a horse” must have been created post-first contact, or within the last 500 years. Examples of this are cited throughout this section. James D. Keyser’s book titled *Indian Rock Art of the Columbia Plateau* offers the following description of petroglyphs:

Petroglyphs are rock engravings, made by a variety of techniques. In the Pacific Northwest, pecking was the most common method: the rock surface was repeatedly struck with a sharp piece of harder stone to produce a shallow pit that was then gradually enlarged to form the design. Some Columbia Plateau petroglyphs were also abraded or rubbed into the surface with a harder stone to create an artificially smoothed and flattened area contrasting with the naturally rough-textured rock. Pecked designs were sometimes further smoothed by abrading.

An example of “assumption” rather than “dating” with regard to horse petroglyphs can be seen on Ned Eddins’ website titled *Southwest Rock Art Pictures*. After he states that “rock art cannot be dated accurately by any technique presently known,” (which is no longer the case) he writes the following regarding a photograph of Newspaper Rock in Canyonlands National Park:

As can be seen from Newspaper Rock in Canyonlands National Park, the petroglyphs vary from several thousand years old to three hundred years ago or less ... note the Indian on a horse. The Ute Indians were the earliest Indians to have horses in the canyonlands area, and that wasn't until after the Pueblo Revolt of 1680. The first recorded Europeans to enter southeastern Utah with horses and mules was the Dominguez Escalante Expedition in 1776.

In instances where ancient depictions of horse-like creatures and Native Peoples have been radiocarbon dated and the official date identifies the artwork as having been created before the 1500s, many Western-trained scientists have simply decided that these creatures must be something other than horses. An example of this occurred in the Southeastern region of the United States where the paintings and etchings of Native Peoples located in the Cumberland Plateau (from Kentucky down into northern Alabama) have been dated to as far back as 6,000 years ago. The article by Matt Smith titled “Ancient Tennessee Cave Paintings Show Deep

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365 Ibid.
Thinking by Natives," quotes scientists as stating, "The art sites, predominantly found in caves, feature otherworldly characters, supernatural serpents and dogs that accompanied dead humans on the path of souls." 366

However, this interpretation of the pictographs (paintings) illustrating large quadrupeds accompanying people makes little sense culturally, as it has been documented that the ancestors of the Peoples known today as the Choctaw Indians who resided in these geographical areas had small ponies (not large dogs) that played a key role in burial rituals. No dogs near the dimensional size illustrated in these pictographs were known to exist at such time. These ponies were considered to be so sacred to these Indigenous Peoples that they were often killed in ceremony in order to allow the spirit of that animal to accompany the soul of the deceased person into the afterlife. 367

Another example of science’s propensity to “assume” and defer to previous academic authority rather than “look” by actually scientifically dating, occurs with a rock art image of a horse and rider that is located in an area in southern Peru that is well known for “its rich collection of Pre-Columbian rock art” on one of the petroglyph boulders at a location called Alto de Pitis. 368 Although van Hoek is clearly meticulous in his cataloging of the images, he does not state that he dated the “post-Columbian Horseman.” Instead, he uses the following explanation to support the chronology in his article:

… in the Americas indigenous horses became extinct at the end of the Pleistocene, about 12000 years ago. Thus, horses were absent in North and South America until the Spanish conquistadors introduced domesticated horses from Europe, from 1492 onwards. Also, the ancient Andeans who had in South America domesticated the llama, the alpaca and the dog, knew nothing of the horse until around 1528. Francisco Pizarro and Diego de Almagro made first contact with Inca Empire near the modern town of Tumbes on the northern coast of what is now the modern republic of Peru. 369

369 Ibid.
The non-scientific nature of van Hoek's deduction was noted and captured in the May 2016 blog titled *The Horseman of Alto de Pitis – Part III* by NephiCode.com. After noting that the "images and the method of [the depiction of the Horseman] matches precisely the other pre-Columbian rock art found on the surrounding boulders," the author states the following:

... the first reaction of the discoverer was that it had to be post-Columbian rock art. Why? Because everyone knows there were no horses in the Americas before the Spanish arrived... In fact, when these rock art areas were first found, the caves or areas in which they were located were all "dated" to a post-Columbian period based solely on the man riding a horse. This mentality has caused the depiction of "The Horseman of Alto de Pitis" to be labeled "post-Columbian," even though it has been found in a strictly pre-Columbian rock art find where all the other rock art seen is definitely pre-Columbian.

Indeed, petroglyphs of horses (Figure 4) within the Americas have been openly treated differently – without scientific methodology or following proper scientific protocol - by scientists with regard to dating for more than a century. Passages such as the following can be found regularly throughout books on petroglyphs and rock art: "Determining the actual age of most Columbia Plateau rock art sites is difficult to do with certainty, except in instances showing horses or other objects of known historic age." In his work titled *Indian Rock Art of the*

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370 Ibid., 1.
371 With regard to scientific research on this subject, it is important to note that the Mormon Church has put some emphasis and financial backing toward deciphering the history of the horse in the Americas. As the Book of Mormon describes horses in the Americas before the arrival of Columbus, critics have long used the fact that "there were no horses in the Americas" as proof that their doctrine is not valid. However, just because a particular group has an interest in a topic and wishes to support research being done in the area does not mean that their scientific findings are necessarily biased, especially when independent laboratories are used.
Columbia Plateau, Keyser describes the rock art of the Eastern Columbian Plateau in Western Montana. In this geographic location, he describes action scenes such as “a horse and rider” and states that “fewer than 25 percent of the animal figures in western Montana have sufficient anatomical detail for identification of species, but bison, deer, mountain sheep, horses and a dog, a bird, and a turtle are known.” The following figures are located in the Central Columbia Plateau (also yet to be dated by scientific methods):

... horses are painted at eleven sites and pecked at one other. Four painted examples have the characteristic elongated body, long neck, and flowing tail, but no rider. One wears a saddle. The remaining horses, all ridden, range from nondescript quadrupeds, unrecognizable without the mounted human, to a very stylized depiction showing an obvious horse whose rider wears a flowing, feathered bonnet.

In addition to those horse petroglyphs that have been identified and “dated by assumption” rather than by utilizing scientific methods, there are some that have been scientifically dated. In his article titled The Horse and Burro as Positively Contributing Returned Natives in North America, Craig C. Downer sites an example of a horse petroglyph and geoglyph that were dated utilizing scientific methods and were verified to have been Pre-Columbian and post “Ice Age period.” Of the horse petroglyph discovered “west of White Mountains in eastern California” he states the following:

Judging from the brownish oxidation on the chiseling, this horse was not a recent addition to the ancient petroglyphs here. Scientific analysis of the patina of some of these petroglyphs has revealed ages up to 3,000 years. By visually comparing patina hues, I estimate this horse could be well over 1,000 years old.

Downer also addresses geoglyphs depicting 53-foot-long horses in the Mohave Desert near Blythe in southeast California. “Geoglyph” is a “word used by archeologists and the public to refer to ancient ground drawings, low relief mounds, and other geometric earth and stone work found in isolated places throughout the world.” Regarding the two horses among the several geoglyphs collectively known as the “Blythe Giants” he states:

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373 Ibid., 37-38.
374 Ibid., 68.

