George G. Lobdell, Jr., 1871
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Fort Wallace Officers Quarters
photo courtesy Kansas State Historical Society

THE YALE SCIENTIFIC EXPEDITIONS IN KANSAS

by
Mary Faith Pankin

Scientific exploration of the American West flourished in the 1860s and 1870s, notably with the so-called Great Surveys of 1867-1879.[1] The U.S. government was not the only sponsor of scientific exploration during this period, however. For example, private money financed the expenses of expeditions led by Yale University professor Othniel Charles Marsh (1831-1899). His uncle, the philanthropist George Peabody (1795-1869), paid for his education, financially supported his career as a nonteaching vertebrate paleontologist at Yale's Sheffield Scientific School, and paid for the construction of the Peabody Museum of Natural History, which was completed in 1876.

Not until the 1870s were vertebrate fossils systematically collected in the United States. Marsh's collection, between 1870 and 1899, of Mesozoic reptile, Cretaceous bird, and Tertiary mammal fossils presented examples to support the theory of evolution. Along with his publication of many papers on dinosaur paleontology, the collection added luster to his reputation as "the greatest American paleontologist of the nineteenth century."[2]

Inspired by a ride through Wyoming on the Union Pacific Railroad in 1868, Marsh envisioned student expeditions (with students paying their own expenses) covering a range of western states. He was able to carry out his plan each year between 1870 and 1873, and three of the expeditions hunted fossils around Fort Wallace, Kansas. He received War Department assistance so that his teams had access to all army forts and military escorts during their explorations. I became interested in the expeditions when I learned that my great-grandfather George G. Lobdell, Jr. (1850-1942) was a participant of the 1871 expedition and kept a

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diary, which I found among family papers in 1974.[3] Lobdell, an 1871 graduate of Sheffield Scientific School, was the son of George Granville Lobdell (1817-1894), president of the Lobdell Car Wheel Company of Wilmington, Delaware.

First, some background about Fort Wallace. Fort Wallace was founded in 1865 at the junction of Pond Creek and the south fork of the Smoky Hill River in western Kansas, about two miles from the present town of Wallace, and was originally known as Camp Pond Creek. In 1866 the name was changed to Fort Wallace to honor Brigadier General W.H.L. Wallace, who died in 1862 as a result of his wounds at the battle of Shiloh. Eventually there were over forty structures, including barracks, officers' quarters, a hospital, and storehouses. The 1870 census listed 286 soldiers and 168 civilians in the vicinity of Fort Wallace.[4]

Fort Wallace provided protection from Indian harassment for stage coaches, wagon trains, and railroad construction crews along the Smoky Hill trail. This trail, opened in 1859, and named for the Smoky Hill River, joined towns from Atchison and Leavenworth, Kansas with stations along the route. Fort Wallace was the westernmost of several Kansas forts, including Fort Harker, Fort Hays, and Fort Monument.[5] Tribes in the region included Cheyennes, Arapahos, Lakota Sioux, and sometimes Kiowas, Comanches, and Plains Apaches. They rightly perceived that the expansion of European-American settlers into the area was a threat to their way of life. However, with the shifting population, there were never more than a few thousand in the area, and fewer than half were warriors.[6]

Still, between 1867 and 1869 the Fort Wallace troops were intermittently called into service, sometimes with loss of life. The number of men at Fort Wallace was inadequate to protect all the stage coach stations, some of which the Cheyennes attacked and destroyed in 1867. In June of that year Indians killed several passengers and soldiers on stage coaches near Fort Wallace, and later that summer about 300 Cheyennes attacked a company near the fort and killed seven men.[7] The Union Pacific construction crews worked under the constant threat of attack.[8]

In September 1868 Major George A. Forsyth and fifty volunteer scouts were attacked by about 600 Cheyennes and Sioux and took refuge

on a sand bar, later called Beecher Island, in the Republican River in Colorado. They were saved by the arrival of the Fort Wallace 10th Cavalry troops several days later.[9] Luckily for the 1871 Yale group, however, military action in the area was becoming less frequent, as that year the only nearby incident was a Sioux raiding party burning a buffalo hunter's camp and stealing livestock.[10]

