THE WYOMING ARCHAEOLOGIST

VOLUME 28(3-4)

FALL 1985

THE WYOMING ARCHAEOLOGIST

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THE WYOMING ARCHAEOLOGIST is published quarterly by the Wyoming State Archaeological Society, with the financial assistance of the Wyoming Recreation Commission. Address manuscripts and news items for publication to: George Brox, Editor, The Wyoming Archaeologist, 1128 11th Street, Rawlins, Wyoming 82301. Please send a minimum of two (2) copies of each manuscript submitted. A third copy would speed the review process. Readers should consult the articles in this issue for style and format.

Membership period is from January through December. All subscriptions expire with the Winter Issue and renewals are due the first part of January each year.

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----of special consideration----

JAMES K. ADAMS

James K. Adams, longtime member and past president of the Wyoming Archaeological Society, died January 7 in Lander, Wyoming. Jim devoted a great deal of his time and effort to the Society and it's association with the professional community. In 1979, he was presented with the Society's Golden Trowel Award in recognition for his efforts.

Throughout his career, he was active in civic affairs, Boy Scouts, and related organizations. His cooperation and influence among these varied groups will be missed and remembered.

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ARCHAEOLOGICAL SOCIETY, INC.

December 1985

Dear WAS Members:

Happy Holidays!

As the new year approaches, I see some exciting things happening in Wyoming archaeology. Archaeology is coming into its own in our fine state, we're receiving a bit more favorable publicity, and there are numerous opportunities for the amateur to participate in surveys and digs in the upcoming months.

Volunteers are always needed and welcome on projects. If you want to participate during the next season, just give Mark Miller or Dave Eckles a call. They are in the process of working up a tentative itinerary of projects which we will either publish in the Archaeologist and/or send to the chapters.

Another idea we're considering is either the possibility of special meetings in addition to the summer meeting or regional gatherings, thereby making it easier for more people to get involved. If you have some ideas or opinions, let us know.

One of the goals of the Society is to further Wyoming archaeology. This can only be done with careful scientific data recovery, research, and preservation. I cannot stress the importance of this aspect enough. Each and every time a site is potted, valuable information is lost, never to be recovered. This is our heritage, let us not destroy it forever. I charge each member of the Society with the responsibility of educating those around you as to the vital importance of scientific recovery and preservation.

In the same vein, I would ask each of you, as individuals and collectively, to correspond with your legislators and other government officials imploring them to understand the importance of research and preservation, to see the role of archaeology in Wyoming as being one of value to future generations. Let yourselves be heard; let those you help elect know that archaeology is truly a serious science, and that relics of the past are indeed non-renewable cultural resources.

The 1986 spring meeting will be a joint endeavor with the Montana Archaeological Society in Cody on April 3-6. The symposium topic is "New Developments in Northwestern Plains Archaeology." The tentative program promises to have an interesting array of subjects and activities, and I urge each of you to attend some or all of the meeting. If any of you have topics you want added to the agenda of the business meeting, please let me know as soon as possible.

Hope to see and visit with you in April or sooner.

To each of you - A VERY MERRY CHRISTMAS AND A HAPPY NEW YEAR!

Trowelingly,

Carolyn

Carolyn M. Buff
President

LETTER FROM THE EDITOR

This issue of The Wyoming Archaeologist is a collection of papers on a historic military post, Camp Payne, located near Evansville, Wyoming. The majority of the archaeological fieldwork conducted on the site was by members of the Casper Chapter, WAS, with assistance from the Wyoming State Archaeologist's Office. We feel this collection will present another aspect on the archaeology of Wyoming to the readers of The Wyoming Archaeologist. The descriptions of the historical artifacts and their manufacture are especially interesting and informative. We hope you enjoy reading.

TENTATIVE SCHEDULE FOR 1985 JOINT MEETING WAS/MAS/MAA SPRING MEETING, BUFFALO BILL HISTORICAL CENTER CODY, WYOMING, APRIL 3-6, 1986

The following preliminary information on the 1986 Spring Meeting of the Wyoming Archaeological Society was provided by Susan Hughes, Program Chairperson. Final announcements will be sent to the chapters when all arrangements are completed.

SYMPOSIUM TOPIC: New Developments in Northwestern Plains Archaeology.

Thursday, April 3:

- 8:00 p.m. - Program in Powell on Custer Battlefield investigations by Richard Fox (open to public).
- 7:30 p.m. - Optional time in Cody for scheduled business meeting, WAS.

Friday, April 4:

- 8:00 a.m. - Registration opens (lobby of BBHC).
- 8:30 a.m. - Opening remarks (BBHC Auditorium).
- 8:40-11:10 a.m. - Papers.
- 11:10 a.m. - Lunch Break.
- 1:00 p.m. - Announcements
- 1:10-4:00 p.m. - Papers.
- 4:00 p.m.- Possible beer and wine party (sponsored by BBHC in BBHC Lounge).
- 7:30 or 8:00 p.m. - Scheduled time for business meetings (WAS at 8:00 p.m.)
- 8:00 p.m. - Program given in Powell on Western Asia Paleolithic by Olga Soffer (open to public).

Saturday, April 5:

- 8:50 a.m. - Announcements (BBHC Auditorium).
- 9:00-11:50 a.m. - Papers.
- 11:50 a.m. - Lunch Break.
- 1:30 p.m. - PANEL DISCUSSION: Recent developments in Northern Plains Archaeology (to summarize information presented in the various papers and look for new directions in Northwestern Plains research); Mike Wilson, moderator. Montana Discussants: Les Davis, B.O.K. Reeves, Ken Deaver. Wyoming Discussants: G.C. Frison, Mike Metcalf, Bob Alex.
- 3:00 p.m. - Discussion ends. Atlatl throwing demonstrations outside if weather permits (open to public and whoever wants to join in).
- 6:00 p.m. - No-host cocktail party (Cody Club Room).
- 7:00 p.m. - Banquet (Cody Club Room).
- 8:00 p.m. - Banquet Speaker: Olga Soffer on Upper Paleolithic Siberian Archaeology.

Sunday, April 6:

8:00 a.m. - Wyoming Archaeological Foundation breakfast -- no host. (All WAS members encouraged to attend.

9:00 a.m. - Field trip to Hanson site, led by G.C. Frison or appointee.

INTRODUCTION TO CAMP PAYNE, WYOMING

BY
DAVID ECKLES

Archaeological and historical investigation of the site of Camp Payne (48NA867) was initiated through a cooperative effort by the Wyoming Archaeological Society-Casper Chapter, Natrona County Historical Society and the Office of the Wyoming State Archeologist. The project was begun in the spring of 1983 and proceeded through the summer of 1984. This was a strictly volunteer effort, and all who were involved unselfishly gave up weekends to participate.

The location of the site is north of Evansville, Wyoming about one-quarter mile from the city limits. It is situated on the highest terrace of the North Platte River valley on the south side of the river. A fence had been built around most of the site, but artifacts and features associated with the site were found on a lower terrace north of the fence, as well as on the upper terrace south of the fence. The map in Figure 1 shows the general location of the Camp Payne (48NA867) site area.

The goals of the Camp Payne project were three-fold. Initial local interest in the study and preservation of the site lead to the cooperative investigation to document the exact location of the Camp Payne site. Previous studies had been done by local residents, and their efforts were recorded by and large in the local media outlets. Because of urban expansion in the area and the resultant impact from increased numbers of people traversing the site for recreational pursuits, a second goal was to recover data on the site and artifacts from the site for local preservation. Finally, no formal historical or archeological research had been performed on the site and an opportunity to do so was presented. Although ultimately our cooperative venture was limited in extent, a great deal of data has been secured from the site, data which will serve all three of the above stated goals.

At the outset of the project, it was thought that the best approach for guiding subsequent test excavations was to walk over the site area and record surface artifacts. This was accomplished by marking all historic and prehistoric artifacts and plotting each artifact with a transit and level rod. Features (such as sandstone rubble piles and depressions) were mapped and subsequently numbered. The site area was also examined with the aid of metal detectors and each metal item so found was mapped. In most areas, these artifacts were shallowly buried and, if uncovered, were left in place for

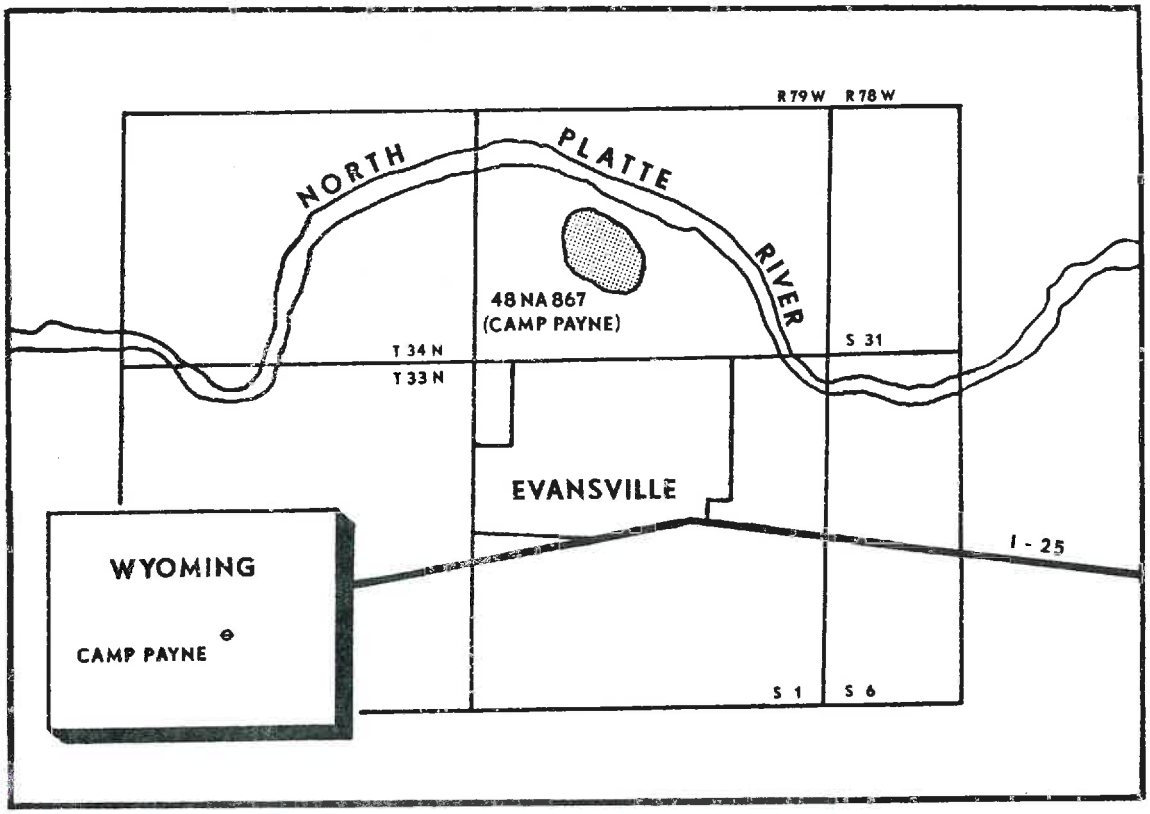

FIGURE 1: General location map of Camp Payne (48NA867), Wyoming.

mapping purposes.

Excavation began as a testing procedure to locate areas of artifact concentrations, to define features and to determine the depth of artifact bearing deposits. All excavation units were 1 x 1 meter square units. Units were excavated from the surface in arbitrary 10 cm levels. Unit level forms were used to plot artifacts, feature remains and internal unit stratigraphy within each unit. All excavated soil was screened through 1/4" mesh.

Geological analysis of the local deposits was done by Art Randall and appears in later in this volume. The historic research on Camp Payne was done by Skylar Scott and also appears in this volume.

ACKNOWLEDGEMENTS

This project owes its initiation to John Winsted of Evansville and Art Randall of Casper. Their interest in locating and documenting the location of Camp Payne led to a cooperative investigation of the site by the Wyoming Archaeological Sociey (WAS), Natrona County Historical Society (NCHS), and the Office of the Wyoming State Archeologist (OWSA). All of the individuals from these organizations who participated in the project are to be gratefully acknowledged.

Surface mapping of the site area was performed by David Reiss and David Eckles (OWSA) with the assistance of Art Randall (WAS).

Excavation was performed by a number of individuals, but it was Art Randall who continually pursued the excavation efforts from spring, 1983 through summer, 1984. Artifact cataloging was performed by a number of individuals including Art Randall, Carolyn Buff, Helen Bryant, Joanne Deal, Shirley Fraker, and George Phillips.

David Eckles analyzed the artifacts recovered from the project with assistance from several WAS and NCHS participants. Mary Lynn Corbett initiated historic records research on the site and Kathy Geer (BLM) provided preliminary notes on the historical background of the site. Skylar Scott (OWSA-Historian) prepared the historical research section of this report. Danny Walker assisted in teh faunal identification.

Finally, the City of Evansville and STate Land Borad are to be acknowledged for their permission to investigate the site. The City of Evansville was especially cooperative and provided assistance through out the project.