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They were formed by removing stones of desert pavement to reveal lighter substrata, a process called intaglio, often associated with trails and dance circles formed by the pounding of human feet. They indicate that horses were held in high regard by Amerindians and in relatively recent times. The figures have been expertly dated by geologists from the University of California Berkeley at 900 A.D. +/- 100 years and were first discovered by pilots from the U.S. Army Air Corps flying between Hoover Dam and Los Angeles in 1932. They are presently under the care of the Bureau of Land Management ... [T]his figure meant that someone in California knew enough about the horse to represent it on the desert floor ... centuries before the Spaniards re-introduced the animal to North America. Though airline pilots and later observant investigators and writers instantaneously recognized this figure as a horse, BLM officials claim it depicts a puma and have restricted the public from accessing the area.  

![Figure 5 Geoglyph Depicting a Horse as Viewed from Google Maps.](image)

In her book titled *In Plain Sight: Old World Records in Ancient America*, Gloria Farley addresses the bias that she encountered within academia regarding the history of the horse. After a lifetime of scientific work in this area, she concluded that there were horses in the Americas post “Ice Age” and pre-Columbus. She believed that they were likely tied to pre-Columbian visitors to North America, such as the Norse. She states as follows:

> Some evidence suggests that there may have been horses in America before the time of Columbus. This evidence is generally ignored, perhaps because it is contrary to deeply held opinion and assumptions. The evidence includes excavated horse bones, horse effigies both large and small, and especially petroglyphs of horses which are labeled in ancient script or have features which are not associated with Native American

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377 Ibid.
petroglyphs ... Evidence of prehistoric horses is generally misinterpreted, or it may have been in some instances actually suppressed. 379

Indeed, she also cites the case of the Blythe Canyon horse geoglyphs, which she calls “effigies,” as another example of the “selective blindness of scholars.” 380 She refers to Smithsonian researcher Frank M. Setzler’s conclusion on the subject as follows:

Setzler thought they could not have been made by Indians of the late Pleistocene period, when horses were still present in North America, because of the lack of patina or “desert varnish,” which forms in less than 10,000 years. He considered the effigy of the horse and said: “That brings us right up to 1540 A.D., for in the intervening centuries there were no horses around to serve as models for the Indian sculptors ... I think the giant effigies ... were fashioned sometime between 1540 and the middle of the nineteenth century.” 381

In his book titled Twilight of the Mammoths: Ice Age Extinctions and the Rewilding of America, Paul S. Martin addresses what he calls “split-twig figurines” that were found in Stanton’s Cave in New Mexico and were associated with “extinct animal remains.” 382 Martin claims that the pre-Columbian figures look like “some kind of small ungulate, either a mountain sheep or a deer,” and explains that many of the figurines were removed from their original sites and brought to museums by “well-intentioned individuals who sought to keep them safe.” 383 Due to this, archeologists were not able to examine the exact areas inside the cave where many were found. He describes the following:

Each figurine was 4 to 6 inches in length and had a head, neck, and legs attached to a body, all constructed from a single willow twig ... Some even had a slender twig or splinter inserted through the midsection, very likely symbolizing a spear ... With no knowledge of the figurines’ provenience (exact location within the cave), a crucial piece of information in site analysis, it was impossible to reconstruct any pattern that might help determine their meaning or function. Undoubtedly any figurine arrangements originally left on the cave floor had been the first to disappear. However ... [the archeological team] discovered some figurines in clusters of up to five that had been carefully cached between flat rocks by human hands. There were a total of over 160 figurines, most of which radiocarbon dated at 3,000 to 4,000 years. 384

379 Farley, In Plain Sight, 339.
380 Ibid., 340.
381 Ibid.
382 Paul S. Martin, Twilight of the Mammoths: Ice Age Extinctions and the Rewilding of America (Berkeley: University of California Press, 2005), 160.
383 Ibid.
384 Ibid.
As is shown by this reference, the split-twig figurines were carbon dated and they are definitely pre-Columbian and within the period where there were supposed to be no horses in the Americas. In addition, archeologists found no evidence that Stanton Cave was ever lived in. For example, there were “no hearths, no kitchen middens containing bone scraps, no stone knives or scrapers … [or] pottery shards” found.  

This fact would imply that the cave was likely used for sacred and ceremonial purposes. Although it is possible that these figurines were indeed replicas of an “extinct goat” whose remains were also found in the cave, as these scientists presume, the long neck and proportions look more like those of a horse than a mountain goat or sheep. In addition, the figurine does not have horns, as do sheep, goats, and male deer. For comparison purposes, underneath the image of the split-twig figurine (Figure 6) I have included images of the San Clemente goat (Figure 7), a primitive goat that was found in the San Clemente islands off the coast of California, as well as a churro sheep (Figure 8), which the Diné (Navajo Peoples) claim was Indigenous to New Mexico.

Figure 6 Split-twig Figurine from Stanton’s Cave.  
(Photo from Arizona State Museum)  

\[385\] Ibid. 

\[386\] Ibid., 161.
Figure 7 Photo of San Clemente Goats. 387

Figure 8 Photo of Churro Sheep Ram. 388

In addition to petroglyphs, pictographs, geoglyphs, and figurines, carvings of horses on pre-Columbian structures also exist. Milton R. Hunter addresses the presence of a carving that he describes as "a clear representation of a horse" with a person. This carving, presented in the photograph below (Figure 9), is etched into the Mayan Temple of the Plaques at Chichén Itzá in the Yucatán.

![Figure 9 Representation of a Horse in Mayan Temple.](image)

In his book titled *Archeology and the Book of Mormon*, Hunter quotes his Maya guide as having explained the following about this carving:

Some of the most outstanding Maya scholars and archaeologists, such as Dr. J. Eric S. Thompson and Dr. Sylvanus G. Morley, date the erection of most of these buildings as Chichén Itzá at probably 1,000 A.D. If their dating is correct, in all probability this representation of the horse was carved about five hundred years before Columbus discovered America. It stands to reason that if these ancient Maya people had had no horses to observe they could not have carved a likeness of one on this building.

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391 Ibid., 7.
The data collected from the interview with Oviedo (Western Trained Scientist, Caretaker, and Scholar) collaborates the probability of Hunter’s claim that the horse was present and depicted within pre-Columbian Mayan society. Oviedo’s scholarly and professional focus has been in livestock reproduction for the past forty years. His education in this area is as follows a double major Bachelor’s degree in Animal Husbandry/Science from the University of Chihuahua, a Master’s Degree in Animal Reproduction from Universidad Internacional de Turrialba, Costa Rica, a doctorate in Reproductive Physiology from New Mexico State University, and a post-doctorate from Colorado State University. He is also an accomplished artist whose pieces are in major museums and collections around the world. As Oviedo’s family was one of the founders of the National Museum of Anthropology, as a young boy he spent a great deal of time with the museum curators. He can recall “horse-like figures” on the pre-Columbian monuments. He states as follows:

[My family] is European and married into the culture in Mexico. And before the Museo Nacional de Antropología there used to be museums all over Mexico. You want to see Toltecs? Ok, go to that museum, it’s on La Calle de Cinco de Mayo, or whatever. And you want to see some Huasteca, there are collections here and collections there. So, the Museo Nacional de Antropología put all those bits and pieces together and formed the museum... [the pre-Columbian cultures represented in this museum] have horse-like figures. Mostly like when you go from the Middle part of Mexico, and Baja California and thereabouts, there’s some cultures that have some. They are not detailed. If you want to see detailed, the only culture that did details around the world, to a really good point, is the Egyptians. The rest of the people, they have their own style and it’s kind of abstract ... they had monuments and those engravings. 392