Life at the fort was harsh. Most days were a round of guard duty, building construction, kitchen duty, and other chores, occasionally punctuated by searches for hostile Indians and escorting railroad crews or visitors such as the Yale Expedition. Pay was low; for example, privates received only $13 a month. Severe discipline and other hardships led to frequent desertions. General Orders of the post from June 12 through August 5, 1871 reported five courts-martial, mostly for drunkenness on duty, or going AWOL.[11] A typical punishment was confinement for fifteen days and a $10.00 fine.[12] Alcohol consumption, often following payday, caused medical problems, injuries and even gunshot wounds. Food was unappetizing and infrequently supplemented with fresh vegetables that the troops grew at the fort. Some men raised hogs, which at times became a nuisance and a health hazard. An order on August 16, 1870 stated that "all hogs found running at large after 3 o'clock PM today will be shot."[13]

After proper food, sanitation and medical care were of prime importance for functioning troops. The post surgeon treated all military personnel and their families. Common diseases and injuries were dysentery, colds, toothaches, venereal diseases, broken bones, gunshot wounds, and frostbite.[14] John S. Billings, writing in 1870, deplored the condition of many barracks, prisons, and hospitals, claiming that lack of ventilation and bathing facilities contributed to excess mortality.[15] On October 20, 1870 the post commander ordered the isolation of patients with measles, and a cholera epidemic raged during the summer of 1867.[16] Baths except for summer river swimming were few and uncomfortable. In February 1882 the last commander of the fort, Captain J.H. Patterson, urgently requested a supply of toilet paper to protect other papers of any sort from being used for the purpose. The fort officially closed May 31, 1882. The Department of the Interior received jurisdiction in July 1884, and in 1888 the reservation opened to settlement.[17]

The 1870 Expedition consisted of Marsh and twelve students. The student rosters of the expeditions contained the names of scions of illustrious families, and many went on to exceptional careers in their own right. This year's group included Eli Whitney (Yale 1869), grandson of the cotton gin inventor, and George Bird Grinnell (Yale 1870), later to become Marsh's assistant until 1880, then excelling as an conservationist, ethnologist, and author of books on several Native American tribes.[18]

Leaving New Haven at the end of June, the expedition took the Union Pacific Railroad to North Platte, Nebraska, near Fort McPherson, where they received a military escort which included, at least for one day, William F. Cody, popularly known as "Buffalo Bill." They did further work near Cheyenne and Fort Bridger, Wyoming and engaged in sightseeing in Salt Lake City and San Francisco. Arriving by the Kansas Pacific Railway at the town of Wallace in the November cold, they had little time to explore before returning home.[19]

They did, however, experience a few western-flavored adventures. Leaving Fort Wallace under army escort on November 20, they enjoyed an unusual Thanksgiving dinner. After they had pitched their tents for the night, a coyote stampeded their mules. Although relieved that they were not under Indian attack, they now had to await rescue, as they had no way to ride back to the fort, some fifteen miles away, where the mules had returned. The commanding officer, Charles Bankhead, sent Lt. Charles Braden with troops to help the marooned party, and they were guests at the dinner. Writing years later, Marsh described the dinner as a "memorable feast." They ate buffalo tongue, steak, antelope, and rabbit with canned fruit and vegetables, coffee and plenty of whiskey. A howling wind and a chorus of coyotes that encircled the camp helped to make it an unforgettable experience.[20]

Not long after, Professor Marsh and the others took part in a buffalo hunt. Marsh described it in his memoirs with zest that may seem painful when we remember the eventual near-extinction of the buffalo only a few years later. When army personnel directed Marsh to stay in the ambulance, he bribed the driver to move the vehicle into shooting range. A good shot, Marsh used his Winchester rifle to down three animals. He then single-handedly cut off the head and two feet of one as trophies, all of which he described with great gusto, as "a labor of love."[21]

While activities like buffalo hunts probably delighted the students, for Marsh scientific discovery was always the biggest thrill of all. Drawn from the Cretaceous chalk of Kansas were many fossil mosasaurs, sea-going lizard-like creatures with slim bodies often thirty feet long.[22] From the entire 1870 trip thirty-six large boxes were returned to Yale.[23] The most exciting scientific find here was, however, a portion of the first American fossil pterodactyl, a flying reptile with a large wing span.[24]