The list of participants is presented in alphabetical order:

Carl Belz
Don Bennett
Rick Bonander
R.W. Brown
Helen Bryant
Carolyn Buff
Kim Calvert
Dave Candey
Mary Lynn Corbett
Jim Curkendall
Dave Darlington
Joanne Deal
James Deal
Jan De Beer
Paul De Beer
David Eckles
Betty Farmer
Doug Flack
Shirley Fraker
Kathy Gear
Pam Griggs
Dale Gronewold
Juanity Gronewold
Rob Gronewold
Curt Helwick
Jean Hildebrand
John Hildt
Eileen Honey
Rick Iames
Evan Johnson
Nona Kimball
Charlotte Levendosky
Kerry Lippincott
Bill Metz
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David Reiss
Betty Rickman
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Mary Satterfield
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Ann Seese
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MILITARY CAMPS AT CAMP PAYNE

BY
SKYLAR SCOTT

John Richard and several partners constructed a toll bridge on the Oregon Trail over the North Platte River near present-day Evansville, Wyoming in 1852-1853. The bridge joined the branches of the Oregon Trail north and south of the river and almost immediately became the most important river crossing site in central Wyoming. Aside from being successful business enterprises, the bridge and associated trading post aided thousands of emigrants in their journey west. Until the opening of the Overland Trail to the south of the Oregon Trail, the trail along the North Platte could be called "the main street of the continent". Describing the area surrounding present-day Casper and Evansville, historian Robert Murray says, "During the peak years of that emigrant traffic and through a period of Indian warfare that followed, the locale achieved a tactical importance in both commercial and military activity of the region" (Murray 1975:6).

The emigration on the Oregon Trail led to increasing conflicts between Indians and Euro-American emigrants beginning in the 1853-1855 period on the Upper North Platte (Jones 1967:13). Until the early 1860s, the plains north of the Platte River and west of the Nebraska frontier remained relatively untouched by white settlers. This region became the empire of the Dakota, Cheyenne and Arapaho. Despite the hostilities with Euro-Americans, these tribes still made Fort Laramie their headquarters (Nadeau 1982:141).

"The various Indian tribes on the Platte-Sweetwater route did pose a threat to those moving west" (Munkres 1968:194), with the trail becoming so hazardous by 1854 that emigration that year greatly decreased (Nadeau 1982:90). Small Indian raiding parties harassed wagon trains and stole large numbers of horses from trading posts along the Platte. These hostilities and the increased emigrant traffic would force the United States Army to expand its facilities and forces along the trail.

Indian hostilities increased in 1855. In spite of Richard's connections to the Indians through his marriage to a Dakota woman, Brule raiders stole 75 horses from the bridge in April. William Keil, an Oregon-bound emigrant, wrote about the hostile situation in a letter dated June 25, 1855:

> According to all reports we are now camping before the worst station. Between here and the bridge over the Platte [Richard's] thousands of Indians are on both sides of the river. The first wagon trail this spring that

> carried Captain Gibson's store goods from St. Joseph was shot down by Indians near the bridge . . . The latest news: The bridge company on the Platte had a clash with the Indians. Two Indians were killed and one was wounded. How many of the whites were killed I was not able to ascertain. The bridge operators wish to return to Laramie [Fort]. That would please us, because we could cross the bridge, without paying toll. All keepers of trading posts intend to leave the plains (Bek 1953:30).

Keil updated the situation in his next letter on October 13, 1855: "The uprising among the Sioux Indians at Laramie was enormous so that no one dared to leave the fort, but stayed in its neighborhood". After his party of nine men left the fort, he recalled:

> We went on for many days and nothing extraordinary happened to us. We saw only two Indians, who fled as fast as they could at the sound of the trumpet. Finally we reached the North Platte Bridge (Bek 1953:31-32).

Because of its strategic location, importance to emigrant traffic, and central position in the area of hostilities, Richard's Bridge and Trading Post was a logical site for the establishment of a military post. According to post returns, the 1st Squadron, 2d Regiment US Dragoons, with Major M.S. Howe commanding, reached Richard's Bridge, known at the time as the Platte Bridge, in July, 1855. During July, the 153 military men of Companies D, F, H and S, and a number of civilian employees, marched 356 miles from their camp near Ash Hollow in Nebraska to the bridge, with two soldiers deserting before the month was over (National Archives 1965). There are no post returns for the months of August through October, 1855. However, in September, 1855, a group of soldiers accompanied an emigrant train as far as Richard's Bridge. William Chandless, an emigrant, recorded what happened in his journal entry for September 16, 1855:

> At the 'Last Crossing' [of the North Platte], our escort left us, and turned aside to the 'bridge', and we saw them no more; unfortunately, not having anticipated this move, we lost some public and private chattels lent to the soldiers (Munkres 1968:208).

It is not known how long Major Howe and his troops remained at Richard's Bridge. These troops may have only been at the post temporarily.

General William S. Harney, commander of the punitive Sioux Expedition of 1854-1856, ordered all traders in the region to leave their posts and seek shelter at Fort Laramie, including Richard and his family, during the fall of 1855. Richard naturally felt concern for his abandoned bridge and trading post, with the army being concerned about the security of the bridge. Major William Hoffman, commander at Fort Laramie, wrote to Harney's Adjutant General on October 15, 1855:

> It would be a cause of much embarrassment to persons traveling on this route, and in times of high water would

> stop all trains and the mails, if this bridge over the Platte should be destroyed by the Indians, and I therefore propose, if it meet the approbation of the General, to station a guard of an officer and 25 men there during the winter to protect it (Murray 1975:13-14).

Harney ordered Lieutenant James Deshler, 10th Infantry, along with a detachment of troops to occupy the bridge site. Deshler's orders instructed:

> When you arrive at the Bridge you will keep your party at all times on the alert, exercise day and night the greatest vigilance. It will parade under arms for inspection every evening at sunset. During the night the Sentinels will call the half hours. Have no intercourse with the Sioux and as little with other Indians as possible (Murray 1975:14).

With the onset of General Harney's Sioux Expedition, Richard's Bridge was garrisoned in November, 1855. According to the post returns, Deshler and 24 enlisted men from the 4th Artillery, 6th Infantry, and 10th Infantry, left Fort Laramie on October 28. After arriving at the post on November 2, Deshler "opened command" at the "Platte River Bridge 125 miles above Fort Laramie" (National Archives 1965).

Deshler and his men spent a quiet winter at the bridge, especially with the absence of Richard and his family and employees. Major Hoffman offered to allow Richard to return to the bridge in December, providing Richard would agree not to trade with the Indians. When Richard refused, permission to return was rescinded (Murray 1975:14).

The troops at the post most likely occupied and used Richard's buildings. The four buildings at the trading post, two of which housed a blacksmith shop and a store, could not have provided shelter for the entire detachment. According to journal entries, the troops depended on Indian lodges or tipis for shelter during the harsh winter weather. General Harney, at his headquarters at Fort Pierre, recognized the logic of their use. In a letter dated February 22, 1856, Harney wrote:

> As tents can not be used in this climate, the purchase of lodges will be another article of necessity to us, and a means of cultivating a friendly intercourse. This winter we have labored under great difficulties, our only means of obtaining lodges was through the traders, who charge exorbitantly for them, and who could not supply our wants, for what reason I can not say. The skins dressed for the purpose can be bought very readily from the Indians, and will soon be made into lodges by the squaws for a little sugar. One hundred lodges of 12 skins each, will comfortably shelter from 800 to 1000 men during the winter, and they are easily transferred from one point to another. I shall be compelled to depend upon lodges for shelter next winter, for some portion of my command and should like very much to provide against such a contingency as the expense of them would be very trifling, if purchased in the way I proposed (Harney 1902:421).

According to the post returns of December, 1855, 2nd Lieutenant John Mendenhall assumed command on December 8, with essentially the same command. On the returns, the military camp was still referred to as "The post at the bridge across the North Platte 125 miles west of Fort Laramie" (National Archives 1965). From October, 1855 to January, 1856, the post was also known as Fort Clay (Murray 1975:15). By January, 1856, the post returns were labeled "Fort Clay, Platte Bridge, Nebraska Territory". Twenty-two enlisted men from the 6th Infantry manned the post, with 2nd Lieutenant Robert C. Hill in command. The army also employed two civilians there, a teamster and an interpreter, at $26 a month each (National Archives 1965).

"Special Order No. 9" from the headquarters of the "Sioux Expedition", dated March 6, 1856, ordered Company E, 10th Infantry, to the Platte Bridge, Nebraska Territory "to protect the Bridge and other interests in that part of the Country" (Anonymous 1966). The post was renamed Camp Davis this month. Captain Henry Heth assumed command on March 5, with two lieutenants, two sergeants, one corporal, one bugler and 45 privates stationed at the post. Four civilians worked there for monthly wages: James Landers, hunter, $10, Nicholas Janis, guide, $35, interpreter, $45, and Charles Kough, teamster, $30 a month. The returns described Camp Davis at Platte Bridge as being "120 miles above Fort Laramie on the North fork of the Platte River. The nearest post office is Fort Laramie, Nebraska Territory" (National Archives 1965).

In March, 1856, General Harney allowed John Richard and his family to return to the bridge and trading post. The return of the traders probably increased activity at the site (Murray 1975:14). The troops then had to vacate Richard's buildings.

The first conflict between the United States Army and the Cheyenne occurred at Camp Davis in April. LeRoy Hafen described the incident:

> It having been reported that the Indians had four stray horses, the commander of the troops ordered that these animals be given up, but he gave assurance that the Indians would be paid for finding and herding the strays. Though the Indians agreed to the terms, they brought in only three horses. Little Wolf, owner of the fourth, refused to give it up, insisting that his horse had not been found at the time and place described by the claimant. The commanding officer ordered the arrest of three of the Indians. While they were being put in irons, two made a break for freedom; one of these was shot down, the other escaped. The third, Wolf Fire, was held a prisoner, and ultimately was to die in the guardhouse. Following the arrest and break, Wolf Fire's relatives fled toward the Black Hills, leaving their lodges behind. The troops confiscated the abandoned Indian property (Murray 1975:15).

In revenge, hostile Cheyenne killed a trapper on his way to Fort Laramie, then shifted their attacks to the Oregon Trail in the vicinity of Fort Kearney (Nadeau 1982:135).

By May, 1856, Captain Heth's command had increased to 64

enlisted men, with James Landers, Nicholas Janis, and Charles Kough employed as hunter, guide and teamster respectively. Two soldiers deserted from the post that month. In June, Jason Sunden was hired as an interpreter (National Archives 1965).

J. Robert Brown, a California-bound emigrant, reached Richard's Bridge and the military camp on July 5, 1856. In his journal, Brown recorded the experiences of his wagon train with the soldiers:

> Just before we got to the buildings, a soldier came out to meet us with his gun, and an order from Captain Heth to Yates and Maunder not to sell any liquor to anyone. There are several very good log buildings here; these are used as a store, dwelling houses for the traders, blacksmith shop, etc. There are about 30 lodges belonging to the Crows and Sioux; the soldiers live in lodges also; there are only 58 of them here now; many are deserting at every opportunity. Todd and Gordan arrived here yesterday morning, and, the Captain giving his men the holiday, they had a real drunken spree off Todd and Gordan's whiskey, of which they sold a large quantity. The brothers Richards (pro. Reshaw) own the post and bridge here, and are coining money from it; they have made over $200,000 apiece, but that demon, gambling keeps them down. They appear to be very clever men. They are from Florisant [Missour], and have asked me hundreds of questions about their old stomping ground . . . We were to stop here and get our tire reset on two wagons. There are a number of men returning from California . . . They are amusing themselves by betting with the soldiers . . . I helped the U.S. gunsmith to fix my pistol, but he was so tipsy that he could not work. There is the most bustle and stir here from the small number of men that I have seen since I left home [Missouri]. This <u>is</u> quite a busy place. Wood is very scarce here, and we could hardly get enough to bake our bread. Captain Heth sent down a guard to watch Yates and his wagons, to keep him from selling whiskey to the soldiers.
>
> July 6 -- . . .Indians all up early; white folks up late; they had a grand spree among themselves last night . . . The Indians are coming in from all directions; there are three tribes represented among these, Crows, Sioux, Shoshones or Snakes . . . Yates has been trading with the Indians this morning, giving them lead, coffee, sugar, etc, for their buckskins . . . Yates and Maunder have sold $1500 worth of goods to the Richards at a fair profit (Brown 1860:51-53).

July 7th, Brown again helped the blacksmith, who was drunk again, work on the wagons. Soldiers continued to try to purchase whiskey from everyone in the train, "begging" for it according to Brown. The Crow had left the day before, so not as may Indians remained near the post. Brown continued in his journal:

> I went up to the Captain's

> [Heth] camp to get some beans. I had to wait until they were done drilling the company . . . As soon as I got back, we started; crossed the bridge, which is an excellent one, built entirely of wood. At the north end of this bridge is an excellent coal mine (Brown 1860:53-54).

