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Dinosaurs and Indians: Fossil Resource Dispossession of Sioux Lands, 1846–1875

Lawrence W. Bradley

Since the middle of the nineteenth century, vertebrate paleontological resources have been yet another natural resource dispossessed from the indigenous populations of the Great Plains. Geographic locations in the North American continental interior, including many Indian reservations, have been known to yield fossiliferous stratigraphic sequences. The founding fathers of American paleontology exploited the abundance of vertebrate fossils located in Indian country so that their respective careers, museums, and universities could progress. Such dispossession of vertebrate fossils from Native American treaty land has continued to the present day. In order to understand the present situation of fossil resource management practices on reservations, we must study the past history of interaction between early American paleontologists and the various tribes.

As I argue, the father of American paleontology, Dr. Joseph Leidy of the Philadelphia Academy of Sciences, enhanced his reputation by describing vertebrate fossils collected from indigenous treaty lands of the Sioux by well-known geologists and surveyors during the 1840s–1860s.¹ Funding for the fossil expeditions was provided by the United States government, while transportation of specimens and supplies was conducted by American railroad

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companies. O. C. Marsh of Yale Peabody Museum embarked on a series of fossil expeditions with students into Sioux hunting grounds and treaty lands during the 1870s. The Yale expeditions were accompanied by US military escorts and Indian scouts.² It is widely accepted in the field of paleontology that one of the greatest fossil collections in the world was collected during the Yale Peabody Museum fossil forays. Even though Marsh collected voluminous amounts of fossils from Indian country, he was a contradictory person who later advocated for Native American rights.

In recent times, paleontologists have gained considerable attention as they continue to find (and sometimes remove) fossils found on Native American reservations. "Sue," a 90-percent-complete *Tyrannosaurus rex* specimen, was found on the Cheyenne River Sioux Reservation in South Dakota in 1992. A contentious federal court case over fossil ownership ensued and in 1994 Duffy and Lofgren described the proceedings in the *South Dakota Law Review*.³ In fact, Duffy represented the defendants in "Sue" the *T. rex* case of *Black Hills Institute of Geological Research v. United States Department of Justice*.⁴ The federal courts ruled that a monetary transaction involving "Sue" needed the approval of the Bureau of Indian Affairs (BIA), and the decision was upheld in an appeal.⁵ Media reporters and legal analysts either downplayed the importance of indigenous land rights or hailed the convicted fossil collectors as heroes.⁶

Ultimately, the victors in the legal battle for Sue the *T. rex* were Maurice Williams, the individual landowner, the Chicago Field Museum of Natural History, and, of all entities, McDonald's Corporation. Native American perspectives on ownership of paleontological treasures and associated aspects of sovereignty were not taken into account in this dispossession. The Field Museum and McDonald's teamed together to purchase Sue, and on October 4, 1997, Sue was sold at Sotheby's midtown Manhattan auction house for \$8.6 million. Williams got the money, McDonald's got to market the *T. rex* for capitalistic gain, and the Field Museum collected all the monetary donations from people going through the turnstiles and purchasing gift shop memorabilia.⁷ The Cheyenne River Sioux Tribe got nothing.

In 1996, Allison Dussias wrote an important *Maryland Law Review* article that provided another briefing on the *Black Hills* case. Dussias argued that through myths and legends, paleontological resources are tied to Indian land in a sacred way. Fossils on Indian land may then be protected, Dussias wrote, by means of federal acts that protect objects of cultural significance.⁸ The court's decisions over Sue the *T. rex* never took into account Native Americans' attitudes towards fossils as a sacred text or roles in paleontology resource management on their own lands. Although much has been written on land and resource dispossession of indigenous peoples, there is little published

research concerning paleontological resource dispossession. Reasons will be given as to why this subject matter needs to undergo critical review.

This essay is part one of a larger body of research that will attempt to provide, in a four-part series covering from about 1850 to the present, an overview of the historical geography of American paleontology and its relationship with Native American reservations of the Great Plains. Here we will examine fossil dispossession during approximately the first thirty years of fossil expeditions, from the mid-nineteenth century to 1875, when initial precedents for fossil extraction in Indian Territory were established.⁹ Importantly, this essay will provide insight into the amount of physical evidence of fossil material collected from Sioux lands over time. Through applied geography, historical geography, and Native American geography, I hope to reveal how—largely as a result of fossil extraction from Indian lands over the last century and a half—much of contemporary American paleontology came into existence.

METHODOLOGY

This study adopts the methodology of an historical geography narrative, whereby explanation proceeds by accumulation of individual statements into a cohesive, persuasive account.¹⁰ American history has often painted a romantic picture of daring, rugged men participating in fossil-hunting missions for the good of science. This study will supply a different point of view: that many times valuable fossil specimens were collected from Indian lands without the knowledge of the indigenous owners. By following suggestions extracted from a variety of sources on utilizing the narrative approach in historical geography, I aim to provide the reader with a fresh look into the history of vertebrate fossil dispossession from Sioux reservations and adjacent Indian lands. The narrative approach will allow the reader to draw his or her own conclusions from evidence in this study. This story of past dispossession of fossil resources from within Sioux reservation boundaries, and how to protect them in the future, will serve as a model for other indigenous groups across the United States that seek to understand this history of dispossession. The entire project will address the following questions and concerns.

- (1) Who took advantage of the vast paleontological resources located on Indian lands of the Great Plains since the mid-nineteenth century?
- (2) The project attempts to illustrate the volume and value of fossils collected from Sioux reservations and adjacent Indian lands through its photographing, recording, and documenting collections housed at three prestigious American museums.

Fossil Dispossession from Sioux Lands, 1846–1875

There is a long and storied history of fossil-collecting missions on lands that belonged to the Sioux (Lakota). It would be nearly impossible to reveal every amateur, professional, museum, scientist, or university that collected fossils or had involvement in, or knowledge of, the removal of fossils from these Indian lands over the last 160 years. A compilation of evidence that will serve as a significant exemplar must suffice. Issues underlying this study include: were the fossils taken from Indian lands over the years collected in good faith, or was this illegal action? Did the Native Americans have any understanding of the value of these fossils?

The first published literature dealing with fossils found in the heart of the Sioux nation comes from an 1846 article that appeared in the *American Journal of Science*, written by Hiram Prout, MD. A fossilized specimen of a “paleotherium” maxillary bone was secured at a Missouri River trading post owned by the St. Louis Fur Trading Company and was sent to Dr. Prout for investigation. Dr. Prout wrote, “The Paleotherial bone here described, was sent to me some time ago by a friend residing at one of the trading posts of the St. Louis Fur Company, on the Missouri River.”¹¹ In his description of this fossil jawbone, Prout relates how someone, most likely a trader, found the specimen sixty miles east of the Black Hills, at *Mauvais Terres* (the White River Badlands) in present-day South Dakota. This land was considered by the Sioux and the United States to be Sioux territory.

In 1849 the United States Congress gave authority and funding to John Evans to explore the unknown areas of the Mauvais Terres. Evans was a subagent of US Geologist David Dale Owen. Owen was initially assigned to survey Wisconsin, Iowa, and Minnesota, but that project was somehow extended westward to include the survey of the Badlands of South Dakota. Evans was instructed by Owen to follow the Cretaceous and Tertiary strata as far up the Missouri River as possible. The main idea for the geological survey in the first place was to locate important resources, such as coal and limestone, which the United States needed for development. However, the Tertiary strata also would yield fossil biota that held great promise for paleontology. The St. Louis Fur Trading Company assisted Evans in his travels and kept him supplied while he searched his assigned area.¹²

Reports of an abundance of fossils in the Badlands were probably channeled along the trade routes of the fur trading companies. Government geologists would have known about Prout’s Paleotherium and that it was a Tertiary mammal. Hence it is likely, at least as a subsidiary goal, Evans was sent on a fossil-collecting mission to Indian country. Evans personally drafted a map of the region shown in figure 1. He collected invertebrate fossils from the Fox Hills area of the present Cheyenne River Reservation in 1849. These

particular fossils appear in US Geologist Owen's 1852 published geological survey report as tables and drawings.¹³ Evans then proceeded to the Badlands area and secured mammalian fossils that are listed in tables of the subsequent reports of the entire survey. The map in figure 1 indicates that Evans