Arriving in Kansas in the November cold, they had little time to explore before returning home. Writing many years later, Marsh himself still described the fossil discovery with characteristic enthusiasm:

> One day I had been especially fortunate in my fossil discoveries, and thus remained behind the party till late in the afternoon, with only a single soldier as my companion. He warned me repeatedly of our danger, and advised pushing on to camp.... It was after sunset when we left the bluffs and pushed down to the river bottom, following some old buffalo trails, which were deeply worn in the soft chalk that formed the river bank. As we rode down one of these, with our stirrups touching the rock on either side, I saw on my right, about a dozen feet from the trail, a fossil bone; and dismounting and giving my horse in charge of my companion, I picked it up. It was hollow, and six inches long and one inch in diameter, with one end perfect and containing a peculiar joint that I had never seen before. An hour earlier and I should have searched the locality for the rest of the bone and others that might go with it, but it was already twilight, and I could only wrap up carefully the specimen I had found, put it away in one of my softest pockets, and before mounting, cut a deep cross in the gray chalk rock beside the trail, so that I could be sure to find the spot again.[25]

During the winter Marsh determined that this was indeed part of the wing of a pterodactyl, and he longed for the chance to find more of the skeleton. Thus the Fort Wallace area was to be the first stop of the next

year's expedition. The 1871 expedition consisted of Marsh and ten others, including my great grandfather, George G. Lobdell. They returned to Fort Wallace at the end of June, later working around Fort Bridger, Wyoming and in Idaho. Starting in October they worked in Oregon with the Reverend Thomas Condon, later to be an eminent professor at the University of Oregon.[26] They also spent several weeks in Salt Lake City and San Francisco as tourists.

George Lobdell's diary vividly describes the expedition's later achievements and adventures.[27] Unfortunately the volume that described the Kansas portion was not with the other papers I found, and is presumably destroyed. Thus I have reconstructed the 1871 Kansas activities from other sources, including contemporary newspaper accounts, a letter from another expedition member, Marsh's memoirs, and twentieth century books and articles. As the first site for the expedition, Kansas no doubt had a large impact on Lobdell and the other impressionable young men, most of whom had not visited this part of the West before.[28] In fact, Lobdell mentioned Kansas briefly several times in later diary entries, comparing the state unfavorably to other locales.

Marsh continued his account of the 1871 pterodactyl discovery:

> As soon as our tents were pitched, I started with two or three companions to seek the locality, guided by the remembrance of the peculiar bluffs where I had worked during that day.... My eagerness was so great that I outstripped my companions, and rode rapidly toward the place where I hoped to find the cross I cut in the rock near the trail.... I soon was near the very spot, and riding down a deep trail which I seemed to recognize, I found the cross nearly as distinct as when I cut it. A moment later I was at the spot where I discovered the fossil bone, and soon detected fragments of it lying near, partially covered up by the loose chalk that had been washed over it by the winter storms. More important still, I found the impression of the bone itself in the rock, and following this up with great care, I obtained the upper end of the same bone, and made out the exact shape and length of the whole from the

> impression and remaining part.... With my hunting knife and a small brush made from buffalo grass, I slowly and carefully cleared away the place where the upper end of the bone lay, and to my great joy, found another one which had fitted on to it when the animal was alive. Following this up with breathless anxiety, but with caution that long experience had given me, I uncovered still another bone, and at last the whole series that supported the gigantic wing of the ancient dragon.... My journey from New Haven was amply repaid, but greater rewards were to come, for during the month that I spent at hard work in this region, other dragons came to light ... much more wonderful than I had before imagined.... In my later expeditions in Kansas and other regions in the West, I secured many other dragons, some six or seven hundred individuals in all, but taking them together, they have not given me half the pleasure and satisfaction afforded by the first fragment of dragon bone I found ... in 1870.[29]