Company D, 6th Infantry, relieved Company E, 10th Infantry at Camp Davis on July 14th, with 1st Lieutenant William P. Carlin assuming command on July 20th. The new company of three commissioned officers and 67 enlisted men was on detached service from Fort Laramie by order of the commanding officer there (National Archives 1965).

During the fall of 1856, correspondence regarding the possible maintenance of the post raised the point of the cost of building huts if a full company were to be wintered there. However, the Camp Davis troops were withdrawn soon after this (Murray 1975:16). Both United States Army and Indian Bureau documents contain evidence that the traders and Indian agent, Thomas Twiss, made efforts to have the post kept active in the fall of 1856, perhaps to increase trade and contract work. However, the Army regarded the military camp as unnecessary because of the strength of the trader's community. Captain Lovell broke up the post on November 8, 1856 and withdrew to Fort Laramie (Murray 1975:15-16). This ended the first military camp at Richard's Bridge and Trading Post.

Despite the abandonment of the military post at Richard's Bridge, the presence of the U.S. Army personnel at the site did not end. The Mormon War began in 1857 between the federal government and the Latter Day Saints of Utah. The U.S. Army organized the Utah Expedition to quell the 'rebellion' in Utah. The forces and supply trains marched west over the Oregon Trail and all had to cross the North Platte at Richard's Bridge (Hafen et al. 1938:256). This freight transportation dominated plains travel in 1857 and 1858.

Captain Jesse A. Gove, 10th Infantry, recorded his visit to the bridge in a letter dated September 11, 1857:

> I shall tomorrow go up to the Bridge. I sent up today by Bennett and got two of the best robes the trader had; bought an elk skin also, so you see I have three robes besides plenty of blankets. I shall leave this letter at the Bridge, and a mail goes to Laramie [Fort] every few days (Hammond 1928:54).

According to Gove and several other references, mail from Fort Bridger and other points west was often delivered as far as Richard's Bridge and then picked up for delivery to Fort Laramie.

The Mormons also freighted supplies in preparation for invasion by the Utah Forces. One such supply train consequently involved Richard and the U.S. Army in a disagreement. An account of this incident appeared in the New York Herald on July 8, 1858, written either by their reporter or by Captain Gove, who was also sending dispatches to the paper. During the summer, of 1857, a Mormon call Big Nose ". . . was conducting a train of 12 wagons loaded with powder, rifles and other merchandise into Mormondon in rear of the army. At Laramie

he asked General (then Colonel) Johnston for a pass". The pass was granted, but:

> After the trains were burned [U.S. Army supply trains at Simpson's Hollow] by the Mormons Big Nose began to think that his train would not be permitted to pass the army, and that it was not safe from being seized even when behind it. So, arriving at Platte Bridge he left his wagons, packed some things on the backs of mules, and started through the mountains for Salt Lake City, avoiding the army. The Saints glorified themselves greatly over this achievement. They gave out that Big Nose took everything that was in the train with him on the backs of mules into Salt Lake Valley. The same thing was reported at Platte Bridge. Richard, an Indian trader at Platte Bridge, said he had bought their wagons and some other things from the Mormons, but his word was not believed. During the winter General Johnston sent down to Platte Bridge and had Richard's things examined, with the order that if more guns and ammunition were found there than legitimately pertained to Mr. Richard's business to take possession of them and bring them to this post [Camp Scott]. Thirty rifles and a limited quantity of ammunition were brought up here. Richard came up this spring, declared the rifles were his private property, and wished to be paid for them. He demanded the moderate sum of $3,000 for 30 rifles; but instead of his demand being complied with he was informed that as the necessity for the seizure of the rifles had passed he might have them again. No, that would not do--he must have damages for being deprived of them--so he started off determined to apply to Congress for indemnity for the seizure of his property. But after cooling-down he concluded that Congress was such a slow mill it might never grind out his bill of indemnity, so he returned and accepted the rifles, which all the time belonged to the Mormons, and had only been left, like the rest of the things in Big Nose's train, in his keeping (Hammond 1928:312-313).

Aside from the contemporary account of the rifle incident published in the New York Herald, government documents also mentioned the controversy. On November 13, 1857, Colonel A.S. Johnston ordered Major J. Lynde, commander at Fort Laramie, to search Richard's Bridge for arms and ammunition supposedly left at the bridge by a man named Grosbeck in charge of a Mormon supply train. Lieutenant John S. Marmaduke received an order on December 3 to proceed to Richard's trading posts at the Platte Bridge and Deer Creek and search for arms over and beyond what would be sufficient for the Indian trade. Marmaduke subsequently seized approximately 20 rifles from Richard's store at the Platte Bridge and returned with them to Fort Laramie. Richard protested that the rifles were his property, being supported by Indian Agent Twiss, who claimed that they could not have belonged to the Mormons (Jones 1967:15). After considerable controversy, the

rifles were released to Richard, as reported in the New York Herald.

In spite of the troubles between Richard and the military, both continued to follow the dictates of supply and demand. Whatever his personal feelings, Richard never appears to have turned down a chance to conduct a profitable business deal. However the Army saw Richard's role in the Mormon rifle incident, they needed the goods and services Richard could supply. Assistant Adjutant General F.J. Porter, at Camp Scott, wrote a letter to Major Lynde on February 2, 1858 concerning transportation of supplies to that post:

> Mules can be purchased at Platte Bridge, if the offer made by Mr. Richard to the quartermaster here to drive some hundred of them to this place for sale can be relied upon, and there is reason to believe one of the traders in your vicinity will have others early in the spring (Porter 1859a:57).

Major Lynde replied to this letter on February 24:

> Mr. Richard who resides at the Platte Bridge has gone east, and from information which I have lately received I think he has only a few poor mules at this time, not more than 8 or 10. If any can be purchased before the train starts I will have them bought and sent through (Lynde 1859:64).

Richard also supplied cattle for the Utah Expedition. On May 8, 1858, the Camp Scott "Commissary obtained 100 head of cattle from Mr. Richard; they arrived on the 12th at the camp from Green River" (Hammond 1928:276-277).

The United States Army also relied on Richard's Trading Post as a mail delivery station. Captain Gove wrote from Fort Bridger on January 31, 1858:

> Tomorrow the mail goes off. The worst of the winter is now over. There was but a very few papers came. They were left at Platte Bridge on account of the deep snows (Hammond 1928:118-119).

Captain J.M. Hawes, commander of the 2d Dragoons, Camp Scott, had the responsibility of patrolling the Oregon Trail between Camp Scott and Fort Laramie. Assistant Adjutant General Porter wrote Hawes on March 10, 1858, "At Platte Bridge you will find 2 or 3 mail-bags, which on your march down you will take with you, the better to secure their delivery here" (Porter 1859b:63).

Between emigrant travel and trade, army patrols of the Oregon Trail, and troop movements, freight transportation and supply purchases for the Utah Expedition at Richard's Bridge and Trading Post, the site increased in significance to travel and trade on the Oregon Trail. According to historian Robert Murray, its strategic importance caused the Army to restation troops there in 1858 (Murray 1975:17).

A newspaper article appeared in the Daily Missouri Republican in July, 1858 which read:

> Capt. Roberts' Company, D, 4th Artillery, is detached for duty at Platte Bridge, and Companies E, Captain Getty, A, Captain Clark, I, Lieutenant Waddy, C, Lieutenant Hazzard, are to take post at Laramie, with

> Colonel Monroe in command, to whose orders the whole District of the Platte is also subject (Watkins 1922:303).

Special Order No. 1, dated June 12, 1858, Headquarters, Battalion of the 4th Artillery camped near Fort Kearney, read: "The command composed of Companies D and E, 4th Artillery will take up the line of march at 9 a.m. tomorrow, for the bridge over the north fork of the Platte" (Anonymous n.d.). According to a letter written by General William S. Harney, commander of the Utah forces, on August 3, 1858: "The 2d column, under Brevet Colonel Munroe, reached Fort Laramie on the 9th [of July], and two companies of the 4th Artillery belonging to it had on the 12 gone forward to occupy the Platte bridge" (Harney 1859:131). An article appearing in the Missouri Daily Republican on August 19 reported, "Captain Roberts had started for Platte Bridge with his company, also Captain Getty's company of the same regiment but only temporarily" (Watkins 1922:306).

Captain Joseph Roberts and his troops reoccupied the Post at Platte Bridge on July 29, 1858 as part of the Utah Forces. The Field Staff was composed of six commissioned officers, 61 enlisted men, and 25 civilian employees--one wagon master, one assistant wagon master, 21 teamsters, and two herdsmen (National Archives 1965). All evidence indicates that these troops lived in Sibley tents--framed tents with board floors and stone fireplaces and chimneys (Murray 1975:17). The army at Camp Scott used Sibley tents in 1858. This fact, combined with contemporary accounts and the fact that approximately 40 stone fireplace remains have been found at the military camp at Richard's Bridge seem to confirm this hypothesis (Anonymous 1966:2).

As of August, 1858, the post, then popularly known as Camp Payne, continued its strategic importance to the Utah Expedition. Aside from the troops stationed there, two columns crossed Richard's Bridge on their way west, including the 2nd Dragoons of Lieutenant Colonel Philip St. George Cooke and Lieutenant Colonel William Hoffman's 6th Infantry attachment (Anonymous n.d.). Private John Morgan, Company A, 7th Infantry, was left at the Camp Payne hospital while his company was en route to Utah. Morgan died there on August 25th of diarrhea. The next month, two enlisted men from Camp Payne died from disease or other medical problems (National Archives 1965). Since the three deaths were enlisted men, they were probably buried at the post graveyard and the remains not sent back to their hometowns. Therefore, these soldiers probably account for three of the burials later unearthed at the graveyard there.

Other troops continued to pass the post on their way to other duties. Percival G. Lowe, a dragoon, left Fort Laramie on September 4, 1858 with a supply train for Fort Bridger. He arrived at Camp Payne on September 12, which he recorded in his journal:

> Arrived at Fort Payne where there is a bridge across the Platte River. Two companies of Fourth Artillery here, Captain Roberts (called by his intimates 'Jo Bobs') commanding--a fine officer. .

> Six miles above Fort Payne crossed North Platte (Lowe 1906:322-323).

On September 9, 1858, Companies L and M, 4th Artillery, escorted by 15 soldiers from Company D, 2d Dragoons, along with a large train of heavy wagons and 40 head of cattle, left Camp Payne to establish Camp Walback at Cheyenne Pass (Ryan 1963:5). Captain John Todd recorded other troop movements past the post in his journal on September 28, 1858: "Captain Heth 10th Infantry with his Company and a detachment of 15 men from our command has been ordered to escort trains at this point [Fort Laramie], up the Platte as far as the Devils Gate", west of Richard's Bridge (Todd 1962:117).

Even with all the troop movements on the Oregon Trail, numerous Indian raiding parties still frequented the area. Because of this, Indian Agent Thomas Twiss recommended in September, 1858 that a permanent military post be garrisoned on the Upper Platte, since Camp Payne was a temporary post associated with the Utah Expedition (Hafen et al. 1959:171).

Through October and November, 1858, the soldiers and civilians at Camp Payne had an uneventful two months. Percival Low again visited the post on November 3rd and 4th on his way back to Fort Laramie from Fort Bridger. He recorded in his diary:

> Some what warmer. Off early; snowing a little. 44 miles in 3 drives, and camped at North Platte at sunset. Got supper and carefully examined all the frost-bitten victims. They had been made as comfortable as possible in the wagons, had stood the ride very well, and were pleased that they would soon reach a doctor. Talmadge and I left camp at 9 o'clock and rode to Fort Payne, 6 miles, where we arrived at 10, and stopped at Mr. Clark's sutler's store. It was the coldest ride I ever made. Our animals were cared for, and the usual reviver, hot whiskey toddies, applied to us. I had not then learned that hot water was far better. Captain Getty, Captain Roberts and other officers came to the sutler's store. We listed to the news from the East and they from the West until midnight, and slept at the sutler's, who was prepared to accommodate us. Talmadge is at home, this being the end of his journey, and he will find quarters tomorrow.
>
> 4th. Breakfast with Mr. Clark. No doctor here. Got some medicine from acting hospital steward. Train came in at 10. Lt. Howard stopped here; unloaded his and Talmadge's goods. Fed all hay mules wanted, and made hospital wagon of the spring wagon in which Howard has ridden all the way. Drew forage to last to Laramie, said 'Goodby', and started at 2 (Lowe 1906:348-349).

Special Order 25, dated December 15, 1858, ordered a General Court Martial at Platte Bridge. The post returns for Camp Payne do not give any further information on this incident. The post remained quiet through January, 1859, with the biggest change being 1st Lieutenant Robert Howard assuming command for January. Captain Roberts resumed

command in February. In March, one soldier deserted and one died, but no details are given (National Archives 1965). Again, the dead soldier was probably buried in the post graveyard.