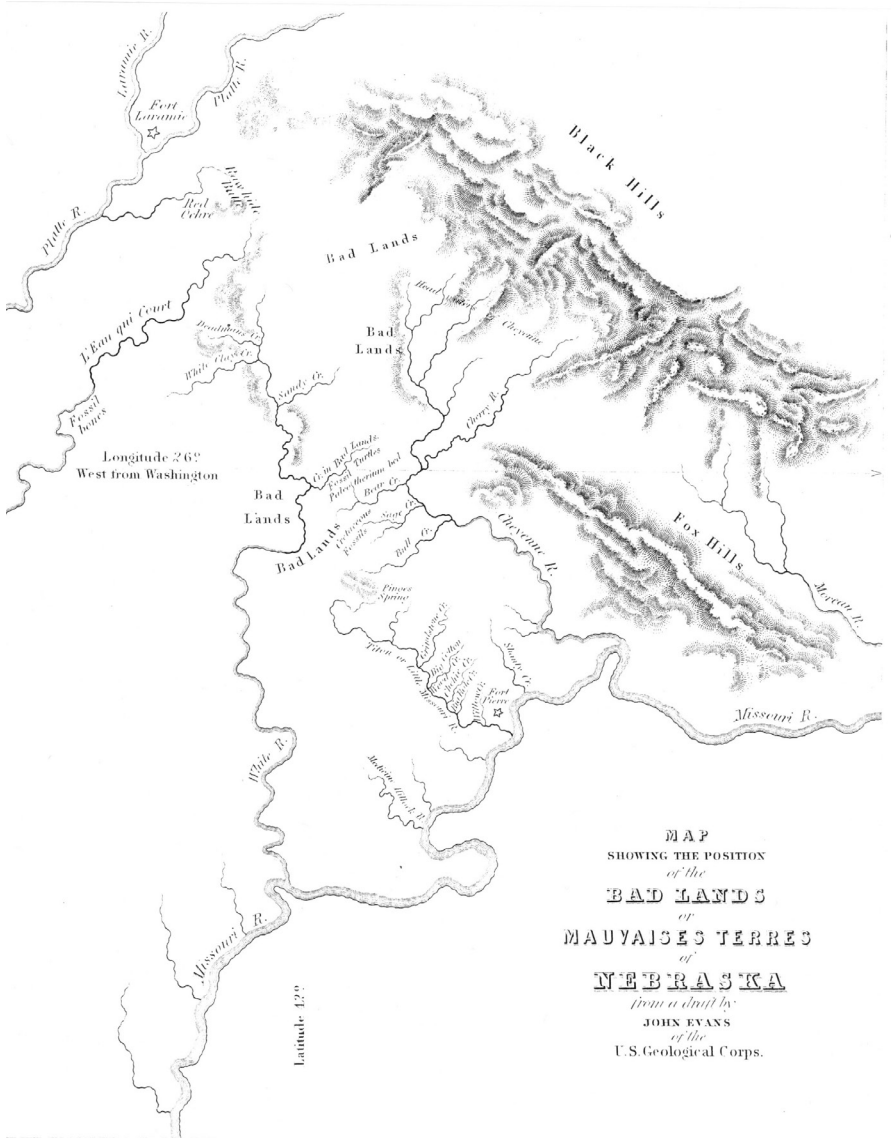


FIGURE 1: Evans' Map of the Mauvais Terres of Nebraska. Quarto insert in David D. Owen, et al., Report of a Geological Survey of Wisconsin, Iowa, and Minnesota, and Incidentally of a Portion of Nebraska Territory, Part II, Book of Tables and Maps.

located Paleotherium beds, fossil turtles, and Cretaceous fossils between the White and Cheyenne rivers of South Dakota.¹⁴ Remains of extinct rhinoceros, gigantic Paleotherium, extinct pigs, Archaeotherium, oreodonts, land turtles, and a saber-toothed cat were collected. Figure 2 reveals a sample of vertebrate fossils found in Nebraska (or Sioux territory) that is described in Owen's 1852 publication. Owen describes the rock lithology, or physical characteristics, in which many of the fossils were found. Owen wrote, "Many bones, skulls, and teeth were collected from a flesh-coloured, indurated, calcero-siliceous marl, that occupies a higher level . . . in the . . . different beds which compose this Eocene tertiary formation."¹⁵ Owen provided a table of Eocene rock stratigraphy of the Badlands that listed ten substrata, which would have allowed for deducing which layers had fossil resources present. Through this published information, any trained paleontologist could readily find vertebrate fossils in the heart of Sioux country.

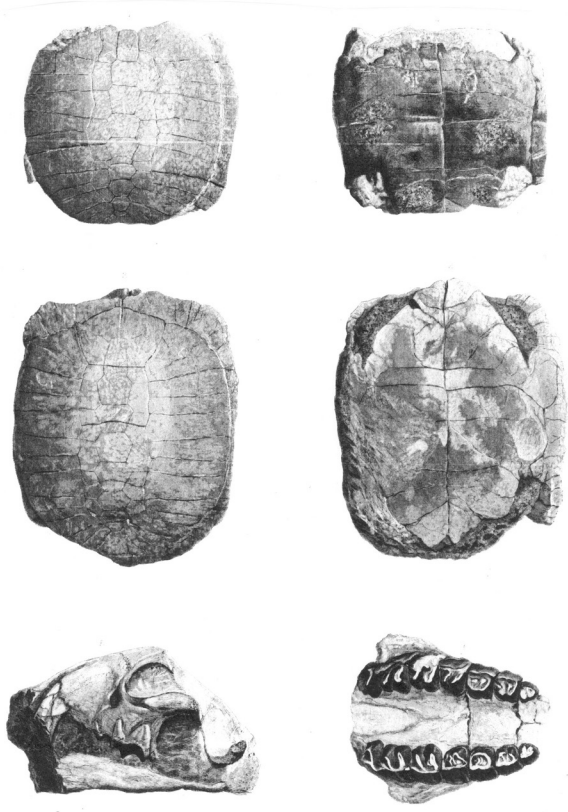


FIGURE 2: Vertebrate fossils of *Testudo* (Turtle), *Machairodus* (Cat), and *Rhinoceros* collected from Sioux country.

Owen's specimens were described and classified by Dr. Joseph Leidy of the Philadelphia Academy of Sciences, considered to be the father of American paleontology. Leidy was the first to scientifically describe at least sixteen genera and species of fossil mammalia taken by both anonymous and well-known bone hunters from the Badlands area by 1852, and his monumental 1869 book *Extinct Mammals of Nebraska and Dakota* was considered to be the finest contribution to paleontology of that time in the country, if not the world, by another noted nineteenth- and twentieth-century paleontologist, Henry F. Osborn.¹⁶ By 1852 the list of American scientific researchers excavating fossils from Indian country was becoming extensive. Owen's geological survey of the Great Lakes states, for example, has a chapter titled "Dr. Leidy's Memoir," which documents Leidy's description of fossils collected from the Badlands area by David Owen, John Evans, Joseph and Thaddeus Culbertson, Professor Spencer Baird of the Smithsonian Institution, Joseph Norwood, Hiram A. Prout, and O. Loughlan.¹⁷ All were credited with discoveries, and fossils bear their names to immortalize their contribution to science: *Oreodon Culbertsoni* likely was named after Culbertson, and *Testudo Oweni* was surely named after D. D. Owen. In a common theme present throughout the history of American paleontology, there is never any mention that the fossil-hunting was taking place on Indian land.

I argue that much of Leidy's career and reputation were advanced by his studies of fossils that were taken from Indian lands without Native American knowledge. It is rare that any fossils found on Native American traditional lands or reservations list the exact locality, whether denoted in scientific literature, on the fossil specimen's identification tags, or inscribed on the fossil itself. While scientists then, and even sometimes today, are being prudent in not publishing exact locality information in order to protect the resources, there needs to be acknowledgment of the general derivation of fossils. This would include, to a great extent, territories of sovereign Native American nations.

To fully understand where the fossils were collected, we must orient ourselves once again with the Lakota land base acknowledged by the United States government of that era. The Fort Laramie Treaty of 1851 defined the boundaries of the "Sioux or Dahcotah Nation" as "commencing the mouth of the White Earth River, on the Missouri River; thence in a southwesterly direction to the forks of the Platte River; thence up the north fork of the Platte river to a point known as the Red Bute [*sic*], or where the road leaves the river; thence along the range of mountains known as the Black Hills, to the headwaters of Heart River; thence down Heart River to its mouth; and thence down the Missouri River to the place of beginning."¹⁸ The area described encompassed the western half of present-day South Dakota, the southwestern corner of North Dakota, the southeastern corner of Montana, northeastern

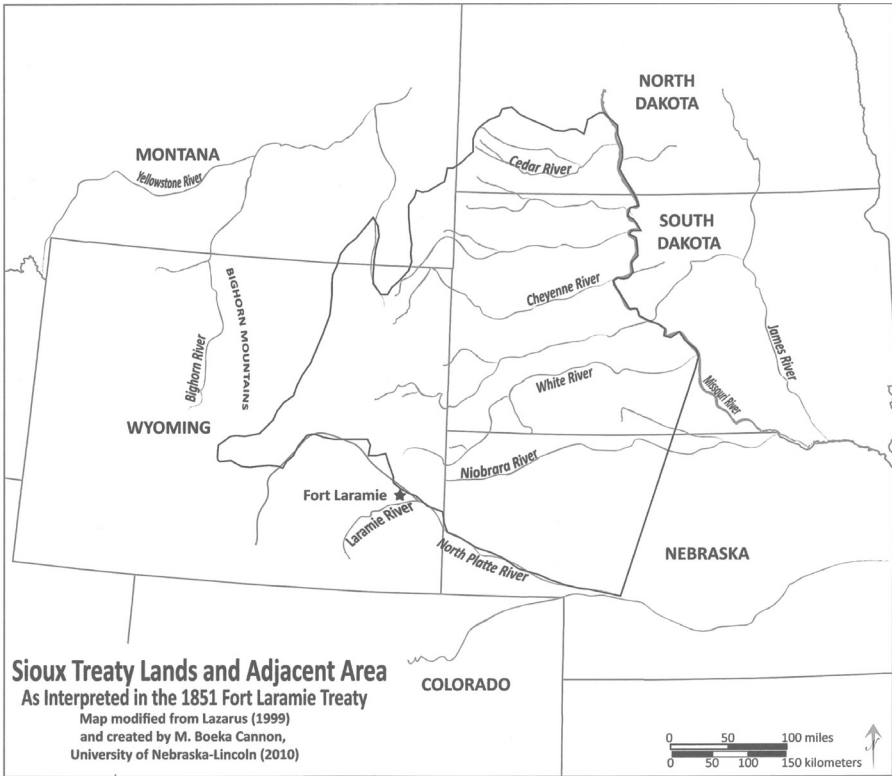


FIGURE 3: *Sioux Treaty Lands and Surrounding Area as interpreted in the 1851 Fort Laramie Treaty. Map by Molly B. Cannon, adapted from Edward Lazarus, Black Hills White Justice: The Sioux Nation Versus the United States, 1775 to the Present, xxviii–xix.*

and north central Wyoming, and northeastern Nebraska (fig. 3). It is from this area that much of American paleontology built its reputation.