The party had ridden out from Fort Wallace on July 2 with an escort of five army wagons under the command of Lt. Henry Romeyn.[30] At the time Captain Edmond Butler was the fort's commanding officer.[31] A decade later Butler was to publish an essay characterizing most Indians as untrustworthy and violent, and advocating special schools for their children in order to assimilate them into civilized life.[32] The group marched in a southeasterly direction, following the almost dry Smoky Hill River. They could obtain water by digging, but its content sickened several of the men. Both the weather and the landscape presented challenges to digging fossils, and physical discomfort was a constant companion. Crawling on hands and knees over each inch of rock, the men found many fossil pieces. They had to endure intense heat, up to 120 degrees on some days, as well as frequent violent storms which flooded the tents. Rattlesnakes were a constant threat; each day they killed as many as ten.[33]

A letter from another student, Alfred Bishop Mason, also testifies to the hard work and unpleasant climate. In later life Mason was a lawyer,

author and railroad executive. In old age he wrote a series of boys' books with such titles as *Tom Strong, Lincoln's Scout.* In at least one instance he used an expedition adventure to add realistic detail to his narrative. Mason's letter, which is written in diary form, covers July 21-August 5. Like the others, he reported feeling sick from the heat and bad water.

Mason and others often had trouble with their mounts. For example, on August 1 Mason accidentally stampeded his mule by shooting at a jackrabbit. In Mason's book *Tom Strong, Third* the hero has a remarkably similar mishap while shooting a rabbit from his mule, Calamity, which is also the name of one of the mules that Mason rode near Fort Wallace.[34] According to Mason, such accidents were common, but fortunately no one was badly hurt. For example, on July 30 a wagon tipped over while crossing a stream. From a distance Marsh saw the accident and immediately worried over damage to his fossils, only moments later showing anxiety for the students' welfare.[35] The order of Marsh's concerns shows his characteristic single-mindedness about his fossils. Marsh was very protective of his research and almost secretive. Henry W. Farnam, a member of the 1873 expedition, wrote years later that the students found it difficult to get specific information about the importance of their work. He speculated that Marsh feared leaks to rival scientists.[36]

Another potential disaster was averted on July 27, when Mason went swimming with Frederick Mead and Harry Ziegler. Ziegler could not swim and almost drowned before Mead rescued him.[37] This was fortunate indeed for the Lobdell family since Ziegler married Lobdell's sister Florence in 1876!

Like Lobdell, Mason infrequently referred specifically to the fossils he found. Many of the major fossil finds in Kansas were mosasaurs.[38] Mason is credited with finding several fossil *Tylosaurus*, one of the larger mosasaurs, on July 25 and July 26. Lobdell also collected *Tylosaurus* specimens on July 26, July 27, and July 31, and on other dates fossils of the mosasaurs *Clidastes* and *Platecarpus*.[39]

When they left Kansas in August, the expedition's accomplishments were only beginning, however. From Wyoming and Oregon they sent twenty-two large crates of fossils back to New Haven.[40] Mason's account highlights some similarities to Lobdell's narrative of the other portions of

the trip. One constant was Marsh's single-minded focus on his fossils. On being told of the great Chicago fire of October 1871, his first concern was whether the train carrying his treasures had been damaged (it hadn't). Throughout the expedition the students were quite interested in hunting and fishing, sometimes at the expense of the scientific work accomplished. Since they were paying their own way, one can see some reason for their attitude. Riding accidents were frequent; at Fort Bridger, Lobdell's horse dragged him for a distance, but he escaped injury.[41]

The 1872 expedition was the smallest, consisting of Marsh and four students. The group spent October and early November working outside Fort Wallace. In addition to examples of pterodactyls and mosasaurs the group uncovered birds such as the toothed *Hesperornis regalis*.[42] Marsh's published works on toothed birds served to enhance his reputation.[43]

Additionally there were two non-scientific adventures, both involving buffalo. The first concerns the student Benjamin Hoppin, who became separated from the rest of the party. According to Henry Farnam, Hoppin tried to locate the Kansas Pacific Railroad tracks. In order to stay warm during the night he crawled into a buffalo carcass. Finally finding the tracks, he walked along them. Marsh had offered a fifty dollar reward for Hoppin's recovery. "The telegraph operator in one of the stations saw a man walking along the track with a rifle and no coat, and, without waiting to identify the refugee, at once telegraphed along the line, 'Your man is found, send on the fifty dollars.' "[44]