With the end of the Utah Expedition, little reason was seen for keeping Camp Payne active. Captain Roberts received a letter on april 12, 1859 directing that preparations be made for abandoning the post. General Order 7, dated April 13, 1859, was received on April 20th directing that the "Post at Platte Bridge" and Camp Walbach be abandoned (National Archives 1965). The troops were shortly withdrawn to Fort Laramie (Murray 1975:17-18). The troops had gone by the time Hozial Baker, an emigrant, passed the post on May 24, 1859, with only the bridge operators, traders and a large number of Indians remaining (Baker 1861:17). When Sir Richard Burton passed the abandoned post in a stagecoach on August 16, 1860, he recorded: "Remounting, we passed a deserted camp, where in times gone by two companies of infantry have been stationed; a few stumps of crumbling wall, broken floorings, and depressions in the ground were the only remnants which the winds and rain had left" (Murray 1975:18).

Though not occupied over a long period of time by the United States Army, the military camp at Richard's Bridge played a significant role in the affairs of the region. The post protected a strategic crossing of the North Platte River on the Oregon Trail, and played a protective role with emigrants and a punitive one with hostile Indian tribes. The post provided a link between East and West in communications and supply transport. The Post at Platte Bridge, also known as Fort Clay, Camp Davis, and Camp Payne, was associated with two significant military campaigns, the Sioux Expedition of 1855-1856 and the Utah Expedition of 1858-1859. Furthermore, the military camp played an important role in Indian-Euro-American relations. Large numbers of Indians camped near the site because of Richard's Trading Post and the chance to trade with emigrants. It is documented that Crow, Dakota, Cheyenne, Arapaho, Shoshone and Blackfeet either camped at the post or were in the vicinity, therefore coming in contact with the U.S. Army as represented by its force at the bridge.

The post also acted as a way-station for other troops. It is known that soldiers from the 2d Dragoons, 4th Artillery, and 6th, 7th and 10th Infantries were either stationed at the camp or passed through the site as of 1859. Until the abandonment and destruction of the bridge in 1865, other troops undoubtedly visited the site. The post at Platte Bridge protected the most important river crossing in Wyoming, in the most hostile area of Wyoming, aiding in travel and communication on the Oregon Trail. Undoubtedly, the camp also played a significant role in relations between Plains Indian tribes and the U.S. Army as the post acted out its role as peacekeeper, protector, and aggressor.

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THE ARCHAEOLOGY OF CAMP PAYNE, WYOMING

BY
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DATA RECOVERY

A general description of the surface collection and excavation results is presented in this chapter. A more detached analyses of the artifacts recovered is presented in the following chapter.

Surface Collection/Mapping

A relatively large number of historic and prehistoric artifacts were found during the surface mapping portion of the project. Features thought to be related to the military occupation of the site were also recorded. Figure 2 shows the surface distribution of these remains. Modern trash was found throughout the site area and an attempt was made to exclude this refuse from the surface collection/mapping work.

A total of 51 artifacts assigned to the aboriginal category were found on the surface, including two Late Prehistoric type projectile points, one possible aboriginally made gun flint, one piece of aboriginal pottery, four beads, one iron projectile point and a variety of lithic tools and debitage. The distribution of aboriginal artifacts appears to be widespread throughout the site area with a concentration near the southeastern portion of the site.

Period historic artifacts recovered from the surface are varied. Probably military related items include 24 lead projectiles, 21 military and civilian type buttons, 18 clay pipe fragments, 37 nails, screws, and bolts (all nails are common square cut), 27 probably period ceramic fragments, 53 probable period glass fragments, and 45 miscellaneous metal items, including tin cans, gun parts, metal bars, tack (?) and others.

Twenty-eight features were identified ranging from depressions to stone lined structural remains. Table 1 lists these features and they are indicated in Figure 2. Figure 2 also shows the surface distribution of artifacts, locations of excavation units, and other site landmarks.

Several of the sandstone slab mounds may be the remnants of individual tent barracks. At Features 1, 3-7 (Figure 3), 9, 10, 14, 22-23, 25-28, burned sandstone slab and rock fragments were found. Some of the sandstone rocks appear to have angular edges as if shaped for construction. Some or all of these features may have been the location of the fireplaces around which were constructed tent barracks (or

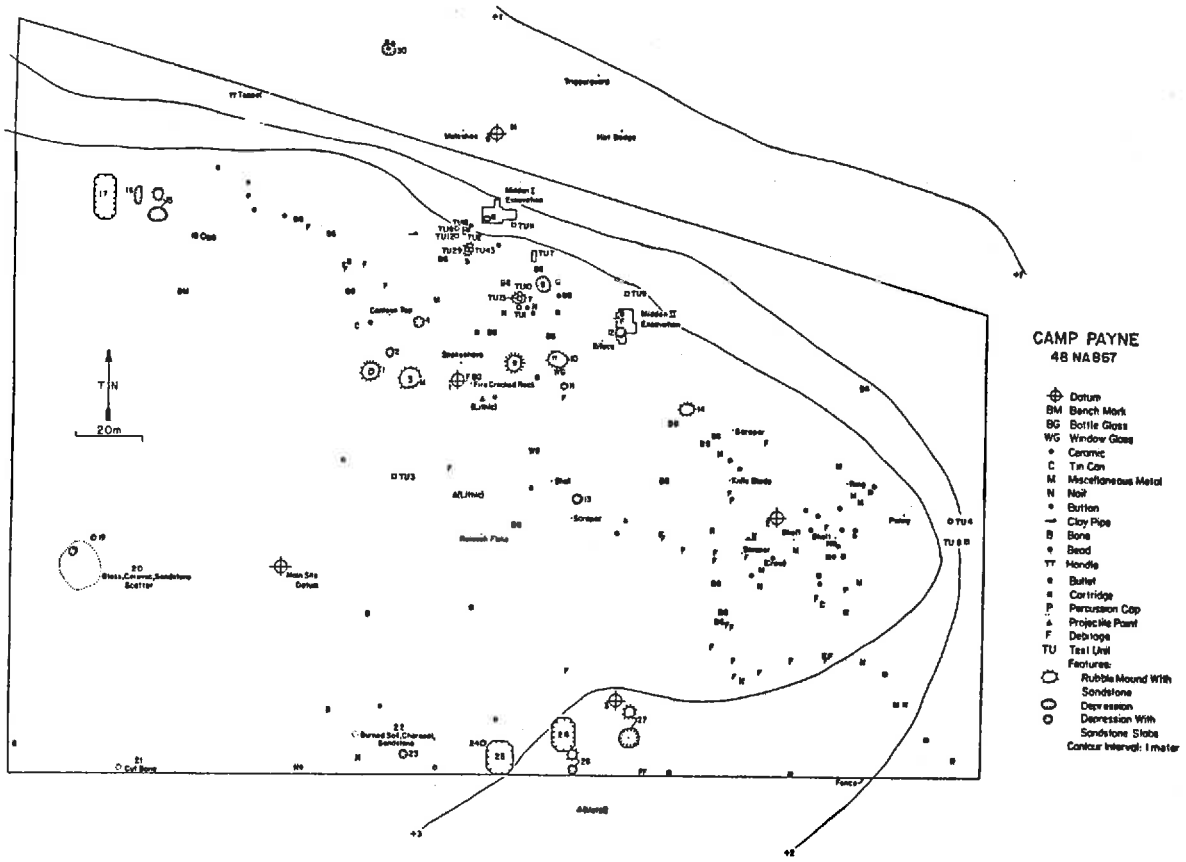

FIGURE 2: Map of surface artifacts and features, Camp Payne, Wyoming.

FIGURE 3: View of Feature 7, low sandstone rubble mound with Test Unit 1 to south.

Feature #	Size (meters)	Description
1	6.0 N-S x 8.0 E-W	Sandstone slabs at SE, NE and SW corners, depression in center, slightly mounded
2	3.5 N-S x 2.4 E-W	Depression with few metal fragments inside
3	6.9 N-S x 7.0 E-W	Mound of small sandstone slabs with glass fragments
4	4.0 N-S x 3.7 E-W	Depression with small sandstone slabs around edges and glass fragments
5	2.9 N-S x 3.2 E-W	Line of sandstone slabs, may be structure foundation, at top of Midden Area 1.
6	1.4 N-S x 1.2 E-W	Depression in Midden Area 1
7	3.1 N-S x 3.9 E-W	Low mound of small to large sandstone slabs with glass fragments
8	5.0 N-S x 5.1 E-W	Round depression
9	4.9 N-S x 4.4 E-W	Low mound with large sandstone slabs with historic pottery, glass and bone fragments
10	4.6 N-S x 6.0 E-W	Low mound of modern sandstone rocks
11	1.7 x 1.7	Small depression (may be recent)
12	3.1 N-S x 3.6 E-W	Depression (may be recent)
13	3.0 x 3.0	Depression (may be recent)
14	3.0 N-S x 4.1 E-W	Low mound medium sandstone slab at top of Midden 2
15	5.5 x 5.5	Depression with low mound of sandstone rubble 3-6 meters north of depression
16	Unknown	Depression of unknown size
17	13.0 N-S x 6.0 E-W	Depression and scattered sandstone rubble
18	Unknown	Depression of unknown size
19	1.8 x 1.8	Depression (may be recent)
20	13.5 N-S x 12.0 E-W	Scatter of period glass and ceramics, depression in NW corner (recent?) and large sandstone slabs at north end
21	1.0 x 1.0	Saw cut bone near south fence, cf. *Bos taurus* probably recent due to minimal weathering
22	1.5 x 1.5	Burned soil with charcoal, few small sandstone rocks surrounded by recent and period trash

TABLE 1: Descriptive data on features, Camp Payne, Wyoming.

Feature #	Size (meters)	Description
23	3.0 N-S x 2.3 E-W	Depression with few sandstone rocks
24	2.0 x 2.0	Depression (may be recent)
25	10.5 N-S x 8.3 E-W	Linear depression with piled (?) sandstone rocks in south half
26	11.3 N-S x 7.0 E-W	Linear depression with piled (?) sandstone rocks in south half
27	5.5 x 5.5	Depression with sandstone slot mound 3 x 3 m to north of depression from 3.5-6.5 m
28	3.0 x 3.0	Depression with sandston rock mound 5 m to north
29	Unknown	Depression with artifacts, bone and metal artifacts
30	Unknown	Depression with sandstone slabs

TABLE 1: (continued).

Sibley tents). Several of these features also appear in a linear arrangement, further supporting the idea that some represent tent barracks remnants.

Feature 5 is the only rectangular arrangement of sandstone, many of the slabs thereof having been squared as if made for construction of a foundation (Figure 4). Some of the features with sandstone rocks, such as 14 and 20, may be dump areas; Feature 14 is within the excavated area of Midden 2 (see discussion below).

The depressions not associated with sandstone rocks may be modern disturbances. No excavation was done in these areas, so a firm association cannot be offered at this time.

Test Excavations

Initial test excavation was done in a judgmental fashion and test units were placed in areas where artifacts were suspected. Several of the initial test units were placed in Features 5-7, and 14. Block excavations of two suspected dump areas (middens) followed.

Test Units 1, 7a, 10, and 13 were excavated in Feature 7, one of the suspected tent barrack fireplace remains. Units 29 and 43 were excavated in Feature 5. Units 2, 8, 12, and 18 were excavated in suspected trash midden deposits. Units 4 and 5 were excavated at the eastern edge of the site in, again, suspected trash midden deposits. Units 3, 7, 9, and 11 were excavated at random as controls for excavation in other areas. Units 3-5, 7, 9, and 11 proved not to be associated with major artifact concentrations, trash midden deposits or site features, although period artifacts were found in each.

The remaining excavation units were excavated in large block areas in two separate midden areas. The bulk of subsurface artifacts came from the two midden areas. Figure 2 shows the block

FIGURE 4: View of Feature 5, rectangular sandstone alignment with Test Unit 29 and 43.

excavation areas in Middens 1 and 2.

Midden 1 (Figure 5)

Test excavation units 6 and 14 were excavated in an area where the slope of the highest terrace south of the North Platte River sloped down (or north) to the next highest terrace. This area contained a relatively large area of dark charcoal and ash stained silty sandy loam soil. It became clear from the excavation of Units 6 and 14 that intact cultural deposits was present. A large number of artifacts were recovered from these test units and a clear cultural level was observed in profile (Figure 6). This cultural level consisted of a wide variety of historic artifacts and bone mixed with soil deposits including pockets of ash, wood, and coal charcoal. The depth of this level ranged from the surface to 40-50 cm below surface; Feature 6, a depression within Midden 1, reached a depth of 38 cm below surface. A profile map of the Midden deposits is presented in Figure 7.

Forty-nine square meters were excavated in Midden 1. Unit level depth varied from unit to unit, but in all, 8.7 cubic meters were excavated in Midden 1. In this block area, 2005 artifacts were recovered including 1026 glass fragments, 401 bone fragments, 161 clay pipe fragments, 124 ceramic fragments, 96 clinker pieces, 46 nails, 33 buttons, 30 wood fragments, 18 leather fragments, 13 lead projectiles, 5 percussion caps, 43 miscellaneous metal fragments, 3 pieces of cork, and 6 aboriginal lithic artifacts. One 1856 Half-dime was found in Test Unit 40.