The stipulation for road-building in the Fort Laramie treaty resulted in government-funded surveys through Indian lands. Raw materials would be needed for the construction of roadways and rails. Geological surveys were approved by the United States Congress to send surveyors throughout the recognized Indian territories. In 1856 and 1857 Congress gave money to Ferdinand V. Hayden and Lieutenant G. K. Warren to explore Sioux Country before the Indians “became maddened by the encroachments of the white man.”¹⁹ Common limestone, fire-clays, and flagstone were just some of the raw materials sought in order to construct roads and bridges.²⁰

Railroad companies accommodated Hayden and other early American surveyors and paleontologists with personnel and fossil transportation; as Hayden wrote in 1872 in his *Final Report*, “The officers of the Union Pacific Railroad supplied me with every facility in their power, as well as free

transportation for party and freight along the road.”²¹ After Hayden the famous Yale University paleontologist O. C. Marsh actually found a Pliocene fossil in 1865 at a railroad station near North Platte, Nebraska during a layover.²² During the next decade the railroad companies also assisted expeditions led by Marsh with fossil transportation. Moreover, as the entomologist George Bird Grinnell, a former student of Marsh, wrote, “Besides that, some well-to-do business men had contributed funds to defray the expenses of the trip, and I have always suspected that some of these, being railroad men, had given Marsh either free transportation for his party or at least rates much lower than those usually in force.”²³ The railroad companies were therefore a subsidiary, but necessary, partner in the dispossession of fossils from Sioux land.

By 1869, Joseph Leidy had classified at least eighty-four species of fossil mammals collected from Nebraska and Dakota areas that the surveyors explored, including: from Canivora, *Canis saevus*, *Canis vafer*; Hyaendontidae, *Hyaenodon horridus*, *Hyaenodon cruentus*; Hyracodon *Hyracodon nebrascensis*; and Mastodon *Mastodon americanus*, to name only a few. Leidy’s *Extinct Mammalia of Dakota and Nebraska*, 1869 provided an in-depth summary of paleontological exploration of the Mauvais Terres up until the year 1868. In the preface, Leidy states, “The materials of our work on the Extinct Mammalian Fauna of Dakota and Nebraska, etc., have been gradually and continuously accumulating the last twenty-three years.”²⁴ This publication also relates Hayden’s opening remarks on the geology of the Tertiary Formations of Dakota and Nebraska, revealing that “the White River group is the formation from which most of the vertebrate remains described in Dr. Leidy’s memoir have been obtained.”²⁵

Hayden next provided a table describing what formations produced which fossils. For example, the Loup Fork of the Platte River and Niobrara River of Nebraska yielded bones of *Canis*, *Felis*, *Castor*, *Equus*, *Mastodon*, and *Testudo*. Figure 4 reveals just one sample of a saber-toothed cat found described in Leidy’s 1869 publication. The White River group (Bad Lands of the White River of South Dakota, and Loup River beds and Niobrara River beds of Nebraska) yielded bones of *Oreodon*, *Titanotherium*, *Hyopotamus*, *Rhinocerus*, *Anchitherium*, *Hyaenodon*, *Machairodus*, *Trionyx*, *Testudo*, *Helix*, *Planorbis*, and *Limnea*. These specific fossil collections certainly came from Sioux Territory as defined by the Treaty of 1851. In fact, Hayden writes of his exact paleontological resource collection times and localities, which repeatedly pinpoint him extracting fossils in recognized Sioux Territory. “This plateau is cut through by numerous affluents of the Shyenne [*sic*] River, as Bear, Sage and Bull Creeks. . . . I can only say that during the summer of 1866 I examined with great care the ground so diligently searched by Mr. Meek and myself in 1853, just thirteen years previously; also the ground looked over by me in 1856, eleven years before.”²⁶

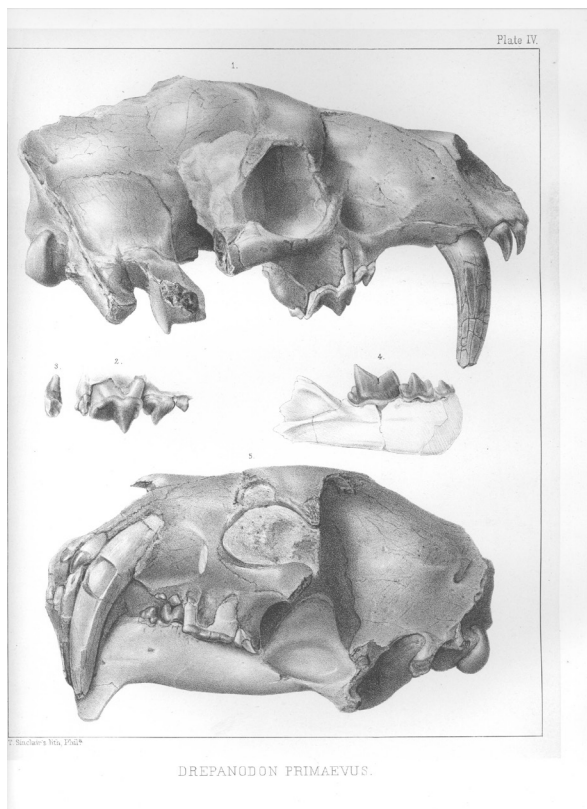


FIGURE 4: *Drepanodon primaevus* (ancient type of saber-toothed cat) described by Leidy.

Now regarded as being a leading surveyor of the United States western frontier, Hayden had to have friendly relations with the Lakota to complete his mission. For good reason, the Lakota named Hayden “man-who-picks-up-stones-running.”²⁷ He was probably afflicted with “bone-fever” and extremely excited over fossils he saw lying abundantly on the ground. One researcher suggests Hayden was taking advantage of Indians religious beliefs, writing, “This account suggests that disturbing the fossils was considered sacrilegious, and that Hayden was able to take advantage of the belief he was insane to obtain the fossils he desired.”²⁸ Paleontologist Henry Osborn put it this way: “The geologist Hayden, was considered mad by the Indians, and was therefore supposedly safe from the wrath of the Great Spirit which smote any man in his right senses who became so inadvised as to disturb bones of ‘Thunder Horse’; he was consequently able to visit fossil grounds otherwise safeguarded by Indian superstition.”²⁹

What is quite apparent is that scientists, who were either employed or funded by the US government, were making “large collections” of paleontological resources from Sioux Country. As Allison Dussias notes, “Warren and Hayden’s 1857 expedition was ordered by the War Department, and thus demonstrates the role of the federal government, including federal military authorities, in facilitating the removal of fossils from Indian lands, and the reciprocal role of the paleontologists and other scientists in furthering military goals.”³⁰

Did the Sioux realize the volume of material leaving their territory? Can we fairly say that the father of American paleontology, Joseph Leidy, became an authoritative figure of science by publishing work on fossils collected from unsuspecting Indians? The fact is there are large volumes of fossil material collected from Sioux country housed in American museums and universities. Leidy wrote, “the large quantity of fossil bones brought from the Mauvais Terres . . . certainly amount[ed] to several tons in weight.”³¹ The fossil specimens in American museums must total in the thousands, if not tens of thousands.

We must take a moment to discuss whether the collection of fossils from the Sioux land base from 1846 forward was legal or illegal. One of the very first treaties was made between the United States and the Teton Sioux concerning lands of Iowa and Minnesota, the August 19, 1825 Treaty of Prairie du Chien. But earlier that summer several treaties were also negotiated with the upper Missouri tribes, most notably with the Tetons, signed on June 22, 1825, and the Siouan [Sioux] and Oglala tribes, signed on July 5, 1825. These treaties were created during the Yellowstone expedition led by General Henry Atkinson and Major O’Fallon in order to “ratify America’s acquired claim to the upper Missouri.”³² There were six treaties, mainly regulating trade and intercourse between the Sioux and the United States. Also, the Sioux were to apprehend any criminals or trespassers and turn them over to the United States for prosecution.³³

Some recourse for any paleontological resources taken from the Sioux may be given in Article V of the 1825 treaty. According to Article V, “the United States hereby guaranty to any Indian or Indians of said bands, a full indemnification for any horses or other property which may be stolen from them by any of their citizens: *Provided*, The property stolen cannot be recovered, and that sufficient proof is produced that it was actually stolen by a citizen of the United States.”³⁴ Of course, numerous legal questions arise in considering whether any scientific or university study that collected fossil resources from the summer of 1825 onward should be held responsible for returning the fossil resources taken from recognized Sioux territory. The key word in Article V is “property.” Should paleontological resources be defined as personal property or tribal property? Would any successive treaty make null and void agreements entered into in 1825?

Four decades later, on April 29, 1868 at Fort Laramie, Wyoming, the United States negotiated a treaty with numerous Great Plains tribes, among them the Brule, Hunkpapa, Oglala, Miniconjou, and Yanktonai.³⁵ Subsequently, Yale professor O. C. Marsh (1831–1899), a well-known pioneer of American paleontology, directed several fossil expeditions that I argue were violations of this 1868 Fort Laramie treaty, which defined Sioux lands and protected them against such intrusion. In 1870, Marsh and Yale student volunteers began a series of fossil collecting field trips through the northern Great Plains. Many of the large specimens Marsh collected for Yale came directly from the Sioux lands. It would be safe to conclude that his fossil collecting exploits helped build the foundation for the Peabody Museum of Yale University. Indeed, Marsh's wealthy uncle, George Peabody, for whom the museum is named, was known to fund paleontological collection expeditions.