Likewise, the data collected during the interview with Koskey (Academic Scholar, Western Trained Scientist, and Teacher) confirms not only that the Maya had pre-Columbian history that included the horse, but that they also left physical records of this relationship. Koskey has his PhD in Anthropology and has completed many years of fieldwork with and for a number of Indigenous cultures. Here, he details his discussion with a Maya man “Alejandro,” an “intelligent young man who was not very educated in the Western sense but very aware of his culture and the stories.” 393 Koskey worked alongside Alejandro at an archeological dig in Belize at a site called Caracol on the Guatemalan border. He recalls that they were discussing the

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392 Oviedo, personal communication, August 20, 2016.
393 Koskey, personal communication, October 18, 2016.
defensive fortification of traditional Mayan cities at the time of this exchange in 1987 or 1988 and states as follows:

... one of the things I said was that, “Wow, I bet these platforms,” because they would also build up sometimes ramparts in times of dire need on the platform so there was like a rampart down below, then a ditch and then the platform, which acted as a wall and then maybe another earthen rampart along that. And I said, “Boy I bet those Spaniards couldn’t use their horses to any advantage against something like this.” And he said, “No, especially since our people would meet them in the lowlands with our own horse-drawn warriors.” And I said, “But there were no horses here.” He just kind of smiled and looked at me and said, “Well, of course there were horses here.” And I said, “Well, that’s odd because most anthropologists and biologists ... think that there were no horses here.” And he said, “Well, there weren’t many but they were here.” And this was in a jungle, it was not like this was the Great Plains or something like this, or the Pampas or something like that. This is not like “prime horse country.” Now, at the time ... I dismissed it, I blew it off. I didn’t say, “Oh, you’re wrong.” But I just thought, “Well, okay.” Me being young and Western and the arrogance that comes with ... things like that I just thought, “Well, he’s just not educated. I am, I know, he doesn’t know.” End of story, and I didn’t think about it again for years and years and years. 394

Koskey explains that “the thing [he] did best in archeology in the days before digital cameras ... was being able to precisely draw what [he] was finding.” 395 This included the reconstruction of bowls from pottery shards and 3-D maps of rooms using graph paper, rulers, plum bobs and lines. He offers the following story of a vessel with a horse painted onto it that he found in a pre-Columbian Maya tomb, as well as his archeological team’s reaction to this finding. He states as follows:

I was drawing from a pot that we found in a tomb ... I was on top and I was digging and my hand falls through the floor of this noble’s house that we were working on. Again, with this guy Alejandro. And I was like, ok, too freaky. And I pulled my hand out and I’m like, “Ok, is this whole thing going to collapse?” Right, and I kind of shimmied back off of it. And of course, if it was a burial, we had to call the professors who gave themselves the authority as to whether or not we were going to go move on. It was in the 1980s before the local people decided, you know, as it is today. And so, they came in there. Because I was the one who “discovered it.” I was the one allowed to go down into the tomb with the [lead] archeologist ... So, down there, like in some of the other burial areas that we found, they always had bones and vases and things like that. And so, this vase, for lack of a better term, I’m not sure what it would actually be called maybe but they called them all vessels. It just means something that carries something, right? And so, there would usually be a block, a ledge, and that was the bed. And then there would be a person on that ledge, and that was usually the eldest person buried on a particular tomb, and then the others would be laid out on the floor and so forth, and vases would be

394 Ibid.
395 Ibid.
put into these tombs. And then it would be closed off and a new house would be built on
top. And this would happen every few generations. A new house would be built and the
former house becomes the tomb for the next, you know, for the previous generations of
people. And so, on this, and these are vague memories ... things remembered in 1987, I
think or something like that. Maybe '88 ... on this vase, as on most of them, were painted
designs. These designs were usually pretty regular and they were always usually pretty
faded for obvious reasons. These were quite old. This stuff was anywhere from 800 to
1200 years old usually. And on this one vase that was broken, a lot of times you would
find things broken, even bones sometimes would be moved and scattered. How, I don’t
know, but somehow ... And so, I was drawing this one, and there was this quadruped,
let’s just say that, on the vase, that you know, after spending many months in the jungles
of Belize and Guatemala, I’d never seen anything like this. OK, there were no buffalo, or
bison, there were no large deer, or other kinds of bovine-type creatures. The only things
that were horse-like were, well, horses, mules, donkeys. Ok, burros, of course ... And the
only thing that that animal could have represented in my head was a horse ... the
dimensions, the head, the elongated face, these kinds of things ... This looked like a four-
legged, well, it looked like a horse. I can’t say that it was; I can’t prove that it was. When
I did make the one mention of it, the graduate student who was overseeing the lab as I
was working ... I said, “It looks like a horse, it’s got to be a horse.” And I was basically,
you know, she was older and was a grad student and I was an undergrad, and she was
like, “There were no horses here. Horses were all extinct by the time that Europeans
came.” And I thought, “Well, this is from well before Europeans came. How do we know
when they went extinct?” You know, I was young and I didn’t talk back, so to speak, and
so that was the end of that ... This was a four-legged creature, and this four-legged
creature did not have the proportions of any four-legged creature that I know of beside a
horse.”

6.3 Fossils Remains

As outlined earlier within this paper, up until the mid-1800s the dominant Western
culture claimed that there were no horses – and had never been any horses – in the Americas
prior to the arrival of the Spanish to the Caribbean Islands in 1493 and to the mainland in 1519.
In fact, it was not until Joseph Leidy’s work titled On the Fossil Horse of America was published
in 1847 that Western Academia began to accept the idea that the horse had existed on the North
American continent before the arrival of the Spanish conquistadors. However, upon this
acceptance, they became adamant that the extinction of Equus in the Americas must then have
occurred many thousands of years prior to first European contact. They came to this new
conclusion without scientific proof. In the article “Meeting for Business, Sept. 28, 1847; On the
Fossil Horse of America; Description of New Species of Squalides from the Tertiary Beds of
South Carolina,” Joseph Leidy and Robert W. Gibbes describe Western Academia’s response to

396 Koskey, personal communication, October 18, 2016.
their findings and mention their perplexity regarding the conditions that would have caused *Equus* to become extinct in the Americas:

The fact of the existence of fossil remains of the horse in America has been generally received with a good deal of incredulity, arising perhaps, from the mere fact being stated of there having been found, often without even mentioning the associate fossils, and in all cases, previous to Mr. Owen, without describing the specimen. At present their existence being fully confirmed, it is probably as much a wonder to naturalists as was the first sight of the horses of the Spaniards to the aboriginal inhabitants of the country, for it is very remarkable that the genus *Equus* should have so entirely passed away from the vast pastures of the western world, in after ages to be replaced by a foreign species to which the country has proved so well adapted; and it is impossible, in the present state of our knowledge, to conceive what could have been the circumstances which have been so universally destructive to the genus upon one continent, and so partial in its influence upon the other. 397