Midden 2 (Figure 8)

To the east of Midden 1, at the crest of the terrace slope, another area of dark charcoal stained soil was present. Feature 12 was found in this area. It was initially thought that the sandstone rubble associated with

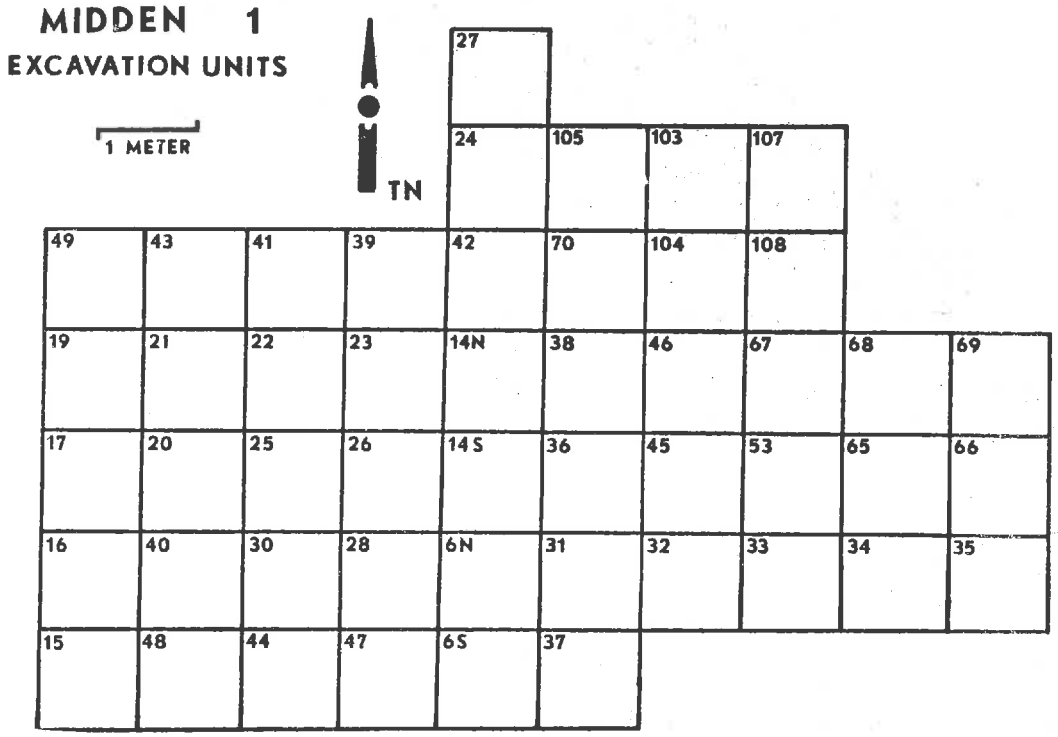

FIGURE 5: Layout of block excavation units, Midden 1, Camp Payne, Wyoming.

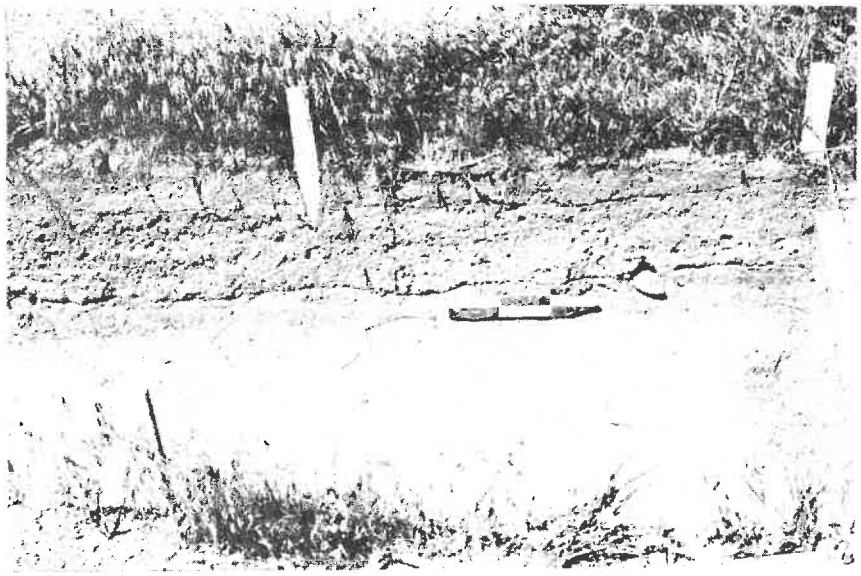

FIGURE 6: Midden 1 cultural deposits in West wall profile, Test Units 42 and 26.

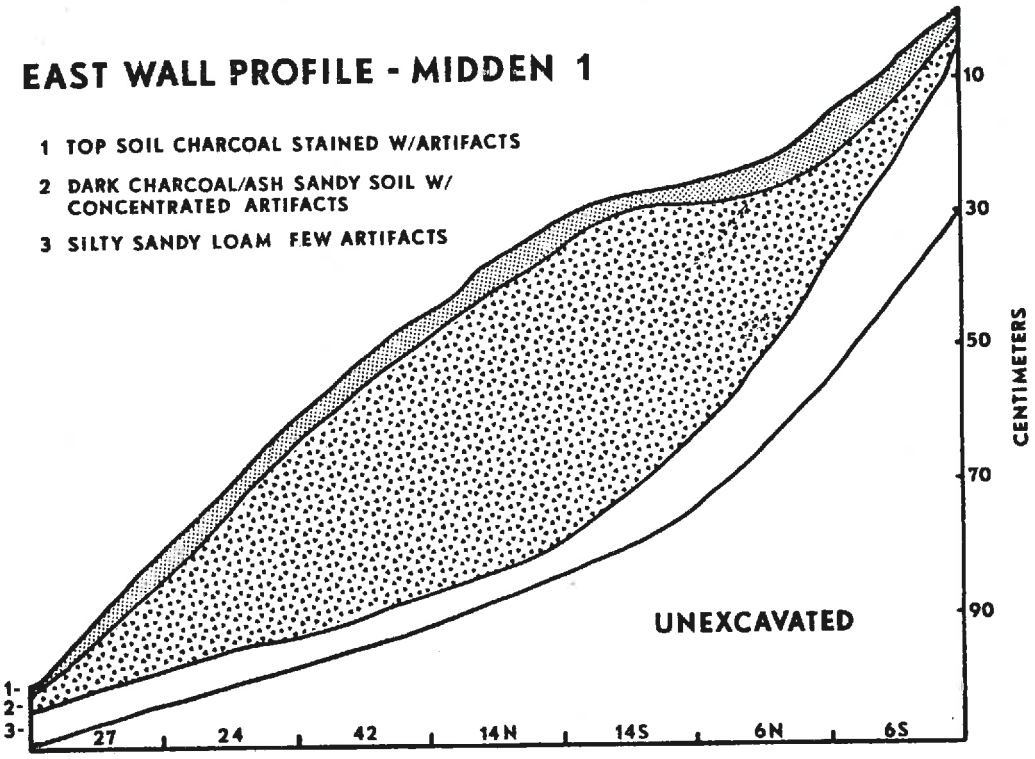

FIGURE 7: Schematic profile of Midden 1 cultural deposits, Camp Payne, Wyoming.

Feature 12 was part of structural remains, perhaps a tent barracks. During the excavation of 46 square meters in the area of Feature 12, it became clear that another trash midden deposit was present; the sandstone rocks of Feature 12 could not be related to a definite structure and were probably part of the trash deposited in Midden 2.

The overall depth of Midden 2 deposits was no more than 10 cm throughout the excavated area. A similar dark charcoal stained silty-sandy loam soil was encountered. In the 4.7 cubic meters excavated, a total of 588 artifacts was recovered, including 153 bone fragments, 147 glass fragments, 104 ceramic fragments, 60 clay pipe fragments, 33 miscellaneous metal fragments, 32 buttons, 26 nails, 13 lead projectiles, 7 percussion caps, 3 clinker pieces, 2 wood fragments, and 8 aboriginal lithic artifacts.

ARTIFACT ANALYSIS

Artifacts recovered from surface collection and excavation have been grouped according to several general categories. These categories include aboriginal artifacts including lithic artifacts, trade beads and projectile points. Historic period artifacts include military related items, such as lead projectiles, percussion caps, military and civilian buttons. Other historic artifacts, which are most likely associated with the Camp Payne occupation, include

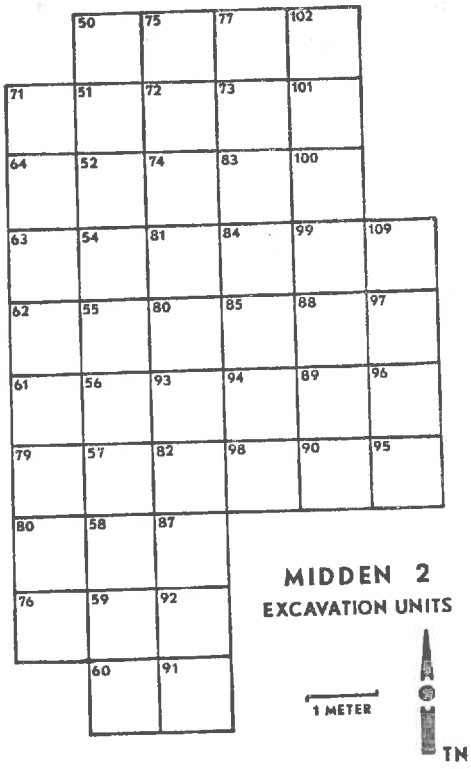

FIGURE 8: Layout of block excavation in Midden 2.

several kinds of bottle glass, several kinds of ceramic artifacts, common cut square nails, clay pipes, leather fragments and other metal artifacts. Faunal remains were recovered from most excavation units and are considered to relate primarily to the military occupation. These artifacts are identified and described in the following sections.

Aboriginal Artifacts

Aboriginal artifacts were found primarily on the surface at 48NA867, with a few being found in excavation units. Table 2 presents an overall listing of the artifacts recovered. The majority of the artifacts consisted of lithic tools and debitage. These include two Late Prehistoric projectile points, one metal projectile point, one possible aboriginal made gunflint, four trade beads, and several lithic tools and debitage. The projectile points and possible gun flint are illustrated (Figure 9).

Three body sherds of aboriginal pottery were found on the surface. They have large angular sand (quartz) temper particles (1.0-3.0 mm in size) mixed in a fine to slightly granular paste. The construction appears to be paddle and anvil type with some interior brush and fingernail marks present. The exterior finish consists of a smoothed and/or brushed surface with evident fluted impressions. This description fits that of Crow type ceramics (Frison 1978).

The presence of the metal point, trade beads, and possible gun flint indicate a possible contemporaneous aboriginal Euro-American occupation. The presence of aboriginal artifacts on the surface and in the excavation units could indicate prior contemporaneous and subsequent occupations. No clear cut stratigraphic separation between aboriginal and historic Euro-American occupation could be detected.

Historic Artifacts

Buttons - Military and Hat Badge

A relatively large sample of military and civilian clothes buttons were recovered from the site. This includes 24 uniform buttons, 41 non-uniform clothes type buttons of various kinds of metal, 12 of glass, 7 of shell and bone, and one ceramic. The buttons are listed in Table 3.

The military buttons show a variety of types and time periods. There are 10 naval types, 5 infantry, 5 general service, 3 artillery, and one dragoon type

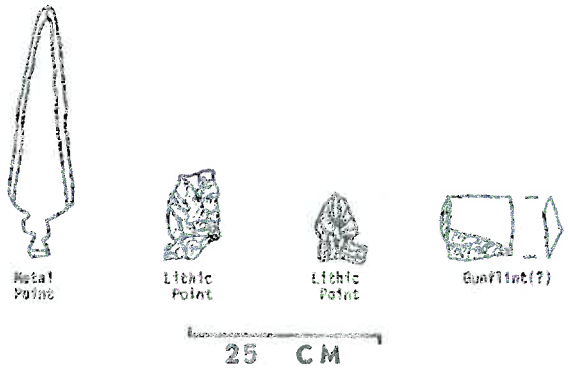

FIGURE 9: Diagnostic aboriginal artifacts, 48NA867.

(see Figure 10).

The earliest of the military types include three infantry buttons. These are one-piece buttons with Omega type loop shank made of pewter, with no back markings. These were enlisted men's buttons and have dates of manufacture from 1821-1836 to possibly 1840. They appear to be the O-type line eagle with "I" on a raised shield (Olsen and Campbell 1962:348; Johnson 1849:49). The other two infantry buttons are the S-type, line eagle

Provenience Surface	Raw Material	Description
#7	Purple quartzite - (Spanish Diggings?)	1 Late Prehistoric projectile point, one broken ear (illustrated, Figure 9c))
#12	Brown quartzite	1 flake (secondary core reduction), Flake (tertiary bifacial reduction)
	Purple oolitic like chert	1 shatter
	Brown quartzite	1 piece fired rock
#14	Maroon porcelanite	1 utilized flake
#18	Brown chert	1 shatter
#31	Tan dendritic chert	1 gun flint? - aboriginal made? (illustrated, Figure 9d)
#33	Gray brown quartzite	1 flake (secondary core reduction)
#34	Purple dendritic chert	1 shatter
#35	Tan dendritic chert	1 Flake (pressure retouch)
#36	White chert	1 Flake (secondary core reduction)
#37	Maroon brown mottled dendritic chert	1 Flake (tertiary bifacial reduction)
#49	Tan quartzite	1 Flake (tertiary bifacial reduction)
#50	Tan chert	1 Flake (tertiary bifacial reduction)
#51	Maroon porcelanite	1 Late Prehistoric projectile point, one broken ear and portion of blade edge (illustrated, Figure 9b)
#57	Fresh water shell	Unidentifiable portion of shell body
#60	Tan banded chert	1 Side scraper
#61	Brown dendritic chert	1 Side scraper, broken
#62	Grey brown dendritic chert	1 Bifacially utilized flake
#63	Tan quartzite	1 Flake (secondary core reduction)
#64	Maroon dendritic chert	1 Side scraper, broken
#77	Maroon chert	1 Flake (pressure retouch)
#81	Pottery	3 body sherds, Ewell type pottery

TABLE 2: Aboriginal artifacts, Camp Payne, Wyoming.