We will focus on Articles I, XI, and XVI with concern to the fossils collected from Sioux lands. Article I states:

If bad men among the whites, or among other people subject to the authority of the United States, shall commit any wrong upon the person or property of the Indians, the United States will, upon proof. . . proceed at once to cause the offender to be arrested and punished according to the laws of the United States, and also to reimburse the injured persons for the loss sustained.³⁶

Marsh, and other paleontologists before and after his time, have plundered fossil resources from Sioux lands. Furthermore, tribes may be able to seek reimbursement for any paleontological resources collected up until 1887. I say 1887 because after Congress passed the Dawes Allotment Act, it would be up to individual landowners to claim any type of restitution for fossil resources plundered. This point was made clearly in the 1993 appellate case *Black Hills Institute of Geological Research v. United States Department of Justice* involving "Sue," the *Tyrannosaurus rex*.³⁷ The court pronounced the fossil itself as "land" and not personal property. Thus, since tribal member Maurice Williams owned the allotted land, the Cheyenne River Sioux tribe had no authority over the dispossessed *Tyrannosaurus rex*.³⁸

Article XVI of the 1868 Fort Laramie treaty presents two major points: first, the land described was never ceded or surrendered by the Sioux; and second, permission to occupy or pass through the territories most definitely needed to be obtained:

The United States hereby agrees and stipulates that the country north of the North Platte River and east of the summits of the Big Horn Mountains shall be held and considered to be unceded Indian Territory, and also stipulates and agrees that no white person or persons shall be permitted to settle upon or occupy any

portion of the same; or without the consent of the Indians first had and obtained, to pass through the same.³⁹

Clearly, fossil collecting without permission within the boundaries defined by the Treaty of 1868 was illegal. I argue any fossil-collecting expedition that intruded upon the Sioux hunting territory and collected property without consent of the tribes was a violation of this treaty.

Article XI of the Fort Laramie Treaty of 1868 described the land area of the northern portion of the Nebraska panhandle to the northeastern quadrant of Colorado as hunting grounds for the Sioux, and specifically spells out that the Sioux reserve the right to hunt on all the land north of the North Platte River:

In consideration of the advantages and benefits conferred by this treaty and the many pledges of friendship by the United States, the tribes who are parties to this agreement hereby stipulate that they will relinquish all right to occupy permanently the territory outside their reservations as herein defined, but yet reserve the right to hunt on any lands north of North Platte, and on the Republican Fork of the Smoky Hill river, so long as the buffalo may range thereon in such numbers as to justify the chase.⁴⁰

Hunting bison was the predominant form of subsistence; the Sioux would have taken great umbrage at trespassers disturbing the game that their very livelihood depended upon. So Marsh's fossil expedition was willing to cross into hunting territory that clearly was defined as belonging to the Sioux by Treaty of 1868 as depicted by the map in figure 5.

Contemporary media reports on the fossil expedition conducted by O. C. Marsh and his students suggest clear proof of fossil hunting on Sioux land. A story in *Harper's New Monthly Magazine* in 1871 contained a map that shows the path of the first field trip of the 1870 Yale Expedition, shown in figure 6.⁴¹ The researchers left Fort McPherson (near modern location of North Platte, NE) in mid-July, heading north, and reached the South Loup River by July 15. They moved on to the Middle Loup River by July 18–19 and headed west upstream. Modern Nebraska locations of Hooker County and Cherry County were the main areas of fossil collection.

There was certainly an understanding that Marsh's paleontology expedition would trespass on Indian land. In their 1940 biography of Marsh, Schuchert and LeVene wrote, "careful arrangements had to be made for the expedition's protection, since the country to be traversed was full of Indians, most of them still resentful of their steadily narrowing hunting grounds and ready to harass any white man whom they might safely attack."⁴² The expeditions incorporated military escorts from the US Cavalry in order to ensure safety from off-reservation bands of Sioux warriors. Marsh, a top professional within paleontology,

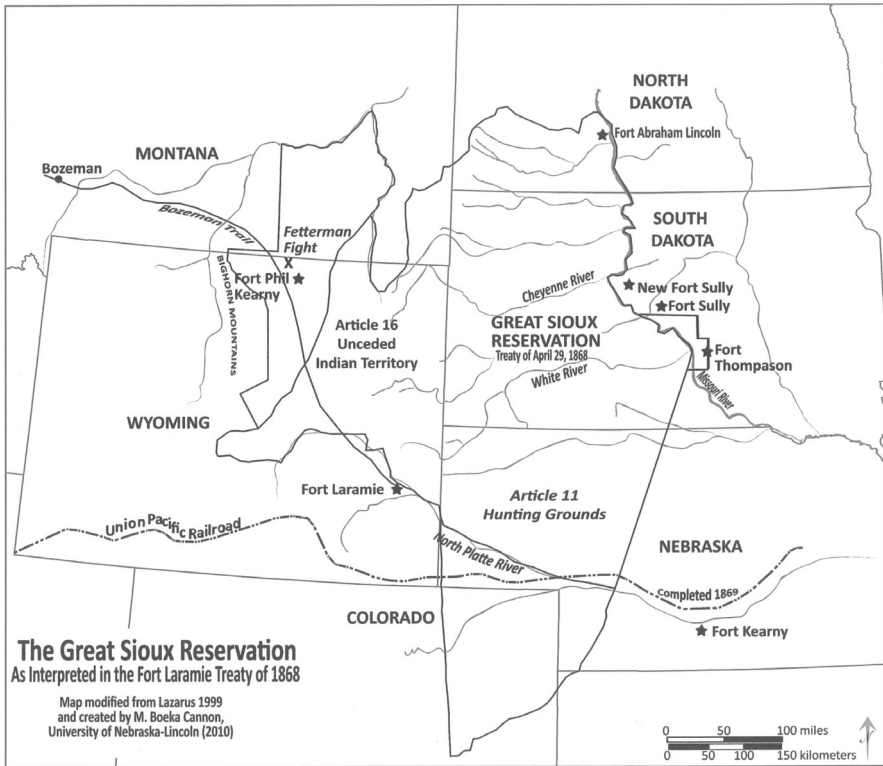


FIGURE 5: *The Great Sioux Reservation as interpreted in the Fort Laramie Treaty of 1868. Map by Molly B. Cannon, adapted from Edward Lazarus, Black Hills White Justice: The Sioux Nation Versus the United States, 1775 to the Present, xx–xxi.*

crossed an ethical boundary during the expedition of 1870, taking advantage of animosity between tribal groups to benefit their fossil-finding missions. Pawnee scouts were recruited and heavily depended upon to keep the team safe. Pawnee were traditional enemies of the Cheyenne and Sioux. After the Sioux and Cheyenne War of 1864 erupted throughout central and western Nebraska, the Pawnee found themselves in a new strategic position, and from 1865 to 1877 they performed invaluable service for the US Army, being paid to fight enemies they otherwise would have been fighting for nothing.⁴³

These services would include protecting and scouting for Yale University expeditions that sought to collect fossil resources from the Sioux. According to Yale student volunteer George Bird Grinnell, “He [Marsh] had interested General P. H. Sheridan in his project and from him had obtained orders directed to military posts in the West to provide the party with transportation and escorts needed in passing through dangerous Indian country.”⁴⁴ Further scrutiny of Article XI reveals that the US government would be authorized to

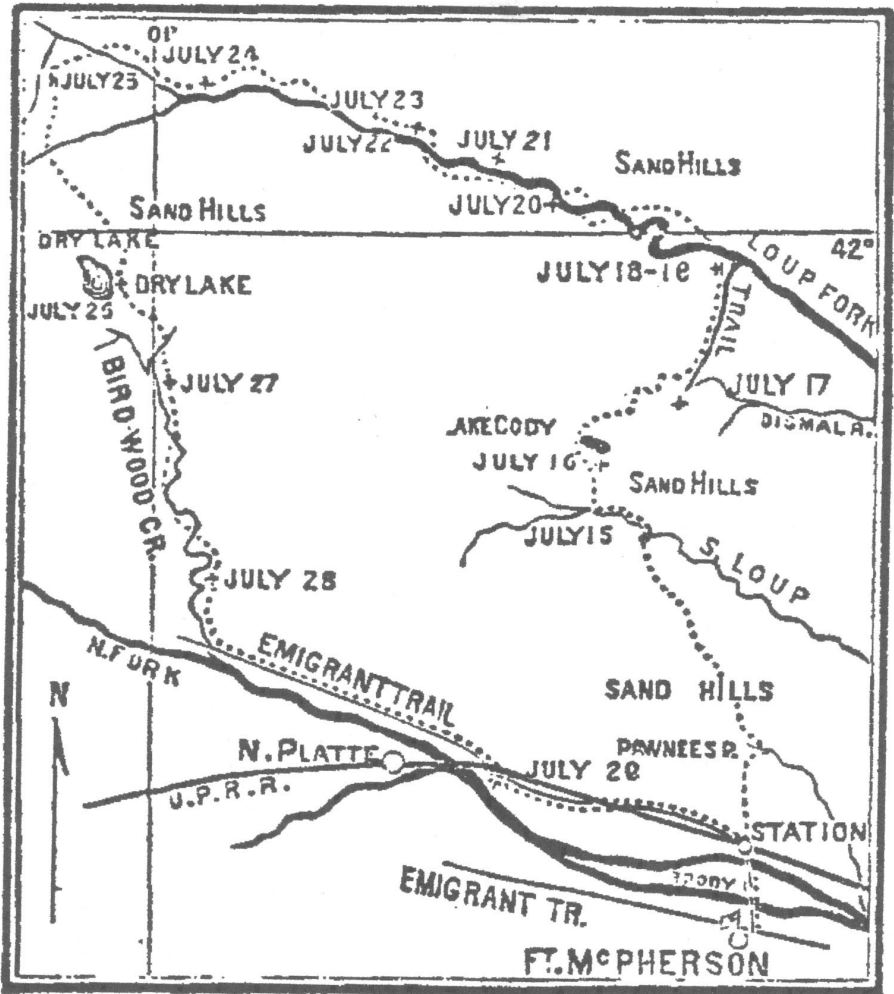


FIGURE 6: Route taken by Yale Expedition of 1870. Harper's New Monthly Magazine 43, no. 257 (1871): 663.

construct railroads along the Platte River. It says nothing about fossil-collecting missions escorted by the US military into the heart of the hunting territory.