Reminiscing in 1898 about the 1872 trip, Marsh wrote a vivid account of the second incident, which was a buffalo hunt between Fort Wallace and Fort Hays. He described this as "A Ride for Life in a Herd of Buffalo." Marsh and the others looked into a valley black with over 50,000 buffalo. Ever eager to exercise his shooting prowess, he determined to ride his pony Pawnee into the herd and kill one for supper. He did shoot a buffalo, unexpectedly causing a stampede that was life threatening. He continued:

> My only chance of escape was evidently to keep moving with the buffalo and press towards the edge of the herd, and thinking thus to cut my way out, I began shooting at animals nearest me, to open the way.... A new danger

> suddenly confronted me. The prairie bottom had hitherto been so even that my only thought was of the buffalo around me.... The new terror was a large prairie dog village, extending for half a mile or more up the valley. As the herd dashed into it, some of the animals stepped into the deep burrows.... As the valley narrowed, the side ravines came closer together at the bottom, and our course soon led us among them.... As the ravines became deeper, longer leaps were necessary, and my brave steed refused none of them.... This was hard work for all, and the buffalo showed the greater signs of fatigue, but no intentions of stopping in their mad career, except those that were disabled and went down in the fierce struggle to keep out of the way of those behind them. ... I saw ahead, perhaps a mile distant, a low butte, a little to the left of the course we were taking.... Drawing a revolver, I began to shoot at the nearest buffalo on my left, and this caused them to draw away.... Continuing my shooting more rapidly as we approached the butte, I gradually swung to the left, and when we came to it, I pulled my pony sharp around behind it, and let the great herd pass on.

After all this, he was still able to shoot a heifer for the promised supper. Marsh was immensely grateful to his pony Pawnee, whose sure-footedness had undoubtedly saved his life. He wrote regretfully that the pony died of a rattlesnake bite during the next year's expedition.[45]

The 1873 and last of the student expeditions included thirteen in addition to Marsh. Notable members included William Constantine Beecher (Yale 1872), the son of the famed pastor Henry Ward Beecher, and the aforementioned Henry W. Farnam (Yale 1874). After about a month in Nebraska, the group worked around Fort Bridger, Wyoming and visited Salt Lake City, where Marsh met amicably with the Mormon leader Brigham Young. They then worked in the John Day Basin in Oregon and visited San Francisco.[46]

This expedition as a whole did not collect fossils in Kansas. In September, however, one of the student participants, Henry Grant

Cheney, did go to Fort Wallace with two hired helpers. They spent ten days unsuccessfully looking for fossils in the area at Marsh's request, before returning home.[47] Also, in late October Marsh briefly visited one of his bone-diggers, Benjamin F. Mudge, a professor at the Kansas Agricultural College in Manhattan, in order to inspect some fossil footprints that Mudge had collected.[48]

Some of the 1873 students apparently were disappointed by the level of adventure. Frustrated by having no exciting stories to tell, they concocted a fanciful newspaper account about fighting off a grizzly bear with a large hunting knife.[49]

After 1873 Marsh relied on local agents, such as Mudge, for the collection of specimens. Between 1877 and 1899 his men at Como Bluff, Wyoming and in Colorado sent back to Yale over a thousand boxes of dinosaur bones. He continued his distinguished career at Yale, and in 1882 became the first vertebrate paleontologist of the U.S. Geological Survey. A notorious long-running feud with his rival paleontologist Edward Drinker Cope (1840-1897), however, was to harm both their reputations.[50] Although he was a jovial host, Marsh's focus on his scientific discoveries made real friendship with him difficult, and his treatment of his paid assistants was sometimes shabby. A life-long bachelor, he rarely shared his feelings. He died in 1899.[51]

Upon his return to Wilmington from the 1871 expedition, George G. Lobdell joined the Lobdell Car Wheel Company, eventually becoming president in 1914 and serving in this capacity until a few months before his death. In contrast to Marsh, his personal life was full. He married Eva Wollaston in 1878 and produced three children who survived to adulthood. Throughout his adult life he was an active participant in a wide range of civic and charitable organizations in Wilmington. He lived over seventy years after the expedition, and although he was its last survivor, he apparently never wrote anything other than his diary about his experiences.[52] He was representative of the group as a whole, for while many of the students later had distinguished careers, for the most part they experienced the expeditions as something totally different from the rest of their lives. One can surmise, however, that as the years passed and scientific knowledge grew, they came to realize the importance of their endeavors.