Provenience	Raw Material	Description
Surface		
#87	Bead	1 sky blue trade bead (doughnut shaped) (2.8 mm diameter, 1.5 mm wide)
#96	Pink gray white mottled dendritic chert	1 Flake (secondary core reduction)
#98	Bead	1 ceramic seed type bead, broken in half (7.5 mm diameter)
#115	Brown dendritic chert	1 Flake (secondary core reduction)
#116	Obsidian Maroon dendritic chert	1 shatter 2 flakes (tertiary bifacial reduction)
#117	Brown quartzite	1 Flake (tertiary bifacial reduction)
#119	Purple brown dendritic chert	1 shatter
#120	Brown quartzite	1 Flake (tertiary bifacial reduction)
#121	Maroon dendritic chert	2 flakes (tertiary bifacial reduction)
#122	Brown dendritic chert	1 Flake (tertiary bifacial reduction)
#125	Fresh water shell	1 body fragment
#126	Grey oolitic like chert	1 Flake (tertiary core reduction)
#134	Purple quartzite (Spanish Diggings?) Mottled chalcedony	1 Flake (secondary biface reduction) 1 Flake (primary core reduction)
#135	Maroon dendritic chert	1 Flake (tertiary biface reduction)
#137	Brown quartzite	1 shatter
#139	Tan dendritic chert	1 Biface, broken
	Maroon dendritic chert Brown quartzite	1 Bifacially utilized flake, broken 1 Flake (tertiary bifacial reduction)
#141	Maroon dendritic chert	1 Spokeshave
#151	Brown chert	1 shatter
#152	Brown chert	1 Spokeshave with two notches
#177	Brown black chert	1 End scraper (illustrated)
#371	Bead	1 Ceramic seed type bead, broken in half (7.0 mm diameter, 7.0 mm wide)
#1166	Iron	1 metal projectile point 67.0 mm long, 16.0 wide 2.0 thick, filed blaze edges (illustrated, Figure 9a)
Feature 5	Purple gray quartzite	1 Flake (tertiary bifacial reduction)
Feature 14	Brown maroon dendritic chert Bead	1 End scraper 1 Ceramic seed type broken in half (7.0 mm diameter, 7.5 mm wide)
Test Unit		
T.U. #1, 20-30 cm	Purple quartzite Brown chert	1 Flake (tertiary bifacial reduction) 1 Flake (primary core reduction)
T.U. #3, 0-10 cm	Maroon chert	1 Flake (tertiary bifacial reduction)
T.U. #11, 10-20 cm	Brown maroon chert	1 Flake (bladelet from bifacial reduction?)
T.U. #13, 20-30 cm	Maroon porcelanite	1 shatter

TABLE 2: (continued).

Provenience	Raw Material	Description
Test Unit		
T.U. #14N½, 30-40 cm	Brown dendritic chert	1 Flake (tertiary bifacial reduction)
T.U. #15, 10-20 cm	Black basalt	1 fired rock split in half
	Brown quartzite	1 Flake (tertiary bifacial reduction)
T.U. #17, 10-20 cm	Purple quartzite	1 Flake (secondary bifacial reduction)
T.U. #20, 10-20 cm	Purple quartzite	1 Flake (pressure retouch)
T.U. #40, 0-10 cm	Tan dendritic chert	1 Flake (tertiary bifacial reduction)
T.U. #58, 0-10 cm	Grey chert	1 Flake (primary core reduction)
T.U. 77, 0-10 cm	Tan dendritic chert	1 Flake (tertiary bifacial reduction)
T.U. #78, 0-10 cm	Tan dendritic chert	1 shatter
	Tan chert	1 Flake (primary core reduction)
T.U. #94, 0-10 cm	Brown chert	1 Flake (secondary core reduction)
T.U. #95, 0-10 cm	Maroon chert	1 shatter
T.U. #97, 0-10 cm	Purple dendritic chert	1 Bifacially utilized flake
T.U. 106, 0-10 cm	Tan dendritic chert	1 Flake with unifacial use wear one edge

TABLE 2: (continued).

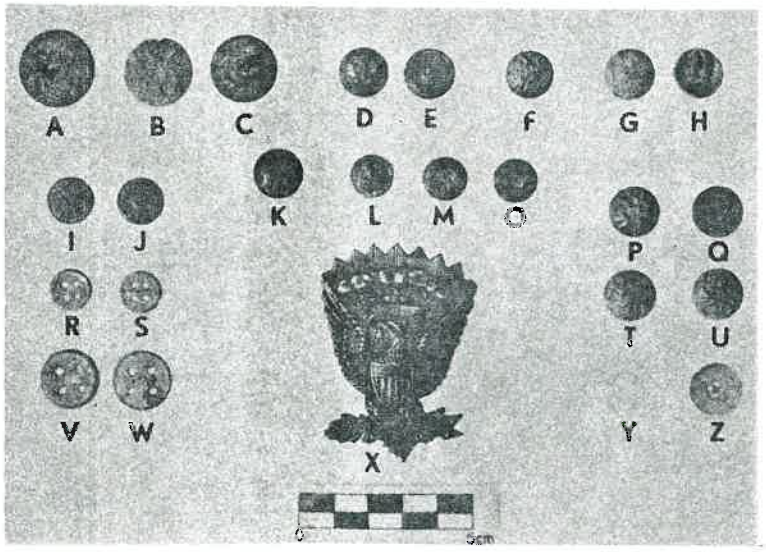

FIGURE 10: Selected buttons from Camp Payne, Wyoming. See Table 3 for key.

with "I" on a recessed shield. These are two piece brass buttons with loop shank and back marking "Scovills & Co. Extra". They were standard military issue for enlisted men from 1851-1857 (Jacobsen 1972:plate 7).

Five general service type buttons were recovered including three possible O-type buttons with lined field and standing eagles with a blank shield at its left

Provenience	Type	Material	Size	Military	Other	Dates	Comments	Illustrated	Reference
Surface #5	Two piece-loop shank-front only	Brass	.52 in (13 mm) diameter	Naval S-type, lined field, eagle on stock of upright anchor, 13 stars		1840 to ?	Front damaged, warped	Figure 10:L	Johnson (1948:76) Brinckerhoff (1965:25)
#6	Two piece-pressed steel-4 hole	Steel?	.68 in (17.5 mm) diameter		Civilian type clothes	Post 1870?	Rusted through-out		Olsen (1962:533-4)
#6	One piece, 4-hole	White glass	.45 in (11.5 mm) diameter .12 in (3 mm) wide		Civilian type		Broken in half		
#23	Two piece-loop shank	Brass	.55 in (14 mm) diameter	Dragoon S-type line eagle w/D on recessed shield, marked "SCOVILLS & CO. EXTRA"		1851 and 1857 standard military issue	Missing loop shank	Figure 10:F	Johnson (1948:58) Jacobsen (1972:plate 7)
#24	One piece w/Omega type(?) loop shank	Pewter	.60 in (15 mm) diameter	Infantry o-type(?), line eagle w/I on raised shield		1821-1836/1840	Much of design smoothed, shape distorted. Probable enlisted men button	Figure 10:H	Johnson (1948:49) Olsen and Campbell (1962:348)
#25	One piece w/Omega type(?) loop shank	Pewter	.59 in (15 mm) diameter	Infantry o-type(?), line eagle w/I on raised shield		1821-1836/1840	Missing loop shank	Figure 10:G	Johnson (1948:49) Olsen and Campbell (1962:348)
#26	One piece cast white metal 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
#30	One piece cast white metal 4-hole	Pewter	.51 in (13 mm) diameter		Civilian type clothes	1800-1860	Slightly warped		Olsen (1962a:553)
No Prov.	Two piece loop shank	Brass	.58 in (15 mm) diameter	General Service S-type, line eagle w/lined shield (recessed) marked "SCOVILLS & CO. EXTRA"		Post-1855 standard military issue for enlisted	Loop shank missing		Heskovits (1978:33) Jacobsen (1972:plate 7)
#1165	One piece cast white metal	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
	One piece, 4-hole	White glass	.375 in (9.5 mm) diameter		Civilian type clothes				
Test Unit T.U. 6N½ 10-20 cm	One piece, 4-hole	White Glass	.43 in (11 mm) diameter .12 in (3 mm) wide		Civilian type clothes				
T.U. 6N½ 20-30 cm	Two piece loop shank, front only	Brass	.50 in (13 mm) diameter	Naval, S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?		Figure 10:O	Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 14N½ 10-20 cm	One piece cast white metal, 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 14N½ 20-30 cm	One piece cut bone one hole	Bone	11 x 6 x 4 mm		Civilian type clothes?	?	Square shape broken in half		
T.U. 14N½ 30-40 cm	One piece, 4-hole	Ceramic	?		Civilian type clothes		Only fragment remains		
T.U. 17 10-20 cm	Two piece loop shank, front only	Brass	.50 in (13 mm) diameter	Naval, S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?	Back corroded		Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 21 0-10 cm	One piece cast white metal, 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 22 0-10 cm	Single piece, 4 hole	?	?		Civilian type clothes	?	Completely rusted, hard to identify		
T.U. 22 0-10 cm	Two piece loop shank	Brass	.50 in (13 mm) diameter	Naval, S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?	Loop shank missing		Johnson (1948:76) Brinckerhoff (1965:25)

TABLE 3: Buttons from Camp Payne, Wyoming.

Provenience	Type	Material	Size	Military	Other	Dates	Comments	Illustrated	Reference
T.U. 22 10-20 cm	Two piece loop shank	Brass	.55 in (14 mm) diameter	General Service (?) o-type(?), lined field, standing eagle w/blank shield at left side		?	Unidentified type	Figure 10:J	Johnson (1948:66)
T.U. 25 10-20 cm	One piece, 4-hole	Pewter	.55 in (14 mm) diameter		Civilian type clothes	?	Recessed center		
T.U. 26 0-10 cm	Two piece loop shank	Brass	.52 in (13 mm) diameter	Naval, S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?	Back corroded		Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 26 30-40 cm	One piece cast white metal 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860		Figure 10:V	Olsen (1962a:553)
T.U. 28 10-20 cm	Unknown	Brass?	?	?	?	?	1/2 fragment, highly corroded unidentifiable		
T.U. 30 0-20 cm	Two piece loop shank-front only	Brass	.52 in (13 mm) diameter	Naval S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?		Figure 10:M	Johnson (1948:76) Brinckerhoff (1965:25)
Test Unit T.U. 32 0-10 cm	One piece, 4-hole	White glass	.42 in (10.5 mm) diameter .10 in (2.5 mm) wide		Civilian type clothes		Recessed center		
T.U. 32 10-20 cm	One piece, 4-hole	Brass,	.72 in (18.5 mm) diameter		Civilian type clothes	?	Highly corroded recessed center		
T.U. 33 0-10 cm	One piece, 4-hole	White glass	.44 in (11 mm) diameter .11 in (2.5 mm) wide		Civilian type clothes		Recessed center	Figure 10:Y	
T.U. 33 0-10 cm	Two piece loop shank	Brass	.59 in (15 mm) diameter	Artillery, S-type, line eagle w/A on recessed shield ". . . New York"		1840-1870?	Corroded-missing loop, cannot make out manufacturer on back		Johnson (1948:42)
T.U. 35 0-10 cm	Two piece loop shank	Brass	.52 in (13 mm) diameter	Naval, S-type lined field, eagle on stock of upright anchor, 13 stars		1840-?	Back is corroded		Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 36 10-20 cm	Two piece cloth covered	Brass	.61 in (15.5 mm) diameter		Civilian type clothes	?	May be loop shank, but shank is missing-highly corroded		
T.U. 36 10-20 cm	One piece, 4-hole	Brass	.68 in (17.5 mm) diameter		Civilian type clothes	?	Corroded		
T.U. 39 0-10 cm	One piece, 4-hole	White glass	.44 in (11 mm) diameter .10 in (2.5 mm) wide		Civilian type clothes		Recessed center		
Surface #68	Two piece loop shank	Brass	.58 in (15 mm)	Infantry S-type, line eagle w/I on recessed shield marked "SCOVILLS & CO EXTRA"		1851 and 1857 standard military issue		Figure 10:E	Jacobsen 1972:plate 7)
#69	One piece w/loop shank	Pewter	.56 in (14 mm) diameter	?	?	?	Raised center, no design		
#72	One piece cast white metal 4-hole	Pewter	.65 in (16.5 mm) diameter		Suspender type	?	Center recessed	Figure 10:W	Harskovitz (1978:39)
#78	One piece cast white metal	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)

TABLE 3: (continued).