The Sioux would not have wanted the fossil hunters from Yale on their lands. Grinnell wrote, "At this time the Sioux and Cheyenne Indians occupied the country of western Nebraska and that to the north and northwest, and they objected strongly to the passage of people through their territory, and when they believed they had the advantage—attacked such parties."⁴⁵ How the Sioux felt about their right to defend the Article XI hunting grounds is also described in George Hyde's 1937 epic *Red Cloud's Folk: A History of the Oglala Sioux*

Indians. Hyde describes the disdain and defiance by the Sioux as the US government tried different tactics to remove them from their bountiful game reserve. According to Hyde in 1868, "The Oglalas and Brules were hunting south of the Platte and showed no inclination to leave. . . . To put pressure on them, the North Platte Agency was closed, no further supplies were issued to the Indians and other sharper means were taken to force them north of the Platte."⁴⁶

How dangerous was the situation for the fossil hunters in 1870? Consider a further account from Hyde that included an increase in Indian hostility when the US government tried to remove the Powder River bands from the unceded land base in northeastern Wyoming—a specific land area defined by Article XVI of the treaty of 1868. Hyde wrote, "The Powder River bands stubbornly refused to do this, and when in 1869–1870 a new crisis seemed to be at hand, the officials summoned Red Cloud down to the Platte."⁴⁷ This is clear evidence that the fossil collectors were trespassing. But the bone collectors were diligent in their quest. Grinnell further gives this eyewitness account that "[t]here were many exposures of the so-called *mauvaises terres*, and in these bare clay surfaces fossil bones were found. The escort made short marches up the river, and the easterners, with a small guard of soldiers to act as lookouts, devoted themselves to bone hunting."⁴⁸ On July 28 the party reached the north fork of the Platte River and headed east towards the original starting place. All the fossils brought back by wagon train would be shipped back to the eastern United States by rail.⁴⁹

In 1873, another Yale fossil expedition took place, the last of the student trips. Once again, the paleontologists knew they were to enter Native American territory without permission and the expedition could be dangerous. The journey started June 14, 1873 and lasted until mid-July, beginning and ending in Fort McPherson, Nebraska, as did the 1870 expedition. This time the bone hunters traversed through Sandhills country to the modern border of South Dakota. By late June and early July of 1873, Marsh and company were working the Niobrara River valley. The team left the area now comprising Valentine, Nebraska, about July 7, 1873, and finally made it back about mid-July.⁵⁰ Their route was outlined in a map excerpted from *Nebraska History Magazine*, 1929 (fig. 7).⁵¹

This land area was still considered part of Sioux hunting lands, as determined by Article XI of the Fort Laramie Treaty of 1868. Perhaps the United States may not have considered the hunting lands as sovereign territory, or they were purposely taking advantage of the 1868 treaty language because it was so vague. Yet the Sioux were willing to protect the hunting lands with force if necessary, suggesting that they clearly had a different interpretation of the importance of that specific land base. Hence, the paleontologists were armed and had a military escort once again to collect and survey fossils located within these crucial Sioux hunting grounds.⁵² According to Schuchert and

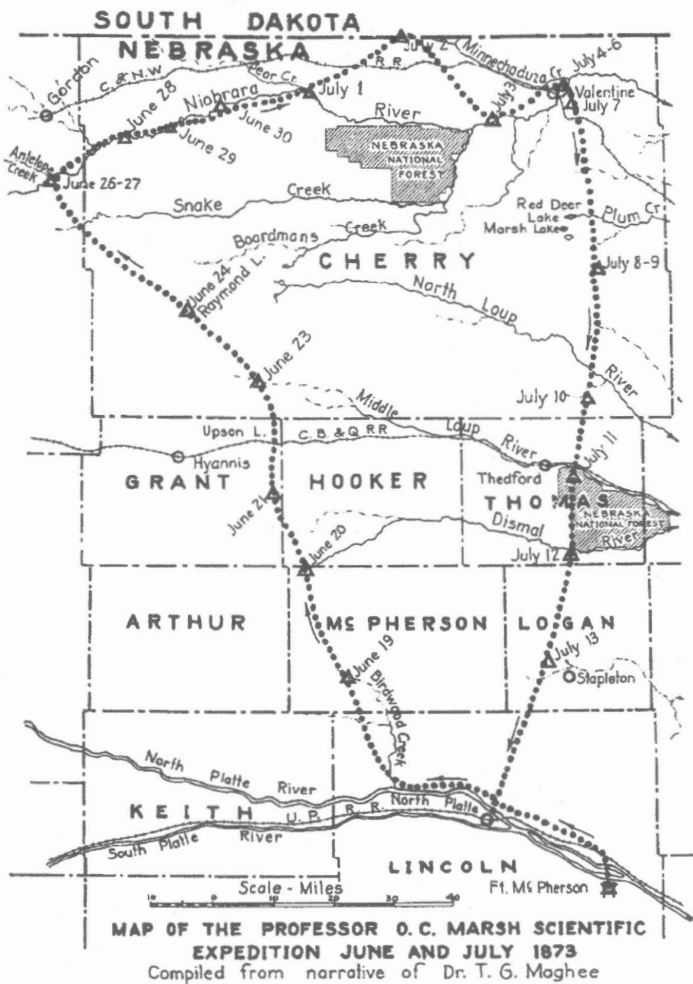


FIGURE 7: Route taken by Yale Expedition of 1873. Lindsay, Nebraska History Magazine, 1929.

LeVene, they heavily armed themselves with “Sharp’s Carbine, 50 caliber, as then used by cavalry, a Smith and Wesson’s 36 caliber six shooter and large hunting knife.”⁵³ The Third Cavalry provided support under the command of Captain Mills and Lieutenants Schwatka and King, as well as the Eighth Cavalry under Colonel Gregg.⁵⁴

This expedition was very important to Marsh’s career. Army doctor Thomas G. Maghee kept a diary of this 1873 expedition, with the first entry being dated May 28, 1873, in Omaha. Maghee’s notes not only provide a firsthand look at the tragedies and triumphs that befell Marsh and his companions, but also

describe the success of the 1873 fossil expedition. In 1929, Charles Lindsay edited Dr. Maghee's diary for *Nebraska History Magazine*. In his own words, Lindsay provides a synopsis of what Marsh's Yale fossil-hunting trips meant to the credibility of American paleontology and brings to light the degree to which the fossil hunters were willing to incite violence from the Sioux in order to earn a reputation. Lindsay wrote, "Professor Marsh was largely instrumental in establishment of the study of vertebrate paleontology in America. . . . His exploring expeditions yielded such a wealth of fossil remains in our western states that European scientists denied the validity of his reports and records. He rapidly accumulated the greatest fossil collection in the world."⁵⁵

Lindsay elaborated further that "Nebraska has especially profited by the work of Professor Marsh. Charles W. Morrill was associated with him, as was Professor E. H. Barbour who was assistant United States Paleontologist while Professor Marsh headed that work. The Expedition of 1873 opened Nebraska's rich fossil remains to exploitation by the scientific world."⁵⁶ An important point can be made from Lindsay's comments. It cannot be denied that the "greatest fossil collection in the world" was extracted from Indian country. The scientific world did gain tremendously from the fossils collected. But as defined by the 1868 Fort Laramie Treaty, these were precious hunting grounds that belonged to the Sioux tribes, and therefore these fossils did not belong either to the University of Nebraska or Yale Peabody Museum, but to the Sioux.

At Yale Peabody Museum one will find row after row, cabinet after cabinet, and drawer after drawer of paleontological resources collected from Indian country. The museum was kind enough to give the author permission in 2005 to document and photograph the fossil resources collected by O. C. Marsh and Yale students. It must be said that Yale University has shown willingness to acknowledge the history of how their fossil collection was amassed. Figure 8 shows the holotype specimen (the first species of its kind to be described) of *Holophoneus molossus*, which is a type of saber-toothed cat. Figure 9 reveals just one row of fossil cabinets containing fossil specimens. Finally, figure 10 reveals a drawer full of *Merycoidedodontidae* (Oreodont) skulls.