Although the reminiscences contain many complaints about the Kansas weather, landscape, and other conditions, it is clear that excepting the 1873 expeditioners, the young men did not have to make up exploits to have a good story to tell about their time there, what with buffalo hunts and stampedes, nearly fatal accidents, vicious rattlesnakes, terrific storms, and howling coyotes.

Marsh's biographers, Charles Schuchert and Clara Mae LeVene, gave credit to the students, who in spite of their youth and lack of scientific zeal, laid the foundation of Yale's vertebrate fossil collections. They commented, "Yale and the world of science in general owe a very great debt to the men who made them possible, both by the money they contributed and by the long hours they spent in the saddle, blistered by heat, pelted by hail, plagued by mosquitoes, or at the backbreaking labor of excavating fossils in the midst of a country where game beckoned on every hand."[53]

NOTES

1. For a full discussion of the four great surveys, see Richard A. Bartlett, *Great Surveys of the American West* (Norman: Oklahoma University Press, 1962).
2. Mark J. McCarren, *The Scientific Contributions of Othniel Charles Marsh: Birds, Bones, and Brontotheres* (New Haven: Peabody Museum of Natural History, Yale University, 1993), 1.
3. Besides Lobdell and Marsh, the other participants were: John Jay Dubois (1846-1898), Yale 1867, Columbia LL.B. 1869, later a New York lawyer; Oscar Harger (1843-1887), Yale 1868, later Marsh's assistant for seventeen years; George Macculloch Keasbey (1850-1924), Yale 1871, later a Newark, New Jersey lawyer, who served in 1873 on the U.S. government survey of the One Hundredth Meridian; Alfred Bishop Mason (1851-1933), Yale 1871, later an editorial writer and lawyer in Chicago, as well as an executive for several railroads, and author of a series of boys' books as well as *A Primer of Political Economy* and other works on law and constitutional history; Frederick Mead (1848-1918), Yale 1871, later a New York tea merchant; Joseph French Page (1848-1928), Yale 1871, later a Philadelphia wool merchant and real estate executive; Theodore Gordon Peck (1848-1934), Yale 1871, later a brick manufacturer in West Haverstraw, New York; John Franklin Quigley (1848-1897), Lobdell's good friend, was the son of Philip Quigley (1816-1884), a prominent Wilmington civil engineer; and Harry Degen Ziegler (1850-1909), Yale 1871, later a distilling company director. See Charles Schuchert and Clara Mae LeVene, *O.C. Marsh, Pioneer in Paleontology* (1940: reprint, New York: Arno Press, 1978), 120-121.