Indeed, only a decade earlier, naturalist Charles Darwin also found fossil remains of the horse together with mammoths in what is now Buenos Aires in Argentina, South America. John Van Wyhe’s work titled *The Complete Work of Charles Darwin Online* explains the following regarding his experience:

He could not excavate the case from the bed which was “unquestionably ... above the limestone” but in compensation he “found tooth of horse,” ... This was a puzzling find. It was believed at the time that there had been no horses in the Americas before Europeans brought them over in the sixteenth century. Darwin wondered if the tooth had been “washed down”? ... This little tooth had great significance for Darwin...the state of preservation – “compelled” him to believe that the horse was contemporaneous with the extinct *Mastodon*. Owen, in *Fossil Mammalia*, was able not only to confirm that Darwin had indeed found remains of Mastodon, but also that the horse tooth, and the one he found in Darwin’s collection from Punta Alta, was a pre-Columbian *Equus curvidens*, proving that horses had existed but gone extinct in the Americas before re-introduction from the Old World. 398

However, the power of the Western claim that there were no horses within the Americas before the arrival of the Spanish was hypnotic. Even Darwin, himself, returned to this as his reference point despite the fact that the data he gathered from the above discovery proved the pre-Columbian existence of the horse, not its extinction. However, the same issues confused him

as had perplexed Liedy. What would have caused the horse to become extinct, especially when
the population of horses that were brought over by the Spanish seemed to explode at an
unprecedented rate due to the favorable environmental conditions? As Darwin’s quest for
answers had no logical conclusion, the mystery regarding the horse in the Americas led to his
development of a new theory regarding extinction. Van Wyhe states as follows:

Thus extinction for Darwin in *Origin* was merely what happens when the number of
organisms in a species dwindles to an unsustainable level due to unfavorable conditions
of life (he did not complicate the discussion by mentioning “pseudo-extinction,” when
one species has evolved into another species and therefore ceases to exist.) Furthermore,
Darwin argued, it is usually impossible to be sure exactly when the unfavourable
conditions were, and this argument must apply in the case of the horse in pre-Columbian
America. In other words, Darwin had come to accept Lyell’s gradualistic view of
extinction, in which the case of the horse in America was not unexpected.

However, there are early instances where Western-trained scientists published their
conclusions that the horse, in fact, had not become extinct in the Americas during the last Ice
Age. This was based upon records that were kept from some of the very first explorers. An
example of this can be found in the article titled “The American Horse” by E. L. Berthoud in
1881 within the *Scientific American Supplement*, Vol. XII. Here he speaks of a map created by
the Venetian explorer Sebastian Cabot, “*Piloto Mayer*” of Charles the Fifth, King of Spain. He
explains as follows:

This map, drawn in a circular projection by Cabot himself, on which he has delineated his
own and the discoveries of John Cabot, is of singular value as representing the true state
of geography and discovery in the early portion of the sixteenth century, and was drawn
prior to the year 1546-47 ... Now it is an incontestable fact that Cabot went in 1527 to the
east coast of South America on an exploring voyage, that he discovered the rivers La
Palata and Panina, and explored them some distance inland, returning to Spain in 1530 ...
in addition he has marked on the map pictures of the natives, prominent animals, and
some trees, and that at the head of La Plata, with the Puma and the Parrot, or perhaps the
Condor, he has given the horse as apparently a quadruped that existed then in those vast
plains of the Gran Chaco, where today they roam in countless herds. It may be claimed
that this is not proof of their native origin; but we claim that it is a fair presumption, for
neither Spaniards in Peru or other parts of America, nor even Portuguese, had been long
enough in South America for the few Spanish horses introduced to have roamed wild
from Peru to the head of Paraguay and Parana rivers, and increased in numbers
sufficiently to have attracted the attention of the Spanish explorers. The period was too
short and the distance too great from the Spanish possessions in Peru across the vast

399 Martin, *Twilight of the Mammoths*, 194.
forests of the Andes, for such a rapid increase. We can reconcile this discrepancy only by believing that the paternity of the vast herds of the Argentine Republic and of Paraguay was a native breed of America horses; mixing afterward with the Spanish breed introduced by the conquerors.\(^{401}\)

![Figure 10: Detail of Cabot's map (1533).](image)

This claim that "certain wild horses found in the Argentine in 1530 could not have been introduced, and must have accordingly been indigenous" was also cited in Lydekker's encyclopedic book series titled *The New Natural History*. However, he immediately follows such mention with this sentence: "...there is no evidence to show that the horses in question were identical with *E. caballus*, of which fossil remains appear to be unknown in the New World south of Alaska."\(^{403}\) He quickly circles back to the fact that fossilized horse remains are "common in the brick-earths, cavern-deposits, etc. of England and the Continent."\(^{404}\)

However, data collected from the interview with Oviedo (*Western Trained Scientist, Caretaker, and Scholar*) supports the likelihood of Sebastian Cabot's claim that the horse already existed in the Americas upon his arrival in South America. As quoted in Chapter 4 he described the "*Ganado Caballar,*" or "horse-like livestock" that he observed as a child in Veracruz, Mexico. He recalls as follows:

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\(^{404}\) *Ibid.*, 492.
We were ... passing these patches of jungle and patches of coffee plantations and and I saw these little horses. They looked like goats ... And I asked my uncle who was a horse person, my Tio Ernesto, what kind of animal [it was]? He said it’s Ganado Caballar. He didn’t put it like horses, he put it like it’s a cattle-type of horse, Ganado Caballar. It’s hard to translate but they’re wild. Like I say, they’re too little, we cannot use it to work or anything like that, but they’re wild there. You can hunt there or something like that, but we don’t hunt them. They just live there. So, that was the first time I understood that there was a totally Native wild horse and this was like in 1956, or something like that. Yeah, 1955, ’56, ’57 I went looking for these and they were in the brown colors, all the time with stripes in the legs or on the top. Coarse hair ... You’re talking about an animal that is less than 13 hands. 405

Throughout the text by Francis Augustus MacNutt titled De Orbe Novo: The Eight Decades of Peter Martyr D’ Anghera, the Chronicler for the King of Spain writes of the time period in the Americas that covered the early accounts to 1600 – the beginning years of the conquest. Throughout this text he notes the presence of quadrupeds. When asked whether the “Ganado Caballar” could have been these quadrupeds to which the Chronicler referred he explained as follows:

Yeah, it feels like the same thing ... My uncle never said they were horses, they say instead of “quadrupeds” like you are using ... they say “Ganado Caballar.” You know, it’s another type of cattle. “Ganado” is cattle or ... Something like that but he never said they were horses ... They were horses for sure. I saw those things very close. I spent my vacations when I was little I would just go over there and sit almost immobile until my legs were totally asleep and see those things close, they were little horses... [But] no, the [Spanish didn’t] know what they were because I talked to different people, like the professional people that put the museum de Antropologio en Mexico [together]. One of my aunts was one of the founders. And there was this guy that knew a bunch about the conquista and he said the conquistadores were noisy people. With all that protection on the horses and all those stirrups and helmets and everything they make a racket so everything moved out. So, I really doubt that these people saw those things really close. 406