In June of 1874, Colonel Stanton at Cheyenne telegraphed Marsh in New Haven that a very productive titanotheres bone bed (a *lagerstätten*) had been discovered just south of the Black Hills, and in October, Marsh was persuaded to journey back to Sioux country. The Big Badlands site was near the Spotted Tail Agency and Red Cloud Agency, located near modern-day Chadron, Nebraska. This time no students would attend because of the high risk of Indian hostility. Instead, the fossil foray would incorporate the assistance of M Company of the Second Cavalry.⁵⁷ In March 1875 a story about what took place at the Red Cloud Agency that year appeared in the *New York*

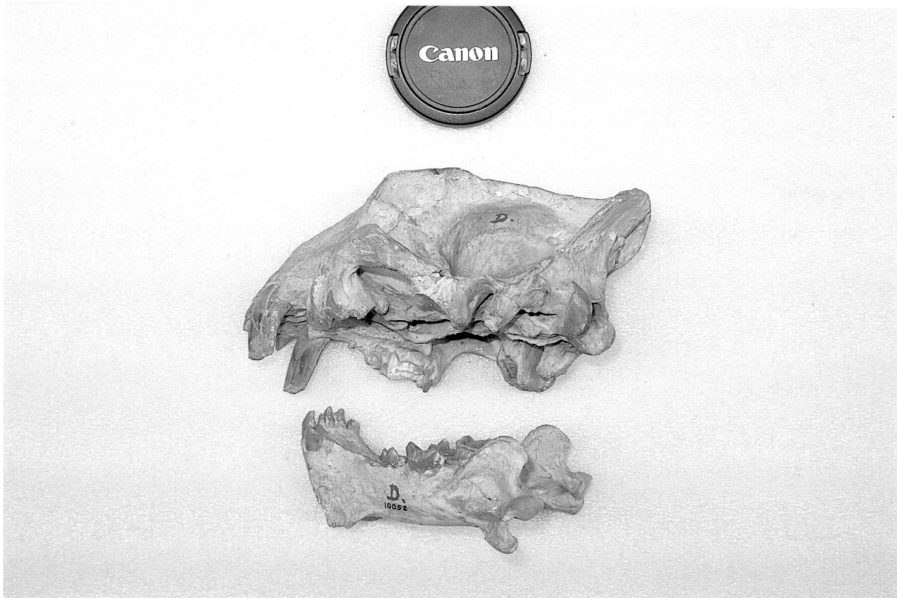


FIGURE 8: *Holophoneus molossus*, Thorpe, 1875. Middle Oligocene Lower Brule. White River, Nebraska. Holotype specimen, Yale Peabody Museum. Photograph by author, 2005.



FIGURE 9: Yale Peabody Museum cabinets of vertebrate fossils collected from Sioux lands during nineteenth century. Photograph by author, 2005.

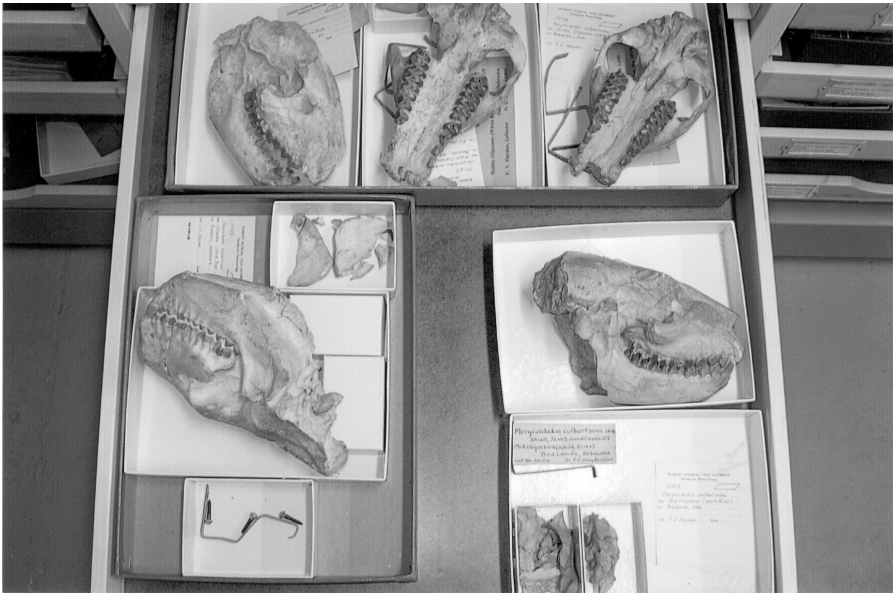


FIGURE 10: *Drawer of Merycoideodontidae (oreodont) skulls at Yale Peabody Museum. Photograph by author, 2005.*

Tribune.⁵⁸ The press may be guilty of sensationalizing the story, but nevertheless, evidence about the fossil expedition can be gained from this account. When Professor Marsh arrived at the Red Cloud Agency on November 4, 1874, he found numerous Indians gathered to receive their annuities and rations for the winter. The Indians were not in an agreeable mood for a variety of reasons. First, they had to be registered with a census, or the government would not issue rations. This counting method was a way to identify individuals and tie down the Sioux. Second, the food and blankets that were given out in the recent past were of subpar quality. And third, they were still wary of gold-seekers traversing sacred Indian land of the Black Hills.

There is both past and present confusion as to the actual location of the titanotheres bonebed sought by the Yale Expedition of 1874. Marsh and company had to travel away from the Red Cloud Agency to locate the fossil site. Was the fossil site located in hunting grounds or reservation lands? At the Yale Peabody Museum there are many drawers of paleontological resources collected by Marsh and US Army personnel very near the Red Cloud Agency during a cold November in 1874. When I visited Yale Peabody Museum in 2005 and asked to view Marsh's field notes, I was told he was not the most organized note-taker. After spending hours scrutinizing field notes, little progress was made in determining the site's exact location. My next step was to examine the identification tags in the drawers of fossils. Given the large

quantity of fossils present in the 1874 expedition drawers—Marsh collected enough titanothere bones to assemble numerous animals from the 1874 expedition alone—it is hard to imagine they were all taken in the few days before a November 1874 snowstorm. One tag denoted fossils collected from Two Butte Creek in Nebraska, or White River Formation, another tag denoted fossils shipped by H. E. Farnum from White River Badlands in South Dakota and Nebraska, and another denoted fossils collected from Red Cloud Agency. Yet another tag denoted fossils collected ten miles north of Red Cloud Agency, which is very close to reservation land, or actually within it. Figure 11 shows a photograph of *Brontotherium* foot bones collected from Two Butte Creek, of the White River Formation in Nebraska. Information on the identification tag specifies the locality on lands defined by the Treaty of 1868 as belonging to the Sioux. Figure 12 reveals a drawer containing the upper jaw portion of a *Brontothere* (now named *Titanothere*).

The total size of the 1874 collection at Yale Peabody Museum highlights the unlikelihood of a quick gathering period. It is my belief that these particular fossils were collected over a longer time frame, raising questions about the Native American permission needed for any trespass under the relevant articles of the 1868 Fort Laramie treaty.

According to Schuchert and LeVene, one report said, “It was ascertained that the fossil field which he wished to explore was not within any of the



FIGURE 11: *Brontotherium* foot bones collected during Yale expedition by O. C. Marsh in 1874 near Red Cloud Agency. Yale Peabody Museum. Photograph by author, 2005.

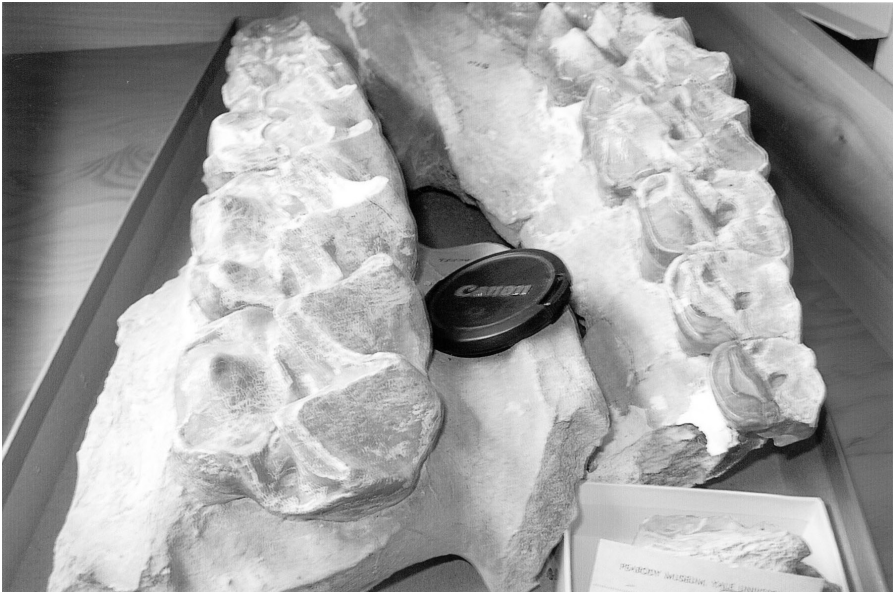


FIGURE 12: Brontothere portion upper jaw. Yale Peabody Museum. Photograph by author, 2010.

reservations, and hence that the Indians would have no right to object to his expedition.”⁵⁹ Would the US Army go through the trouble of asking the Indians for permission if it was not needed? Furthermore, the *Tribune* reporter understood that “the 16th section of the Treaty of 1868 with the Sioux would make their permission necessary, if strictly interpreted.”⁶⁰ The necessary permission may also be due to the fossil bed being located on Sioux hunting grounds as outlined in Article XI of the 1868 Fort Laramie treaty. Either way, permission from the Indians was deemed necessary. Military leaders suggested that Marsh hold a council with the respected leaders of the tribes. Marsh asked the Indians for permission to collect fossils from their land.