4. Leo E. Oliva, *Fort Wallace: Sentinel on the Smoky Hill Trail* (Topeka: Kansas State Historical Society, 1998), 24-27, 36.
5. Douglas R. Hurt, "The Construction and Development of Fort Wallace, Kansas 1865-1882," *Kansas Historical Quarterly* 43 (Spring 1977): 44; Mrs. Frank C. Montgomery, "Fort Wallace and its Relation to the Frontier," *Collections of the Kansas State Historical Society* 17 (1926-1928): 203.
6. Oliva, *Fort Wallace*, 2, 7-8.
7. Montgomery, "Fort Wallace," 209-210.
8. For a detailed description of Indian battles, 1865-1867, see Oliva, *Fort Wallace*, 43-65.
9. Howard R. Lamar, ed., *The New Encyclopedia of the American West* (New Haven: Yale University Press, 1990), 90; Montgomery, "Fort Wallace," 239-242. For a narrative by a guide for the Beecher Island rescuers, see Homer W. Wheeler, *Buffalo Days: Forty Years in the Old West: The Personal Narrative of a Cattleman, Indian Fighter and Army Officer* (Indianapolis: Bobbs-Merrill, 1925), 8-19. For Forsyth's own accounts, see his *The Story of a Soldier* (Indianapolis: D. Appleton and Company, 1900); and his *Thrilling Days in Army Life*, introduction by David Dixon (Lincoln: University of Nebraska Press, 1994).
10. Oliva, *Fort Wallace*, 89.
11. For a detailed description of life at the fort, see Ibid., 103-112. For courts-martial, see General Orders for June 12-August 5, 1871, General Orders, Fort Wallace, Kansas, RG 393, National Archives and Records Administration, Washington, D.C.
12. See General Orders for June 12, 1871, General Orders, Fort Wallace, Kansas, RG 393, National Archives and Records Administration, Washington, D.C.
13. Ibid., August 16, 1870.
14. For a general discussion of medical affairs, see Oliva, *Fort Wallace*, 113-120.
15. John S. Billings, *A Report of Barracks and Hospitals with Descriptions of Military Posts*. Circular no. 4, issued by the War Department, Surgeon General's Office. (Washington, D.C.: GPO, 1870), v-xxxiii.
16. General Orders for October 20, 1870, General Orders, Fort Wallace, Kansas RG 393, National Archives and Records Administration, Washington, D.C.; Kenneth J. Almy, "Thof's Dragon and the Letters of Capt. H. Turner, M.D., U.S. Army," *Kansas History* 10 (Autumn 1987): 183.
17. Oliva, *Fort Wallace*, 119-122.
18. Additional participants were: Charles T. Ballard, Yale 1870, later a Kentucky manufacturer; Charles W. Betts, Yale 1867, later a patent attorney; Alexander Hamilton Ewing, Yale 1869, later a Chicago businessman; John Wool Griswold, Yale 1871, later an iron manufacturer; John Reed Nicholson, Yale 1870, later attorney general of Delaware; Charles McCormick Reeve, Yale 1870, of Minnesota and a Spanish-American War hero; James Matson Russell, Yale 1870, later a Kentucky farmer; Henry Bradford Sargent, Yale 1871, later head of the Sargent and Company hardware firm; James W. Wadsworth, Yale M.A. 1908, later a New York congressman; and Harry D. Ziegler, Yale 1871, later a Philadephia businessman. See Schuchert and LeVene, *O.C.*

Marsh, 100-101. For more information about Grinnell see *The Passing of the Great West: Selected Papers of George Bird Grinnell*, ed. By John F. Reiger (New York: Winchester Press, 1972) and Edward Day Harris III, "Preserving a Vision of the American West: The Life of George Bird Grinnell" (Ph.D. diss. University of Texas at Austin, 1995).

19. Schuchert and LeVene, *O.C. Marsh*, 100-120.

20. Othniel Charles Marsh, "A Thanksgiving Dinner on the Plains (1870)," O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 26.

21. Othniel Charles Marsh, "My First Buffalo Hunt," O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 26.

22. Schuchert and LeVene, *O.C. Marsh*, 422-424; Alfred Sherwood Romer, *Vertebrate Paleontology*, 3d ed. (Chicago: University of Chicago Press, 1966), 133. Charles Betts claimed that the team took nearly four days uncovering and transporting a nearly complete specimen of this fossil. See Charles Betts, "The Yale College Expedition of 1870," *Harper's New Monthly Magazine* 43 (June-November 1871): 671.

23. Schuchert and LeVene, *O.C. Marsh*, 120.

24. Othniel Charles Marsh, "My First Pterodactyl," O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 26.

25. Ibid.

26. For information on Condon see Robert D. Clark, *The Odyssey of Thomas Condon: Irish Immigrant, Frontier Missionary, Oregon Geologist*. (Eugene, Oregon Historical Society Press, 1989).