Provenience	Type	Material	Size	Military	Other	Dates	Comments	Illustrated	Reference
#84	One piece w/Omega type(?) loop shank	Pewter	.58 in (15 mm) diameter	Infantry o-type(?), line eagle w/I on raised shield		1821-1836/1840			Johnson (1948:48) Olsen and Campbell (1962:348)
#88	One piece shell	Shell	.33 in (8.0 mm) diameter		Civilian type clothes	?	Handmade(?)		
#102	One piece cast white metal	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
#109	One piece cast white metal	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
#526 (H)	One piece cast white metal	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860	Battered a-round edges		Olsen (1962a:553)
No Prov.	Two piece loop shank	Brass	.58 in (15 mm) diameter	Infantry S-type, line eagle w/I on recessed shield, marked "SCOVILLS & CO. EXTRA"		1851 and 1857 standard military issue	Loop missing	Figure 10:K	Army of the U.S. (1851:plate 7)
Test Unit T.U. 40 10-20 cm	One piece, 4-hole	Shell	.59 in (15 mm) diameter		Civilian type clothes	?	Machine made? shell button recessed center		
T.U. 44 0-10 cm	One piece, 4-hole	Pewter	.75 in (19 mm) diameter		Civilian type clothes	1800-1860	Corroded		Olsen (1962a:553)
T.U. 47 0-10 cm	One piece, 4-hole	White glass	.45 in (11.5 mm) diameter .11 in (2.5 mm) wide		Civilian type clothes		Recessed center		
T.U. 51 0-10 cm	Two piece loop shank	Brass	.58 in (15 mm) diameter		?		Floral design w/7 small re-cessed holes in center	Figure 10:T	
T.U. 51 0-10 cm	One piece, 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860	Distorted and scratched		Olsen (1962a:553)
T.U. 51 0-10 cm	One piece, 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 52 0-10 cm	Two piece loop shank	Brass	.60 in (15 mm) diameter		?		Floral design w/7 small re-cessed holes in center		
T.U. 53 0-10 cm	Two piece loop shank-front only	Brass	.52 in (13 mm) diameter	Naval, S-type lined field eagle on stock of upright anchor, 13 stars		1840-?	Corroded		Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 53 0-10 cm	One piece, 4-hole	White	.44 in (11 mm) diameter .12 in (3 mm) wide		Civilian type clothes		Recessed center		
T.U. 55 0-10 cm	One piece cast white metal 4-hole	Pewter	.50 in (13 mm) diameter		Civilian type clothes	1800-1860	Bent		Olsen (1962a:553)
T.U. 56 0-10 cm	One piece, 4-hole	Shell	.61 in (15.5 mm) diameter .08 in (2 mm) wide		Civilian type clothes		Machine made? recessed cen-ter	Figure 10:Z	
T.U. 56 0-10 cm	One piece cast white metal	Pewter	.50 in (13 mm) diameter .08 in (2 mm) wide		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 58 0-10 cm	One piece, 4-hole	Shell	.60 in (15 mm) diameter .07 in (2 mm) wide		Civilian type clothes		Machine made? recessed center		

TABLE 3: (continued).

Provenience	Type	Material	Size	Military	Other	Dates	Comments	Illustrated	Reference
T.U. 62 0-10 cm	Two piece loop shank	Brass		General Service, line eagle w/ recessed line shield marked "SCOVILLS & CO."		1850-1865 1851 & 1857		Figure 10:B	Albert (1976:464) Jacobsen (1972:plate 7)
T.U. 74 0-10 cm	Two piece, 4-hole	Brass	.59 in (15 mm) diameter		Civilian type clothes	post 1870?	Highly corroded		Olsen (1962a:553)
T.U. 74 0-10 cm	One piece, 4-hole	Shell	.55 in (14 mm) diameter .11 in (2 mm) wide		Civilian type clothes		Machine made? recessed center		
T.U. 74 0-10 cm	One piece cast white metal, 4-hole	Pewter	.50 in (13 mm) diameter .08 in (2 mm) wide		Civilian type clothes	1800-1860		Figure 10:S	Olsen (1962a:553)
T.U. 81 0-10 cm	Two piece loop shank	Brass	.90 in (23 mm) diameter	Artillery, S-type, line eagle w/A on recessed shield marked "ACKERMAN & MIXER NEW YORK"		1851 and 1857 standard military issue	Front indented and cracked	Figure 10:A	Jacobsen (1972:plate 7) Johnson (1948:42)
T.U. 81 0-10 cm	Two piece loop shank	Brass	.60 in (15 mm) diameter	Artillery, S-type, line eagle w/A on recessed shield		1851 and 1857 standard military issue	Back stamp illegible, front worn, back corroded		Jacobsen (1972:plate 7) Johnson (1948:42)
T.U. 83 0-10 cm	Two piece loop shank	Brass	.59 in (15 mm) diameter	?	?	?	Front-starburst design, back corroded	Figure 10:Q	
T.U. 83 0-10 cm	One piece cast white metal 4-hole	Pewter	.58 in (14.5 mm) diameter		Suspender type	?	Center recessed		Herskovitz (1978:39)
T.U. 83 0-10 cm	One piece, 4-hole	White glass	.42 in (10.5 mm) diameter .11 in (2.5 mm) wide		Civilian type clothes		Broken, 2/3 remain		
T.U. 83 0-10 cm	Two piece loop shank	Brass	.70 in (18 mm) diameter		Civilian type clothes	?	Completely corroded		
T.U. 84 0-10 cm	One piece, 4-hole	Pewter? Zinc?	.40 in (10 mm) diameter		Civilian type clothes	?			
T.U. 84 0-10 cm	Two piece loop shank	Brass	.76 in (19.5 mm) diameter	General Service, line eagle w/ recessed lined shield marked "SCOVILLS & CO. SUPER FINE"		1850-1865 1851 and 1857 standard military issue	Corroded	Figure 10:C	Albert (1976:464) Jacobsen (1972:plate 7)
T.U. 84 0-10 cm	Two piece loop shank	Brass	.58 in (15 mm) diameter				Starburst design	Figure 10:P	
T.U. 85 0-10 cm	One piece cast white metal 4-hole	Pewter	.69 in (17.5 mm) diameter		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 87 0-10 cm	Two piece loop shank	Brass	.55 in (14 mm) diameter	General Service (?) o-type(?) lined field, standing eagle w/blank shield at left side		?	Unidentified type		Johnson (1948:66)
T.U. 88 0-10 cm	Two piece loop shank	Brass	.60 in (15 mm) diameter				Starburst design		
T.U. 89 0-10 cm	Two piece loop shank	Brass	.52 in (13 mm) diameter	Naval, S-type lined field eagle on stock of upright anchor, 13 stars		1840-?	Back corroded		Johnson (1948:76) Brinckerhoff (1965:25)
T.U. 89 0-10 cm	One piece, 4-hole	White glass	.44 in (11 mm) diameter .11 in (3 mm) wide		Civilian type clothes				

TABLE 3: (continued).

Provenience	Type	Material	Size	Military	Other	Dates	Comments	Illustrated	Reference
T.U. 94 0-10 cm	One piece, 4-hole	Shell	.55 mm (14 mm) diameter .10 in (2.5 mm) wide		Civilian type clothes				
T.U. 96 0-10 cm	One piece, 4-hole	White glass	.44 in (11 mm) diameter .11 in (3 mm) wide		Civilian type clothes				
T.U. 97 0-10 cm	Two piece loop shank, 2 total	Brass	.60 in (15 mm) diameter		?		Floral design w/7 small to recessed holes in center	Figure 10:U	
T.U. 100 0-10 cm	Two piece pressed 4-hole	Steel?	.67 in (17 mm) diameter		Civilian type clothes	post 1870?	Corroded		Olsen (1962a:553)
T.U. 101 0-10 cm	One piece cast white metal 4-hole	Pewter	.50 in (13 mm) diameter .09 in (2.5 mm) wide		Civilian type clothes	1800-1860			Olsen (1962a:553)
T.U. 105 0-10 cm	2-One piece cast white metal 4-hole	Pewter	.50 in (13 mm) diameter .08 in (2.5 mm) wide		Civilian type clothes	1800-1860		Figure 10:R	Olsen (1962a:553)
T.U. 105 0-10 cm	One piece, 4-hole	White glass	?		Civilian type clothes		Broken		
T.U. 105 0-10 cm	Two piece loop	Brass	.55 in (14 mm) diameter	General Service (?), o-type(?) lined field, standing eagle w/blank shield at left side		?	Unidentified type	Figure 10:I	Johnson (1948:76)

TABLE 3: (continued).

side. This appears to be an unidentified enlisted men's button (Johnson 1948:76). Two of the general service buttons are the S-type, line eagle with recessed lined shield marked "Scovills & Co. Extra". These are dated at post 1855 (Herskovitz 1978:3a). The last is a general service type with recessed lined shield in the line eagle device marked "Scovills & Co. Super Fine". They are dated from 1850-1865 (Albert 1976:464) and were probably standard enlisted men's issue from at least 1851-1857 (Jacobsen 1972:plate 7).

Three artillery buttons were found and all are the S-type button with line eagle device with "A" marked on recessed shield. One has the backstamp "Ackerman & Mixer, New York". These have been dated to 1840-1870 by Johnson (1948:42) and were probably standard issue from 1851-1857 (Jacobsen 1976:plate 7).

One dragoon button was found. This is an S-type button with line eagle device with a "D" on a recessed shield marked "Scovills & Co. Extra". It dates from 1851-1857 (Johnson 1948:58, Jacobsen 1972:plate 7).

Ten small naval type buttons were found in various locations at 48NA867. These buttons are S-type buttons with a lined field and have an eagle on the stock of an upright anchor. Thirteen stars surround the eagle and anchor. These buttons appear at military sites in the west and are of the pattern of naval buttons of the 1830s and 1840s (Brinckerhoff 1965:3).

Other kinds of non-military buttons were found. These include 23 one-piece cast white metal

(pewter), 4-hole type buttons. Olsen (1962:533-534) places these in the 1800-1860 time period. Twelve white glass buttons were also found. Smith (1960:140) refers to these buttons as milk glass that ". . . is an opaque variety of ordinary glass that became very popular in the 19th century; many garment buttons are today still made of glass. . ."

Seven shell and bone buttons came from 48NA867 and these may have been made at the site to replace worn or lost buttons or industrially manufactured at another location. These buttons could have a wide dating range.

Other buttons include one undiagnostic ceramic button and several unknown metal types (Table 3). These again are difficult to relate to a particular manufacture or time period.

Based on the identification of Camp Payne buttons, it would appear that most can be dated to the period of the 1858-1859 military camp. There are several problems in the identification of mid-19th century military buttons, however.

General service buttons were first authorized by General Order Number 1 of the Adjacent General's Office on January 20, 1854 (Luddington 1889:40 quoted in Herskovitz 1978:39). This type was issued to enlisted men from 1855 to 1902 (Brinckerhoff 1965:4). This was a three-piece button with a loop shank, flat back plate and convex front. The front contained an eagle facing left with a lined shield on its breast (Herskovitz 1978:39). From 1833 to about 1861, the Line Eagle Device was developed on general service and other service buttons. After the Civil War, only officers were issued buttons with the Line Eagle Device motif. In the Line Eagle Device, the eagle faces to the right, and in the center of the eagle a recessed shield is presented, a lined shelf for general service, a raised letter for a specific branch of service ("A" for artillery, "C" for Cavalry, "D" for dragoons, and "I" for infantry) (Brinckerhoff 1965:3). ". . . A characteristic of most of these buttons is the short, soft-edged spread wings of the eagle. There are, of course, variations in all of these military buttons due partly to the manufacturer and slight modification in design (Brinckerhoff 1965:3).

Several of the military buttons from 48NA867 have manufacturer's marks from Scovills and Company. Herskovitz (1978:39) reports that this company operated from 1840 to 1850 so the general service buttons could not have originated from Scovills and Company. It is likely that the "Scovills & Co." dies from the 1840-1850 period were used by the firm's successor, Scovill Manufacturing Company, to manufacture military buttons after 1854.

The small naval buttons recovered from Camp Payne are seemingly unusual. Brinckerhoff (1965:3) has found these types in other western military sites and that they are probably of the 1830s to 1840s pattern naval button. Brinckerhoff (1965:3) concludes that. . .

> . . . Often these obsolete patterns are recovered in considerable quantity at individual army posts. A valid assumption is that most of these buttons were purchased by post sutlers and traders from the manufacturer, or from the army surplus, and sold to

Indians and civilians. Despite the continued use by the Army of obsolete equipment, it is doubtful that buttons so outdated were in general use.