To avoid trouble, the Indian agent in charge of Red Cloud Indian agency, Dr. J. J. Saville, “recommended that a guard to accompany the party should be assembled from the Indians themselves, and he brought a council of chiefs together to discuss the matter.”⁶¹ The Sioux were very upset and angry towards the fossil hunters from Yale University. As Hyde wrote about one incident, “They were followed all the way to Camp Robinson by a swarm of jeering Sioux, who crowded in on them from every side with the usual display of threats and insulting gestures.”⁶² This scenario does not indicate that the Sioux were willing to give any type of permission. Yet O. C. Marsh would not relent on his quest for fossils, even after pleadings from nearly everyone involved. So a series of councils with tribal leaders that included feasts of military-issue

beef rations ensued. Numerous delays occurred because Indians were hesitant to provide consent to the bone collectors.⁶³

Whether or not all the Sioux tribes with a vested interest in reservation land and/or hunting grounds ever granted final permission, what took place next provides testimony that early American paleontologists sought to dispossess the Sioux of their fossil resources. The *New York Tribune* reported, "Disappointed and not a little exasperated by these repeated delays, Prof. Marsh resolved upon the most extraordinary move of this expedition. He decided to give the Indians the slip. That night, shortly after midnight, he carried out this intention. Marching down between the Indian villages as silently as possible, the expedition sought the White River at the only spot where, for many miles, it is fordable."⁶⁴

Thus, with regard to the Yale expeditions of 1870, 1873, and 1874, permission was never sought, evidenced by the fact that US Army soldiers and rival Indian scouts accompanied the fossil hunters; or, permission was coerced from subjugated people on the brink of starvation. I argue that permission from the Indians was coerced. They were bribed with beef rations during times of hunger. Not only that, but Marsh had to sneak away from Red Cloud Agency under the cover of darkness to collect fossils. Why not just adhere to the real wishes of the tribes? Chief Red Cloud must have realized that the paleontologists were going to collect the fossils anyway; it is possible that, after the fact, he tried to use the expedition's access as leverage in return for Marsh giving a report to authorities in Washington, DC, regarding the maltreatment of the Indians and inferior rations they were given.⁶⁵

Furthermore, it may be safe to say that the Sioux had their own set of interpretations about the Fort Laramie Treaty of 1868, differing from that of the US government. As Hyde explains, "It is so apparent that none of the Sioux chiefs knew the contents of this treaty that there is no escaping the conviction that they had been tricked into signing it. Red Cloud said in 1870 that he was told that the treaty was an agreement to restore peace and trade, nothing more, and many of the chiefs bore him out. They said the treaty had never been read to them."⁶⁶ The ambiguity over the Treaty of 1868 between all sides exists to this day.

How successful was the year 1874 for the Yale paleontology endeavors? According to the *New York Tribune*, "There is reason for believing that the year 1874 marks the extreme point in class of discoveries; certainly its collections will be hard to surpass in number and quality."⁶⁷ The fossil finds of 1874 mark a banner year in the "Golden Age" of American paleontology.

It must be said that some positive aspects for the Sioux came about as a result of the Yale Expedition of 1874. The dishonesty and treachery of at least some Indian agents during that part of American history is well known. The Red Cloud Agency had its share of Indian agents looking to fleece annuities

associated with terms of the Fort Laramie Treaty of 1868. Marsh witnessed firsthand how dire the issue had become. He also had been influenced by Chief Red Cloud, a shrewd leader of the Oglala Lakota, who held council with Marsh the “Big Bone Chief” during his stay at the Indian agency. As mentioned, Red Cloud may have surmised the paleontologists were going to take the bones under any circumstances. So he made a point of revealing to Marsh that the maltreatment by Indian agents and the issuance of sub-par rations was making it hard for the reservation Indians to survive. We find further details from an account of Hyde: “Professor Marsh came back to the agency in a very good humor. He had two tons of fossils. . . . He had forgiven the Sioux for all the little tricks they had played on him, and when Red Cloud came to his tent and complained of the treatment his people were receiving the professor listened sympathetically.”⁶⁸ The final outcome stemming from Hyde’s statement seems to support that the fossils located on Sioux land were simply dispossessed.

In 1996, Allison Dussias suggested that the Yale professor kept his word with the Sioux chief perhaps as a bargain agreement for fossils: “Even Marsh, who established a personal relationship with the Sioux leader Red Cloud, seems to have helped gain a public audience for Red Cloud’s grievances because doing so was the quid pro quo for permission to excavate on Sioux lands.”⁶⁹ It must be added to the total picture that the “quid pro quo” Dussias refers to came after the fact. Marsh’s conscience may eventually have gotten the best of him. Once Marsh returned to the east coast after the 1874 fossil trip, he did champion Native American rights. For the better part of 1875, a political firestorm took place in government halls and the free press. Marsh exhibited diligence in fighting government corruption. By the fall of 1875, the resignation of Secretary of Interior C. Delano and Commissioner of Indian affairs E. P. Smith had taken place.⁷⁰ Marsh was a catalyst for reforming Indian Affairs conduct.

CONCLUSION

The first quarter century of fossil collecting in Sioux lands by American paleontologists was important in many ways. First, the attitude was fostered from the beginning within the discipline of paleontology that it was acceptable to dispossess fossils from Native Americans. We witness in the literature that the paleontologists referred to the Indians sometimes as “savages,” who were considered to be uncivilized. For example, Schuchert and LeVene, who wrote the most complete story of O. C. Marsh’s life, talk about how the Sioux were displeased about a US Cavalry-led scientific expedition, which also can be

seen as a clear intrusion in the Black Hills during the summer of 1874 by General Custer. In the 1940s, over a half-century later, Schuchert and LeVene gave their opinion about the concerns of the Sioux: "Well, what matter? What need have savages for gold?"⁷¹ Early American paleontologists might as well have said "Well, what matter? What need have savages for fossils?" Moreover, the media may have perpetuated Native American stereotypes. *Harper's New Monthly Magazine* wrote about the actions of the Pawnee scouts as they looked for the Sioux during the 1870 Yale Expedition in this way: "The Major pointed out the least difficult paths; while the Indians, with movements characteristic of their wary race, crept up each high bluff, and from behind a bunch of grass peered over the top for signs of hostile savages."⁷² The paleontologists of the mid-nineteenth century could nurture their own consciences and feel better about dispossessing the large amount of fossil material if the Sioux landowners were considered as barbarous, uncultivated, and untamed.

Secondly, from the very beginning prosperous museums, prestigious universities, railroad companies, and the US government all worked in concert to dispossess paleontological resources from Sioux lands. For America to grow westward, it needed natural resources located in Indian country. The abundance of fossils created more excitement for further exploration. Fur trading companies assisted John Evans in 1849, railroad companies accommodated Hayden during his explorations, and O. C. Marsh was well-connected enough to enlist the aid of the Union Pacific railroad company in his fossil expeditions. The US government was a big factor in fossil dispossession. Congress gave authority and funding for early exploration along rivers and in the Badlands during which large amounts of fossils were taken. Many times the US military was ordered to accompany and protect the fossil collectors. Indian agents who were supposed to look after the well-being of the tribes instead assisted the paleontologists in locating fossils sites for excavation. All of the material amassed was sent back east to museums to get the people through the turnstiles.

Thirdly, a person could attain great importance by being the first to describe a new type of fossil. The Sioux lands yielded fossils aplenty. Early American paleontologists were willing to risk their lives and the lives of others in order to find fossil resources on Native American lands, lands defined by treaty boundaries whose boundaries and stipulations were largely ignored. The lure of being the first to describe a fossil specimen, like that during the "dinosaur wars" between Cope and Marsh, was too great. Many of the fossils found on Indian land were named after the white explorers so they could perhaps enjoy immortality in the fields of science.

In order to be objective, we must consider the great strides made in science because of the work completed by early American paleontologists. The expansion of a young country such as the United States of America owes a debt of

gratitude to bone collectors and surveyors. The scientific field of geology was enhanced by the recording of specific stratigraphic location and placement of fossils both laterally and vertically. Darwin's theory of evolution gained valuable credence from fossils collected from Sioux country. Large vertebrate dinosaurs and mammals on display at the eastern museums and universities would foster excitement and imagination for any visitor, young and old. Exploration of fossil bone fields on Indian lands would provide great reputation for American science standard internationally.

However, we must take a holistic approach to early American paleontology in order to attain a better understanding of the interaction between bone-hunters and the indigenous peoples of the Great Plains. The first twenty-five years of fossil dispossession created a pattern of systematic exploitation that would be adhered to for decades to follow. In order for current tribal governments to look ahead in the future of fossil resource management, they have to research the history of paleontology of their respective reservation lands. They must ask many questions. Who collected the fossils? When did they collect them? Where are those fossils located now? Were the fossils collected on tribal lands within current and/or historical treaty boundaries? Did we (the tribes) ever have knowledge of, or give any type of permission to any individual, museum, or university to collect fossils on tribal lands? Were these fossils collected with a high standard of ethics? Is there any type of repatriation process for these valuable specimens? Can the tribes file lawsuits for restitution of fossils dispossessed? These questions may be satisfactorily answered with the accumulation of evidence by historical geographers who scrutinize early American paleontology and its relationship with the Sioux tribes of the Great Plains. Evidence provided in this paper establishes the argument that American paleontologists dispossessed vertebrate paleontological resources from Sioux lands.

Finally, the purpose of this essay is to be as specific as possible about vertebrate paleontological resources dispossessed from the Great Plains tribes from 1846 to 1875. I have been raised by Oglala Lakota since I was two years old and realize the importance of including a Native American perspective on any issue involving them. I humbled myself before the Plains tribes and was given permission to conduct paleontological field surveys on their reservations. The monumental undertaking of researching how much fossil material was collected from tribal lands having been concluded, I have since presented my findings before different tribal councils and provided copies of the dissertation. Within the framework of the total study there is a portion of writing dedicated to how paleontologists can learn from anthropologists. Paleontologists need not make the same mistakes. Furthermore, they need to consider a host of governmental acts, rules, and regulations that are associated with tribal

cultural resource management practices. I will discuss the significance of the cultural aspect of fossils with relation to the Plains tribes in a future essay. However, in order to attempt to start a paradigm shift within the discipline of paleontology, which will make its practitioners understand the totality of their actions in dispossessing fossils from Native American reservations, whether it is within laws and treaties or outside the ethical boundaries of science, we must first address the foundation of the basic argument with material proof. With respect to the Native American voice, I purposely did not relegate it to a supplicant position as opposed to that of paleontologists of that time period. On the contrary, I have tried to create a Native American voice by presenting as much physical evidence as possible.