27. See Mary Faith Pankin, "George G. Lobdell, Jr. and the Yale Scientific Expedition of 1871 at Fort Bridger," Annals of Wyoming 70(Winter 1998): 25-44; Mary Faith Pusey [Pankin], "The Yale Scientific Expedition of 1871," *Manuscripts* 28 (Spring 1976): 97-105; and Mary Faith Pankin, "The Yale Scientific Expedition of 1871: A Student's-eye-view," *Oregon Historical Quarterly* 99 (Winter 1998-99): 374-435.

28. Harry Ziegler was a member of the 1870 expedition.

29. Othniel Charles Marsh, "My First Pterodactyl."

30. War Department. *Records of Fort Wallace, Kansas*. RG 393. Special orders, July 2, 1871. National Archives and Records Service, Washington, D.C.; Montgomery, "Fort Wallace," 249.

31. Montgomery, "Fort Wallace," 249.

32. See Edmond Butler, *Our Indian Question: An Essay*, 2d ed. (Miles City, Montana: Stock Growers Journal, 1892).

33. "The Yale Exploring Expedition of 1871," *The College Courant* 10, no. 5 (Saturday, February 3, 1872): 49-50.

34. Alfred Bishop Mason, *Tom Strong, Third: A Story of the United States When Railroads and the West Were New*. (New York: Henry Holt, 1916), 197-199.

35. Alfred Bishop Mason to "Tom" [probably Thomas Thacher (1850-1919), a Yale classmate], 27 July 1871, O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 11.

36. Recollections of Henry W. Farnam, 5 May, 1931, O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 26.
37. Mason to "Tom," 27 July 1871.
38. Schuchert and LeVene, *O.C. Marsh*, 422-424.
39. Yale Peabody Museum web site (http://www.peabody.yale.edu), accessed October 30, 1999.
40. Schuchert and LeVene, *O.C. Marsh*, 124-125.
41. See Pankin, "George G. Lobdell, Jr. and the Yale Scientific Expedition of 1871 at Fort Bridger," 25-44.
42. Student participants were: Charles D. Hill of Calais, Maine; Benjamin Hoppin, Yale 1872, who later traveled to the Arctic with Peary; James MacNaughton of Albany, New York; and Thomas H. Russell, Yale 1872, later a professor in the Yale School of Medicine. Russell discovered a nearly perfect skeleton of *Hesperornis*. Schuchert and LeVene, *O.C. Marsh*, 126, 417-420, 427.
43. See Marsh's first monograph: *Odontornithes: A Monograph of the Extinct Toothed Birds of North American*, Memoirs of the Peabody Museum of Yale College, v. 1 (New Haven: Peabody Museum, 1880).
44. Recollections of Henry W. Farnam.
45. "A Ride for Life in a Herd of Buffalo" (1872), O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 26.
46. Schuchert and LeVene, *O. C. Marsh*, 132-137.
47. Henry Grant Cheney to O.C. Marsh, 14 October 1873. O.C. Marsh Papers, Yale University Manuscripts and Archives, Microfilm, Reel 3.
48. Schuchert and LeVene, *O.C. Marsh*, 183.
49. Recollections of Henry W. Farnam.
50. For detailed discussions of their points of dispute, see Elizabeth Noble Shor, *The Fossil Feud Between E.D. Cope and O.C. Marsh* (Hicksville, N.Y.: Exposition Press, 1974); Robert Plate, *The Dinosaur Hunters: Othniel Charles Marsh and Edward D. Cope*(New York: David McKay, 1964); Mark Jaffe, *The Gilded Dinosaur: the Fossil Wars Between E.D. Cope and O.C. Marsh and the Rise of American Science*. 1st ed. (New York: Crown Publishing, 2000); and David Rains Wallace, *The Bonehunters' Revenge: Dinosaurs, Greed, and the Greatest Scientific Feud of the Gilded Age* (Boston: Houghton Mifflin, 1999).
51. Schuchert and LeVene, *O.C. Marsh*, 330-354.
52. From April 20, 1942 to May 7, 1942 Lobdell was also the oldest living graduate of the Sheffield Scientific School. "Obituary Record of Graduates Deceased During the Year Ending July 1, 1942." *Bulletin of Yale University*101 (1943): 163.
53. Schuchert and LeVene, *O.C. Marsh*, 137-138.