Shortly after the publication of Berthoud’s article in the Scientific American Supplement in 1881, the book titled The Hill-Caves of Yucatan: A Search for Evidence of Man’s Antiquity in the Caverns of Central America was also published. It is a compilation of Henry C. Mercer’s archeological explorations on behalf of the University Museum, University of Pennsylvania in 10 of the 29 “large, dry caves in a small range of hills in Central Yucatan.” 407 His intent was to

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405 Oviedo, personal communication, August 20, 2016.
406 Ibid.
“determine whether the Yucatan had ever been occupied by any people other than the Maya.” \(^{408}\) Mercer describes the purpose of his research as follows:

If these caves, as Professor Heilprin informed us, contained aboriginal carvings on their walls, and showed signs of human habitation on their floors, they would by all past experience, and better than speculation from Spanish chronicles, answer the first question we asked[.] How long had man lived in the Yucatan? \(^{409}\)

Mercer and his team’s excavation of these caves yielded horse remains, such as “horses’ teeth” \(^{410}\) …and “[the] first phalanx,” in deep layers within two caves. \(^{411}\) This, along with the type of “rarer pottery” (cave 1) and “frequent polished potsherds of fine make” (cave 2) that were found within those same layers, would indicate a pre-Columbian time period when the Indigenous Peoples of the area and the horse were together. Instead, Mercer deduces that “fragments of horse-teeth probably indicat[e] European contact” \(^{412}\) (cave 1) and that “the horse, under the circumstances, must have been modern and Spanish.” \(^{413}\) (Cave 2) Due to the fact that correct dating technology was not available at that time, these remains were not dated.

In his book titled *Faunal and Archeological Researches in Yucatan Caves*, Hatt continues on from where Mercer “left off” by creating a detailed cataloguing and report of the excavations that he and his team performed in Yucatan caves during 1929 and 1947. He too located *Equus* remains. However, as he had not scientifically dated the remains, he does not make a final determination as to how the presence of *Equus* does or does not affect the archeological site. He states the following:

The only pre-Conquest qualitative faunal changes indicated in the cave deposits are the disappearance of a ground sloth (*?Paramylodon*), a tree rat (*Tylomys*), and a horse (*Equus ?conversidens*) … Each of these animals is represented only in a deposit unassociated with evidence of man, and their disappearance from the fauna may have long antedated the arrival of man. The horse, from deposits which contain potsherds and an ox bone, but possibly as intrusive, is identified on material too inadequate to permit generalizations, but if it is correctly identified as a pre-Columbian horse, it suggests not only a more open vegetation but also a very early date for its occurrence, since the Maya did not represent


\(^{409}\) Ibid., 40.

\(^{410}\) Ibid., 69.

\(^{411}\) Ibid., 40.

\(^{412}\) Ibid., 69.

\(^{413}\) Ibid., 69.
horses in their sculpture or paintings, and had no knowledge of horses at the time of the Conquest. 414

However, further investigation and analysis was performed at the site of Mayapan on the Yucatan Peninsula, which dates to a few centuries before the Spanish arrived, and the cenote Ch’en Mul. Below, it has been confirmed that some of the horse remains discovered were likely, in fact, pre-Columbian as the two horse teeth were “in the bottom stratum in a sequence of levels of unconsolidated earth almost two meters in thickness … [and] partially mineralized, indicating that they were definitely ancient and could not have come from any Spanish animal” 415 (Journal of Book of Mormon Studies, 2001). Clayton E. Ray’s article in The Journal of Mammalogy states the following regarding these findings:

It is now possible to report horse remains of probable pre-Columbian age from a new locality in the Yucatan. This material consists of one complete upper molar and 3 fragmentary lower molars, all preserved in the Museum of Comparative Zoology (Cat. No. 3937). The teeth consist of part of a large collection of vertebrate remains obtained by archeologists of the Carnegie Institution of Washington during excavation of the Mayan ruins of Mayapan, Yucatan (20°38’ N., 89°28’ W.). This collection was submitted to the author for identification, and a checklist of the material is in preparation. The horse teeth were collected in cenote Ch’en Mul (Section Q, topographic map of the ruins of Mayapan, Jones, Carnegie Inst. Washington, Dept. Archeology, Current Rept. 1, 1952) from the bottom stratum in a sequence of unconsolidated earth almost 2 meters in thickness. As in the deposits reported by Mercer and Hatt, pottery occurs throughout the stratigraphic section. The horse teeth are not specifically identifiable. They are considered to be pre-Columbian on the basis of depth of burial and degree of mineralization … It is by no means implied that pre-Columbian horses were known to the Mayans, but it seems likely that horses were present on the Yucatan Peninsula in pre-Mayan time. The tooth fragments reported here could have been transported in fossil condition as curios by the Mayans, but the more numerous horse remains reported by Hatt and Mercer (if truly pre-Columbian) could scarcely be explained in this manner. 416

As Farley’s life’s work focused specifically on the pre-Columbian presence of horses in the Americas (specifically North America), she provides a number of examples to show the difficulty involved in getting scientists to stop deferring to past authority and open their minds to the possibility of allowing the data to tell a fuller story of the history of the horse in the

414 Hatt, Faunal and Archeological Researchers, 46.
Americas. To illustrate her point, she includes the discovery of a horse skull in a pre-Columbian Wisconsin Indian burial mound in 1956. She explains as follows:

Five workers at the site testified the skull was inclusive, that is, it was buried with the rest of the original material and could not have been introduced to the site later. But this evidence was clouded several years later by the statement of a man who said he had “planted” the horse skull in the mound in 1928. He also said that this skull had no lower jaw. But the excavated skull had “a lower mandible, tightly articulated with the cranium,” according to the archeologist who made the excavation. Scholars proposed to settle the issue by carbon-14 dating. Testing was performed by two universities in 1964. Interested parties waited two years for the report. But when it was released, it gave only the dates of charred wood and bone found in the mound as 490-1100 A.D., and 750-900 A.D., respectively. A professor at one of the universities speculated that the omission occurred because the skull was thought to be a hoax. Mertz concludes that one must either assume that there were two skulls in two mounds, or that one skull had grown a jawbone between 1928 and 1936. It is her opinion that the incomplete reports were based on the premise that for thousands of years prior to Spanish Conquest horses did not exist in America. 417

However, there have been modern discoveries that have compelled archeologists to pause and “take a second look” because the timeframe determined scientifically and the surrounding clues clearly do not match the dominant culture’s version of history. An example of this occurred in Carlsbad in 2005 when archeologists unearthed and radiocarbon dated a nearly intact skeleton of a horse that “may have lived and died 50 years before the Spanish began their conquest of California” and had been buried ritualistically. 418 The article titled “Centuries-old Bones of Horses Unearthed in Carlsbad” by Philip K. Ireland states as follows:

The finds are significant because native North American horses were thought to have been extinct more than 10,000 years ago, and the remains are older than the recorded conquests by the Spanish ... Radiocarbon dating of 340 years, plus or minus 40 years, puts the death of the horse sometime between 1625 and 1705 ... therefore the horses died at least 50 years before San Diego Mission de Alcala, the first of the California missions, was founded in 1769 ... the bones of the horses and the donkey showed no signs of having been shod, an indicator that the horses were not brought by the Spanish, who fitted their horses with iron shoes. 419