Acknowledgments

I dedicate this paper to my father Lester Kills Crow (November 8, 1943–June 14, 2013), a full-blood Oglala Lakota, the son of George Kills Crow of Standing Rock Reservation and Lima Bear Robe of Pine Ridge Reservation and a distant relative of Chief Red Cloud. I humble myself before the whole tribe and can only hope I have done what is right for everyone. My father always said the truth is simple, no matter what language you speak.

NOTES

Please allow me to clarify whether I provide a “Native American voice” on the subject matter. If there is anything I have learned from my Oglala Lakota father and my other Native relatives, it is that I would never claim to provide the “Native American voice.” I can only say with humility, that it is my turn to speak to the tribes at the council fire, and I ask you to respectfully listen to what I have to say. Aho.

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2. Charles Schuchert and Clara M. LeVene, *O. C. Marsh: Pioneer in Paleontology* (New Haven: Yale University Press, 1940), 94–168.

3. Patrick K. Duffy and Losi A. Lofgren, “Jurassic Farce: A Critical Analysis of the Government’s Seizure of ‘Sue,’ a Sixty-Five-Million-Year-Old Tyrannosaurus Rex Fossil,” *South Dakota Law Review* 39, no. 3 (1994): 478–528.

4. *Black Hills Institute of Geological Research v. United States Department of Justice*, 967 F.2d 1237 (8th Cir. 1992).

5. *Black Hills Institute of Geological Research v. South Dakota School of Mines and Technology*, et al., WL 515372 (8th Cir. 1993).

6. Donald Wolberg and Patsy Reinhard, *Collecting the Natural World: Legal Requirements & Personal Liability for Collecting Plants, Animals, Rocks, Minerals, & Fossils* (Tucson: Geoscience Press,

1997); Steve Fiffer, *Tyrannosaurus Sue: The Extraordinary Saga of Largest, Most Fought Over T. Rex Ever Found* (New York: W. H. Freeman and Company, 2000).

7. Fiffer, *Tyrannosaurus Sue*, 205–27.

8. Allision M. Dussias, “Science, Sovereignty, and the Sacred Text: Paleontological Resources and Native American Rights,” *Maryland Law Review* 55, no. 1 (1996), 84–159, <http://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=2977&context=mlr>.

9. Research documenting later continuation and adaptations to this precedent can be found in my 2010 Ph.D dissertation, “Dinosaurs And Indians: Paleontology Resource Dispossession From Sioux Lands,” University of Nebraska-Lincoln, 2010.

10. Yi-Fu Tuan, “Language and the Making of Place: A Narrative-Descriptive Approach,” *Annals of the Association of American Geographers* 81, no. 4 (1991): 684–96; J. Nicholas Entrikin, *The Betweenness of Place: Towards a Geography of Modernity* (Houndsmills, GB: Palgrave Macmillan, Ltd., 1991); Alun Munslow, *Narrative and History* (London: Palgrave Macmillan, 2007).

11. Hiram A. Prout, “Description of a Fossil Maxillary Bone of a Paleotherium, from Near White River,” *American Journal of Science and Arts* 3, no. 8 (1847), 248–50.

12. David D. Owen, Joseph Leidy, Joseph G. Norwood, Charles C. Parry, Harry Pratten, Benjamin F. Shumard, and Charles Whittlesey, *Report of a Geological Survey of Wisconsin, Iowa, and Minnesota, and Incidentally of a Portion of Nebraska Territory, made under instructions from the United States Department of the Treasury General Land Office* (Philadelphia: Lippencott, Grambo and Co., 1852).

13. *Ibid.*

14. *Ibid.*, 533–72. The map of the Mauvais Terres of Nebraska in figure 1 is a quarto insert in the volume.

15. *Ibid.*, 198–99.

16. David Rains Wallace, *The Bonehunters’ Revenge: Dinosaurs, Greed, and the Greatest Scientific Feud of the Gilded Age* (Boston: Houghton Mifflin Company, 1999), 48.

17. Owen, et al., *Report of a Geological Survey*, 533–72.

18. *Indian Land Cessions in the United States*, Part 2 of the *Eighteenth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1896-97*, compiled by Charles C. Royce (Washington: US Government Printing Office, 1899), 786.

19. Quoted in Url Lanham, *The Bone Hunters: The Heroic Age of Paleontology in the American West* (New York: Columbia University Press, 1973), 39.

20. Ferdinand V. Hayden, *Final Report of the United States Geological Survey of Nebraska and Portions of the Adjacent Territories, Made under the Direction of the Commissioner of the General Land Office* (Washington, DC: US Government Printing Office, 1872), 4.

21. Hayden, *Final Report*, 6.

22. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 98.

23. George B. Grinnell, “An Old Time Bone Hunt: An Account of the Expedition Undertaken by Prof. O. C. Marsh in 1870 to the Then Wild West,” *Natural History: The Journal of the American Museum of Natural History* 23, no. 4 (1923): 329–36, at 330.

24. Leidy, *The Extinct Mammalian Fauna of Dakota and Nebraska*, 8.

25. *Ibid.*, 12.

26. *Ibid.*, 18–19.

27. Richard A. Bartlett, *Great Surveys of the American West* (Norman: University of Oklahoma Press, 1962), 4.

28. Dussias, “Science, Sovereignty, and the Sacred Text,” 112–13.

29. Henry F. Osborn, *The Titanotheres Of Ancient Wyoming, Dakota, and Nebraska* (Washington, DC: Vol. 1 Department of Interior, US Geological Survey. Monograph 55, 1929), 21.

30. Dussias, “Science, Sovereignty, and the Sacred Text,” 113.

31. Leidy, *The Extinct Mammalian Fauna of Dakota and Nebraska*, 25.
32. Edward Lazarus, *Black Hills White Justice: The Sioux Nation versus the United States, 1775 to the Present* (Lincoln: University of Nebraska Press, 1999), 10.
33. *Indian Affairs: Laws and Treaties*, vol. II, Treaties, ed. Charles J. Kappler (Washington, DC: US Government Printing Office, 1904), 227–32.
34. *Indian Affairs: Laws and Treaties*, 231.
35. Colin G. Galloway, *First Peoples: A Documentary Survey of American Indian History* (Boston: Bedford/St. Martin's, 2004), 305–13.
36. *Ibid.*, 306.
37. *Black Hills Institute of Geological Research v. United States*, 12 F.3d 737 (8th Cir 1993).
38. Since this essay is concerned with fossils dispossessed from the time period of 1846–1875, I will define arguments over fossils collected throughout the history of American paleontology in future essays. For further information, see Bradley, “Dinosaurs And Indians.”
39. Galloway, *First Peoples*, 312.
40. *Indian Affairs: Laws and Treaties*, 1002; Galloway, *First Peoples*, 311.
41. C. W. Betts, “The Yale Expedition of 1870,” *Harper's New Monthly Magazine* 43, no. 257 (1871): 663–71, at 663.
42. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 101.
43. George E. Hyde, *The Pawnee Indians* (Norman: University of Oklahoma Press, 1951).
44. Grinnell, “Old Time Bone Hunt,” 332.
45. *Ibid.*, 330.
46. George E. Hyde, *Red Cloud's Folk: A History of the Oglala Sioux Indians* (Ann Arbor: University of Michigan Press, 1937), 168.
47. *Ibid.*, 172.
48. Grinnell, “Old Time Bone Hunt,” 333.
49. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 102.
50. *Ibid.*, 262.
51. Lindsay, “The Diary of Dr. Thomas G. Maghee,” 252–63.
52. If you look at the routes taken by the Yale Expeditions of 1870 and 1873 (see figures 6 and 7) and compare those routes to a modern map, you will see state highways and county roads were constructed where the early paleontologists created ruts made by their wagon wheels. Also, if the wagon ruts were cutting along previous Indian trails, at least the Native American pathways were not too destructive to the landscape. Just as railroad lines disrupted buffalo migration and facilitated the demise of the Plains tribes' main subsistence, the wagon ruts damaged the landscape to a certain degree within Sioux hunting grounds, all in the name of collecting fossils.
53. *Ibid.*, 133.
54. *Ibid.*, 102.
55. Lindsay, “The Diary of Dr. Thomas G. Maghee,” 256.
56. *Ibid.*, 256.
57. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 140.
58. “A Perilous Fossil Hunt: Professor Marsh's Last Trip to the Bad Lands,” *New York Tribune Extra*, no. 27 (March 1875): 46–51.
59. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 143.
60. “A Perilous Fossil Hunt,” 47.
61. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 143.
62. Hyde, 226.
63. *Ibid.*, 224–29; Schuchert and LeVene, *O. C. Marsh: Pioneer*, 144. Schuchert and LeVene's comment about Marsh's attitude, that he “rather disgustedly consented” to the feast, closely follows

language in the *New York Tribune's* 1875 article "A Perilous Fossil Hunt" which states "The professor was becoming very much disgusted with councils and talks."

64. "A Perilous Fossil Hunt," 49.

65. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 145–46.

66. Hyde, 169.

67. "A Perilous Fossil Hunt," 46.

68. Hyde, *Red Cloud's Folk*, 227.

69. Dussias, "Science, Sovereignty, and the Sacred Text," 156.

70. Schuchert and LeVene, *O. C. Marsh: Pioneer*, 164–66.

71. *Ibid.*, 141.

72. "The Yale Expedition of 1870," 663.