417 Farley, In Plain Sigh, 340.
419 Ibid.
Other instances where carbon dating was utilized to test the age of horse bones occurred in a study led by Dr. Steven Jones, Professor Wade Miller, Joaquin Arroyo-Cabrales, Patricia M. Fazio, and Shelby Saberon. In this study, Accelerator Mass Spectrometer (AMS) dating methods were utilized. “The goal was to provide radiocarbon dates for samples that appeared from depth and other considerations to be pre-Columbian” \(^{421}\) The following independent laboratories were utilized to conduct the AMS dating process: Stafford Laboratories in Colorado, the University of California at Riverside, and Beta Analytic in Miami, Florida. According to Jones the following samples of *Equus* that were found in North America were verified as being within the time frame

\(^{420}\) Ibid.  
\(^{421}\) Jones, "Were There Horses in the Americas Before Columbus?", 1.
that extends from 10,000 BP (after the last Ice Age) to 500 BP (when Spaniards began bringing horses to the Americas):

The first of these was found in Pratt Cave near El Paso, Texas, by Prof. Ernest Lundelius of Texas A&M University ... [He] provided a horse bone from Pratt Cave which dated to BC 6020-5890. This date is well since the last ice age, into the time frame when all American horses should have been absent according to the prevailing paradigm. Another Equus specimen was identified by Elaine Anderson, an expert in Equus identification, at Wolf Spider Cave, Colorado. It dated to AD 1260-1400, again clearly before Columbus... Dr. Fazio ...alerted us to a horse bone found at Horsethief Cave in Wyoming which dates to approximately 3,124 BP, i.e., 1100 BC, using thermoluminescent methods. We attempted to have this bone re-dated using the AMS methods which are more accurate, but there proved to be insufficient collagen in the bone to permit AMS dating. The 1100 BC date (although approximate) still stands. 422

Another modern Equus discovery in which the horse remains that were scientifically dated fell within the supposed “extinction period” occurred with the uncovering of a horse skeleton in Southwestern Wyoming which appeared to be partially buried by Native Peoples. In the article “An Early Historic Period Horse Skeleton from Southwestern Wyoming” by David Eckles, Jeffrey Lockwood, Rabinder Kumar, Dale Wedel, and Danny N. Walker, the remains of a single horse were discovered in an area that also contained other prehistoric remains. However, as the radiocarbon dates do not match up with the dates that Spanish horses could have possibly made their way to Wyoming from Mexico, they interpret their findings to match the Western Academic version. They explain as follows:

These radiocarbon dates place the horse skeleton at a very early age for modern horses to have been in Wyoming. The range of dates suggested is between A.D. 1426-1481 (one standard deviation) and A.D. 1400-1633 (two standard deviations) ... The “modern” bone date suggests an age less than 300 years (less than A.D. 1650) but bone tends to date younger compared to other materials. 423 Given the history of European exploration and settlement in North America after 1492, it is next to impossible to expect horses to have been present in Wyoming before the major Spanish exploration in the Southern Plains of the mid 16th century or even the Spanish settlement in New Mexico in the early 17th century ... Therefore, it may be concluded that the more accurate date of these horse remains is toward the end of the documented radiocarbon age, i.e., the mid-1600s. 424

422 Ibid.
As was mentioned in a previous chapter, scientific evidence of Equus was also found during the proposed extinction period in a study called *FAUNMAP: A Database Documenting Late Quaternary Distributions of Mammal Species in the United States*. This study, headed by Graham and Lundelius, Jr., was published by the Illinois State Museum in 1994. Its purpose was to create a “synthetic database ... to document the late Quaternary distribution of mammal species in the 48 contiguous states of the United States for the last 40,000 years.” 425

Scientific evidence of Equus remains were found in a variety of soil and fossil samples taken at various archeological sites throughout North America outside of the time periods accepted by Western science. These sites were located in the following states: Arizona, Colorado, Georgia, Kentucky, Montana, North Dakota, New Mexico, New York, Ohio, South Dakota, Washington, and Wyoming. Interestingly, researchers later categorized many of these findings of Equus as “OUT”, which they define to mean “unit of finding questionable.” 426

However, the following findings of Equus are categorized as “IN”:

Data base No. 494, site name “Amahami”, HIHO (0-4500 B.P.), location, North Dakota;
Data base No. 419, site name “H.P. Thomas”, HIHO (0-4500 B.P.), location, South Dakota. 427

There were eight findings of Equus during the LHOL (Late Holocene Period), (450-4500 B.P.); seven findings in the HIHO (Post Columbian/Late Holocene Period), (0-4500 B.P.); two findings in the MHOL (Middle Holocene Period), (3500-8500 B.P.); and three findings in HOLO (0-10,000 B.P.) The findings later defined as “OUT” meaning “unit or finding questionable” are as follows:

Data base No. 1187, site name “Awatovi”, HIHO (0-4500 B.P.), location, Arizona; Data base No. 1145, site name “Ventana Cave”, LHOL (450-4500 B.P.), location, Arizona; Data base No. 1145, Site name “Ventana Cave”, HIHO (0-4500 B.P.), location, Arizona; Data base No. 593, Site name “Fort Davy Crockett”, HIHO (0-4500 B.P.), location, Colorado; Data base No. 610, site name “Kin T'l'ish”, LHOL (450-4500 B.P.), location, Colorado; Data base No. 667, site name “Long House” LHOL (450-4500 B.P.), location, Colorado; Data base No. 599, Site name “Merino”, LHOL (450-4500 B.P.), location, Colorado; Data base No. 2325, site name “Cemochechobee”, LHOL (450-4500 B.P.), location, Georgia; Data base No. 806, site name “Big Bone Lick Ken-1”, HOLO (0-10,000 B.P.), location, Kentucky; Data base No. 588, site name “Blacktail Cave” MHOL (3500-8500 B.P.), location, Montana; Data base No. 374, site name “Hoffer”, HIHO (0-4500 B.P.), location, Montana; Data base No. 576, site name “Shield Trap”, LHOL (450-

425 Graham and Lundelius, Jr., *FAUNMAP*, 3.
426 Ibid.
427 Ibid.
4500 B.P.), location, Montana; Data base No. 1473, site name, “Navajo Reservoir Site LA 3430”, LHOL (450-4500 B.P.), location, New Mexico; Data base No. 2137 site name “Dutchess Quarry Cave”, HOLO (0-10,000 B.P.), location, New York; Data base number 2352, Site name “Kettle Hill Cave” HOLO (0-10,000 B.P.), location, Ohio; Data base No. 959, site name “Ft. Randall Historic Site”, LHOL (450-4500 B.P.), location, South Dakota; Data base No. 1424, site name “Chief Joseph Dam Site 450K258”, HIHO (0-4500 B.P.), location, Washington; Data base No. 235, site name “48 UT370”, MHOL (3500-8500 B.P.), location, Wyoming. 428

The methodology these researchers utilized regarding the selection of the age categories for each sample is described as follows:

Evaluation of, and decisions about, assignment of an Analysis Unit to a temporal category in Resage were not always straightforward. If an Analysis Unit was predominantly incorporated in one Resage category but overlapped slightly with another, it was necessary to decide whether it should be assigned to the predominant time category or whether it should be lumped into both categories. For example, if an Analysis Unit had minimum and maximum ages of 2100 years B.P. and 4300 years B.P., respectively, it was predominantly in the Late Holocene but overlapped slightly with the Middle Holocene. To resolve these issues, it was decided that the overlap was less than 500 years, then the Analysis Unit would be assigned to the predominant category (e.g., Late Holocene in this case). If the overlap was greater than 500 years, then the Analysis Unit was referred to a combined time category (e.g., Late/Middle Holocene). For the boundary between the Post-Columbian and Late Holocene, an overlap of 50 years was used. 429

In the article titled “Canada’s Last Wild Horses,” Dr. Robert M. Alison also references the following fossil finds that fall outside of the Western Academic proposed extinction period. He states as follows:

… a bone found near Sutherland, Saskatchewan, at the Riddell archeological site suggests some horses might have survived much later [than the proposed extinction period]. The bone (Canadian Museum of Nature I-8581), has been tentatively dated at about 2900 years ago. Another Equus sp. Bone, found at Hemlock Park Farm, Frontenac County, Ontario, dates to about 900 years ago. Exhaustive confirmation of both bones has yet to be completed, but if they prove to be authentic, they comprise evidence that horses survived in Canada into comparatively modern times. 430

In his article titled “The Horse and Burro as Positively Contributing Returned Natives in North America,” Downer also highlights examples of fossil evidence to support the idea that

428 Ibid.
429 Graham and Lundelius, Jr., FAUNMAP, 25.
horses did survive the Ice Age in the Americas. Downer highlights scientific dating performed at the Shield Trap fossil site located in Carbon County, Montana. He explains as follows:

Here four strata have been excavated. In Stratum I, part of the late Holocene period, carbon dating from bone collagen samples (collagen consisting of the fibrous albuminoid component of bone) from two different horses has yielded precise edge dates of 1745 and 1270 YBP [years before present]. In stratum II, dating between 5490 and 2185 YBP, four different individual horse dates have been obtained. Three of these were again obtained from bone collagen, as well as from cartilage and other connective tissue types. These dated at 3190, 2675 and 2185 YBP. A fourth horse C-14 dating was done from charcoal associated with the fossil and produced the extraordinarily young date of 620 YBP, indicating the distinct possibility of horse presence in North America just over a century prior to Columbus’s arrival in America ... In Stratum III of the Shield Trap fossil site, seven C-14 datings again reveal horse presence at later dates than is recognized by mainstream paleontology. Stratum III extends from 7540 to 5490 YBP and is in the Middle Holocene period. C-14 dates obtained from charcoal from five horses yielded dates of 7540, 7540, 7540, 7165 and 7165 YBP, while the two horse fossils that were C-14 age dated from bone collagen yielded 7245 and 5490 YBP. The 5490 YBP age dating is remarkable and substantiates a later survival of the horse in North America ...  

These dates “indicate a much wider horse distribution and at much later dates than is commonly accepted by mainstream paleontologists today.” Given this, Downer concludes as follows:

The horse fossil series at Shield Trap gives solid evidence for continuous horse lineage from the time of the “Great Die Out” at the close of the Pleistocene to modern times, i.e., after the advent of Columbus and the European colonization of the Americas.  

6.4 DNA Analysis and Other Genetic Work

There have been a great many technological advances within Western science since Dr. Leidy’s publication regarding the finding of Equus fossil remains in North America in 1847. These advances have the potential to open a world of possibilities with respect to deconstructing – and reconstructing - the history of the horse in the Americas. Yet, very little attention and/or resources from the Western scientific community have been directed toward this endeavor.

In fact, in their work titled Horse Genetics, 2nd edition, Bailey and Brooks are clear that no matter how “rapid” technological advances may be, further research cannot be conducted unless it can be financially supported. They explain that currently the majority of equine genetics

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431 Downer, “The Horse and Burro,” 3-4.  
432 Ibid., 4.  
433 Ibid.
research has been focused on identifying “coat color genes” and identifying equine markers for speed, as breeders and wealthy horse owners have been willing to fund such research to date. Clearly, although the impetus to support the research and “ask the question” is present for personal reasons, the scientific research outcome, when executed objectively, “is what it is” and the data can be used to progress in the field. Here, they address this topic and encourage horse owners to continue to support such research being done:

The techniques for investigating DNA continue to evolve. The methods used two years ago have been replaced. The methods we use today are likely to be eclipsed by newer, less costly approaches. Science technology moves rapidly... Tests have been developed and will continue to be developed, for a wide range of traits. So far, many of the traits have been coat color genes. The genetics of coat color are well understood and breeders are interested in having such tests. With the current interest in genetics and the new technologies available for looking at genes at the molecular level, information about the inherited traits of horses is likely to increase significantly in the next decade. Horse owners can help with the process in several ways, including communication with granting agencies about specific problems of interest to them, providing money to fund the research, and providing information and tissue samples to funded research studies.

Indeed, this is corroborated throughout the book edited by Bhanu P. Chowdhary titled *Equine Genomics*. He states the following:

While sitting in a researcher’s chair, it would be easy for me to glorify the work of my colleagues worldwide and attribute the success to them. However, in all honesty, the credit goes much beyond this small, yet dedicated, group. The progressive community of horse owners, the scientifically demanding yet generous funding agencies — federal, state, and private — the ever approachable and helping clinicians, the increasingly open-minded breed association, the highly supportive foundations, and the unrelenting horse enthusiasts worldwide have played a vital role in converting the ‘unthinkable’ into ‘possible.’

In their book titled *Horse Genetics*, Bailey and Brooks offer a concise summary of the evolution of technology with respect to the fields of equine genetics and genomics. They state as follows:

The Human Genome Project began in 1990 with the goal of sequencing all of the DNA that exists in a human cell by 2005. It was a bold plan ... The technical challenges were awesome. The capacity to organize and sequence 3 billion bp of DNA did not exist; the amount of information generated would exceed the capacity of computers and computer programs to analyze and organize. Clearly the initial task for the human genome project

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435 Ibid., p. 145.
was to invent new technologies. By 1997, only 3% of the human genome had been sequenced. However, DNA sequencing machines were invented through the process that led to completion of the first draft by 2001, and the entire project by 2003, some two years ahead of schedule ... Once the human genome was sequenced, however, scientists realized that unless they had something with which to compare their human genome sequencing information, they could not decipher its meaning. Therefore, they made the decision to turn their resources toward mapping other mammals ... In October 1995, a horse genome mapping workshop was held in Lexington, Kentucky to make a plan for mapping the horse genome – the Horse Genome Project. At the time, no single laboratory had the resources to map the horse genome. Therefore, a group of approximately 100 scientists from 25 laboratories around the world met at annual workshops, shared information, and methodically created a map that led to many discoveries that are part of this volume ... [Finally,] ... The horse genome was sequenced at the Broad Institute of MIT and Harvard at Boston, Massachusetts as part of a project by the NHGRI. A Thoroughbred mare, named Twilight, was chosen for genome sequencing. Twilight was part of a research horse herd at Cornell University in New York State...  

Despite not having firm, scientific proof, Western science and academia are still adamant regarding their claim that the indigenous horse of the Americas became extinct during the Wisconsin Glaciation period. Yet, it is clear that the “how and why” of this extinction still eludes them. Examples of this are found throughout this paper. Bailey and Brooks also refer to this conundrum:

... *Equus* became extinct in the Americas about 12,000 years ago but continued to live on the Eurasian and African continents ... It is unknown why all of the representatives of *Equus* became extinct in North America but continued to live elsewhere, although species of *Equus* were among many large mammalian species that perished in the same period. Both climate change and predation by people are suspected.  

Despite the fact that this “theory of extinction” is not scientifically supported, most scientific researchers continue to utilize this theory as a base-line for their studies. Ernest Bailey and Matthew Binns preface their scientific findings with the following within their article titled “The Horse Gene Map”:

The horse evolved in North America approximately 3.5 to 5 million [years] ago and migrated to the Asian/European continent across the Bering Strait before becoming extinct in the Americas between 20,000 and 10,000 years ago.  

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438 Ibid., 3.
The donkeys populating North America today are descendants of those reintroduced from Europe, Africa, and Asia over the last 500 years. \(^{440}\)

To date, Western scientists have expressed difficulties in locating *Equus* fossils (of the time period in question) that have enough collagen available to genetically test. \(^{441}\) Yet, some scientists have developed methods to date genetic remains that may prove revolutionary. By collecting and analyzing soil samples, scientists in a 2009 Yukon-based study aimed at understanding more about extinction showed that "ancient American horses may have been grazing the North American steppe for several thousand years longer than previously thought." \(^{442}\) As is explained in the article titled "Mammoths Hung on Longer? Late-surviving Megafauna Exposed by Ancient DNA in Frozen Soil," scientists now have "a way around" the challenge of finding well preserved fossil samples that they can test:

...hard remains of animals are rarely preserved, difficult to find, and laborious to accurately date because of physical degradation. Because of this ... [key scientists in this study] decided to tackle the problem by dating the "last survivors" through dirt. Frozen sediments from the far north of Siberia and Canada can preserve small fragments of animal and plant DNA exceptionally well, even in the complete absence of any visible organic remains, such as bone or wood. In principle, you can take a pinch of dirt collected under favorable circumstances and uncover an amazing amount of forensic evidence regarding what species were on the landscape at the time," says Willerslev, director of the Centre for GeoGenetics at the University of Copenhagen. "The use of ancient DNA offers the possibility of being able to sample previous life within the last 400,000 years, freeing us from having to rely on skeletal and other macrofossil evidence as the only way to collect information about species that are no longer with us." \(^{443}\)

The methodology utilized within this study, and their findings are explained in the article. It states as follows:

In order to prospect for genetic fossils, the team collected soil cores from undisturbed Alaska permafrost. Wind-blown Stevens Village, situated on the banks of the Yukon River, fit the bill perfectly. Here sediments were sealed in permafrost soon after deposition. Two independent methods (radiocarbon and optically stimulated luminescence) were used to date plant remains and individual mineral grains found in the same layers as the DNA ... the oldest sediments, dated to about 11,000 years ago, contain

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\(^{443}\) Ibid.
remnant DNA of Arctic hare, bison, and moose; all three animals were also found in higher, more recent layers, as would be expected. But one core, deposited between 7,600 and 10,500 years ago, confirmed the presence of both mammoth and horse DNA.444

In fact, as scientists become more knowledgeable about working with DNA, their findings could hold the key to this “mystery.” As the article by Dan Cossins titled “Horse Genome is the Oldest Ever Sequenced” highlights, the preservation power of the Yukon permafrost, again, enabled researchers to take their genome sequencing work to a new level. He states as follows:

Researchers have generated a complete genome sequence from the bone of a horse that lived roughly 700,000 years ago ... The data represent[s] the oldest whole genome ever sequenced, almost 10 times older than the previous record ... In 2003, Orlando and colleagues unearthed a fossilized fragment of bone from the permafrost in the Yukon Territory, Canada. The bone turned out to be from the leg of a horse and was found to date from approximately 560,000 - 780,000 years ago ... For most researchers, however, the real significance of the study lies in the fact that it pushes the timeframe for paleogenomics back to almost 10 times. “Until this study, many experts would have thought it was impossible to recover a genome from a sample of this age because of the rapid degradation of DNA into ever shorter fragments that occurs following the death of an organism ... the main reason such a feat was possible is that the bone was buried in the extreme cold of the permafrost.”445

Although these researchers were initially most interested in determining whether genome sequencing could be conducted at all on such an ancient specimen, once it was completed they extended their work to provide comparisons. Researchers compared the above genome sequencing of a Middle Pleistocene horse with “a Late Pleistocene horse (43 kyr BP), and modern genomes of five domestic horse breeds (Equus ferus caballus), a Przewalski’s horse (E. f. przewalskii) and a donkey (E. asinus).” 446 These researchers did not compare any of these findings with any “breeds” that could be considered Indigenous American horses.

6.5 Summary

A relationship with the horse was - and in many cases, still is - a critically important life

444 ibid.
-Is-Oldest-Ever-Sequnced.

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element historically, culturally, and spiritually for many of the Peoples who are Indigenous to the Americas. Despite proof of this longstanding relationship, the dominant Western culture remains adamant that it is responsible for introducing the Indigenous Peoples of the Americas to the horse. This action has served as a fundamental attempt to diminish these Indigenous Peoples and their cultures by asserting a Eurocentric position of dominance. In making this claim, the dominant Western culture is saying: "Without us, you would not have these sacred and critical elements of your culture," and therefore, "Your culture is derivative of our own." The psychology behind such "factual redoing" combined with a compulsory educational system that teaches "Native history" through the eyes of the colonizer has had grave consequences for Indigenous American communities.

As this chapter has shown, cultural bias has significantly influenced scientific researchers from the 1800s to date. The Western paradigm regarding the history of the horse has so permeated the sciences that researchers appear to utilize the simple presence of the horse in petroglyphs, pictographs, geoglyphs, and fossils as a "dating tool" on par with radiocarbon dating and other scientific means of age identification. They are so comfortable with this, and it has become so accepted, that they openly make reference to it as part of their methodology in their articles, papers, and books.

Contrary to popular belief, the Native Peoples did leave evidence of their customs, beliefs, and lifestyle practices. These "clues" can be found in the form of petroglyphs, pictographs, geoglyphs, and figurines. Likewise, caves throughout the Americas hold evidence of ancient times and the creatures who walked the earth alongside the People. Perhaps the best way to end this chapter is with a traditional Lakota teaching gifted from Afraid of Bear-Cook during her interview. When asked about fossil remains of relatives such as the horse, she explained as follows:

... I have never heard of bones of horses being found, because the say that if they want us to find them, that we will. But they say that the bones of our Ancestors, all of creation, they say it’s powder. That’s the mantle of the earth, what they call the other surface. They said we have to go seven feet into that before we ever reach Earth Mother, because [those top layers are] the bones of our Ancestors.

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447 *We Are a Horse Nation.* Directed by Keith Braveheart and Jim Cortez, (South Dakota: Sinte Gleska University Media, 2014). Film.
Today, western scientists, such as Willerslev, and others are now learning what the Indigenous Peoples of the Americas have been teaching their children and grandchildren for hundreds and thousands of years. Indeed, the answers to some of Western science’s greatest questions regarding evolution, extinction, and history may lie within the top layers of sand, soil, and permafrost that cover our “Earth Mother.”