One of the artillery buttons is of the cast size and is .90" (23 mm) in diameter. This compares to the 1857 specifications size for officer's buttons of .875" for the line eagle device motif (Herskovitz 1978:40). Thus, only one of 24 military buttons could definitely be considered an officers button.

Hat Badge (Figure 10:X)

In addition to the military uniform buttons, one period hat badge was found. This was found to the north of the northern fence on the surface by John Winsted, and was mapped (Figure 2). This hat badge appears to be very similar to the one:

> . . . known as the 'Arms of the United States' (and) was mounted on the service shako or Albert Hat of 1851-1859, and the Jeff Davis hats of 1855-1872. It was 2 5/8 inches high by 1 3/4 inches wide (Fig. 9). Both were cast of thin brass with a hollow back, the eagle facing to his right ("peace") side. The 1851 bird is surmounted by stars, sun's rays, and clouds. These devices were mounted to the hat either by a vertical pine, or by two wire brass loops soldered on the back. Several specimens of the 1851 model have been found which have in addition a wire hook mounted at the bottom, reserve of the insignia. Designed for use with the brimmed Jeff Davis hat, the hook was used to hold up the broad brim on one side (Fig. 10). This variation of the insignia was in use from 1856 through 1861. It appears that there was little change in the design or size of this insignia during the thirty years it was worn (Brinckerhoff 1965:9-10).

The Camp Payne hat badge is 2 1/2 inches high by 1 3/4 inches wide. It has the remnant of the vertical pine with the solder mark present. It most closely resembles that illustrated in Brinckerhoff (1965:11, Plate 10C). Thus, this hat badge is most likely that of the 1856-1861 variation.

Buttons - Non-Military (Figure 10) Forty-one non-military buttons were recovered. These include several types. The most diagnostic of these is the plain-cast white metal four-hole button. There are 20 of these buttons. There are three sizes represented: .50-.51 inches (6), .69 inches (13), and .75 inches (1). All are made of pewter. These appear to be the same buttons as described by Olsen (1962). ". . . From about the time of the war of 1812 until the close of the Civil War, a plain-cast white metal or lead four-hole button was commonly used on both civilian's and soldier's trousers (Fig. 1K)" (Olsen 1962:552). Olsen (1962:553) dates these from 1800 to 1860.

Other non-military buttons include 12 single piece white glass, four-hole buttons. These range in size from .385 inches in diameter (1) to .42-.45 inches (10). One is broken and of unknown size. These are more difficult to date as they were manufactured in both the 19th to

20th centuries. One white ceramic four-hole button was found in fragmentary condition.

Two, two-piece pressed shell buttons were recovered and many date post-1870 (Olsen 1962:553). Thirteen brass buttons were found, seven of which are two-piece loop shank varieties, four with a front floral design, three with a front starburst design. Five other pewter buttons and one corroded unknown metal button were found.

Six shell and one bone button were also recovered. The bone button appears to have been handmade with one hole in the center. It was not uncommon for bone buttons to be made at military sites (Olsen 1962:552). Most of the shell buttons appear to have been machine made.

Ammunition and Arms

Bullets, Balls, Buckshot

Forty-six lead bullets were recovered from the surface and excavation units. These artifacts are listed by provenience in Table 4 and are illustrated in Figure 11. The lead projectiles represent a variety of musket and pistol bullets and balls.

There are a number of the conical .58 caliber Minie balls. These were attached to paper cartridges and used in the 1855 Springfield rifled-musket (McKee and Mason 1980:77-82). There was some difficulty in obtaining a precise caliber measurement given the distortion of each Minie' ball from firing. In general, they were .58 caliber or less. This is consistent with the fact that the Minie ball was made slightly smaller than the musket bore diameter to facilitate loading and expansion of the hollow base (Herskovitz 1978:52). Some of the Camp Payne Minie balls are from .52-.54 caliber. This seems to be the original caliber and not a result of distortion. It is thus possible that other caliber rifles or muskets were present at Camp Payne.

A number of round balls were collected. There are a variety of calibers. The .28 caliber balls could have been used in several .28 caliber revolvers (McKee and Mason 1980:186). They are also nearly the same size as buckshot used in the buck-and-ball paper cartridge (McKee and Mason 1980:80). Logan (1959:15) states the buckshot in this cartridge consisted of 12 lead balls each 43 grains. The Camp Payne small round balls are 32-33 grains each. The buck-and-ball cartridge was used in the 1855 .58 caliber musket.

The other round ball calibers represent pistol and musket or rifle loads. Numbers 76 and 97 have apparent crimp marks, as from the pressure of a Colt or Remington .36 or .44 caliber pistol loading lever. The size of these two balls is larger than the bore diameter which is consistent with these two types of revolvers which required slightly oversized balls. The range of calibers for the rest of the round balls is consistent with their having been used in revolvers. Four of the round balls are .50 caliber or over and probably were loads for rifles or muskets of various calibers.

Percussion Caps

Table 5 lists the percussion caps recovered. Most of the caps are the "top-hat" variety which is used exclusively with muskets or rifles (Figure 12). These caps are four-flanged with each flange ranging from 6.0 mm long to 4.5 to 5.5 mm wide. The other caps are the ground edge type (Figure 11) (Herskovitz 1978:52).

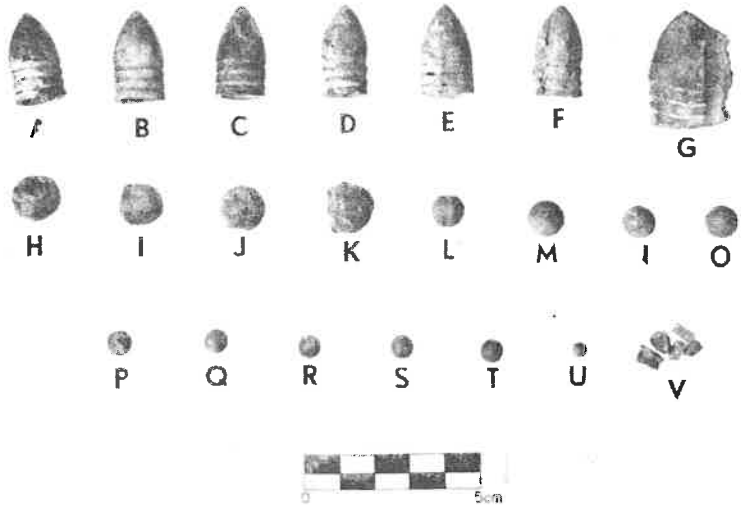

FIGURE 11: Selected lead projectiles from Camp Payne, Wyoming. See Table 4 for key.

Location	Conical	Round	Caliber	Fired	Rifling	Comments	Illustrated
Surface							
21	x		.52-.54	Yes	No	3 ring	Figure 11:A
22		x	+.50	Yes	Yes	Flattened	
29	x		.52-.54	Yes	No	3 ring	Figure 11:C
37		x	+.50	Yes	No	Sprue mark	
39		x	.28	Yes	No	Sprue mark	
41		x	.40-.50?	Yes	No	Nearly flattened	
48		x	.45-.55?	Yes	No	Flat one end	
55		x	.45-.55?	Yes	No	Misshapen	
70	x		?	Yes	?	5 basal fragments	Figure 11:V
71		x	.52-.53	No	No	Sprue mark	Figure 11:J
73		x	.38-.40	No?	No	Sprue mark	Figure 11:M
76		x	.46	Yes	Yes	One end crimped	Figure 11:I
85		x?	?	Yes	?	Flattened	
97		x	.38	Yes	Yes	One end crimped	Figure 11:L
105		x	+.55	Yes	No	One end flat	Figure 11:K
107	x		.52-.54?	Yes	No	Flattened	Figure 11:O
1168		x	.45-.50	Yes	?	4 flattened	
Test Unit							
6N½, 20-30 cm		x	.34-.365	No	No	Sprue mark	
15, 10-20 cm		x	.28	No	No	Sprue mark	
		x	.45-.55?	Yes	?	Flattened	
20, 20-30 cm		x	.28	No	No	Sprue mark	
25, 10-20 cm		x	.28	No	No	Sprue mark	
26, 20-30 cm		x	.28	No	No	---	
		x	.18	No	No	---	Figure 11:U
28, 10-20 cm		x	.38	No	No	Sprue mark	Figure 11:N
30, 20-30 cm		x	.28	No	No	---	
32, 0-10 cm	x		.56-.58	No	No	3 ring	Figure 11:B
10-20 cm	x		.54-.58?	Yes	No	3 ring	Figure 11:D
40, 10-20 cm	x		?	Yes	No	1 basal fragment	
		x	.33-.34	?	No	Elongate -	

TABLE 4: Musket and pistol lead projectiles from Camp Payne, Wyoming.

Location	Conical	Round	Caliber	Fired	Rifling	Comments	Illustrated
						(Handmade?) with 2 Sprue marks each end	
49, 0-10 cm		x	.28	No	No	Sprue mark	
63, 0-10 cm		x	.28	Yes	No	---	
64, 0-10 cm	x		.52-.58?	Yes	No	Partially flattened	
Test Unit							
70, 0-10 cm		x	.28	No	No	---	
72, 0-10 cm		x(9)	.28	No	No	---	Figure 11:P-T
73, 0-10 cm		x(2)	.28	No	No	---	
74, 0-10 cm	x(2)		.58	No	No	3 ring	Figure 11:C,E
75, 0-10 cm		x	.52-.54	Yes	No	Sprue mark	
83, 0-10 cm	x		.58	No	No	3 ring	Figure 11:F
0-10 cm		x	.28	No	No	---	
		x	.38-.44?	Yes	No	Misshapen	
84, 0-10 cm		x	.28	No	No	---	
85, 0-10 cm	x		.22	Yes	Yes	Modern	
88, 0-10 cm	x		.58?	Yes	No	End fragment	
89, 0-10 cm		x	.28	Yes	No	---	
93, 0-10 cm		x	.42-.44	No	No	---	Figure 11:H

TABLE 4: (continued).

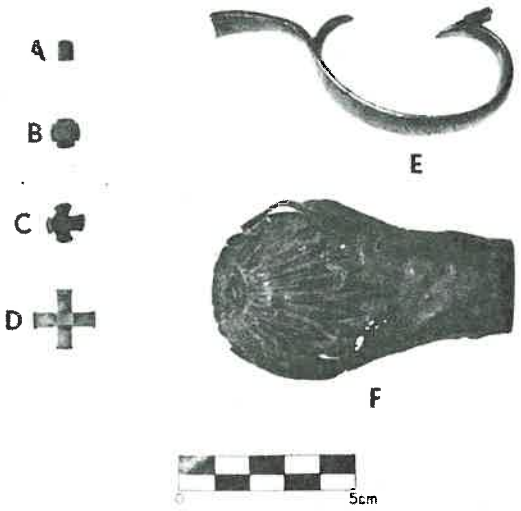

FIGURE 12: Selected percussion caps, flask part and trigger guard from Camp Payne, Wyoming. See Table 5 for key.

Arms

A brass rifle trigger guard was found on the surface on the north site of the northern fence. It is engraved and appears to be from a civilian type weapon (Figure 12:E). In addition, the face plate of a powder flask was found near the trigger guard. This appears to be a sporting type flask with floral or starburst design. It was likely a

Provenience	Type	Description
Surface		
22	1 Musket	4 - flange - flange is 6.0 mm long 4.0 mm wide - fired
74	4 Musket	4 - flange - same size as #22 - all fired
1084	1 Musket	4 - flange - same size - fired
U	1 Musket	4 - flange - same size - fired
Test Unit		
14S, 10-20 cm	1 Musket	4 - flange - same size - fired
14N, 10-20 cm	1 Musket	4 - flange - same size - fired (Figure 12:C)
17, 10-20 cm	1 Pistol or Rifle	Single piece, unflanged, unfired, 6.0 mm long, 4.5 mm wide
26, 10-20 cm	1 Musket	4 - flange - 7.5 mm long, 6.0 mm wide - unfired (Figure 12:B)
56, 0-10 cm	1 Musket	4 - flange - 6.0 mm long, 5.5 mm wide, unfired
68, 0-10 cm	1 Musket	4 - flange - same size as #22 - fired (Figure 12:D)
73, 0-10 cm	1 Musket	4 - flange - ? dimensions - fired
83, 0-10 cm	2 Musket	4 - flange - ? dimensions - fired
85, 0-10 cm	1 Musket	4 - flange - ? dimensions - fired
94, 0-10 cm	1 Pistol or Rifle	Single piece, unflanged - 6.0 mm long, 4.5 mm wide (Figure 12:A)

TABLE 5: Percussion caps from Camp Payne, Wyoming.

civilian-used flask (Figure 12:F).

Coins

Two period coins were found from Camp Payne. One is an 1865 Indian Head penny found on the surface. Because of its location, not *in situ*, it probably represents a lost article from a later period of activity in the site area. One 1856 silver Liberty seated half-dime was found in Test Unit 40 10-20 cm below surface. This coin undoubtedly came from the military occupation. Both are illustrated in Figure 13.

Nails, Screws and Bolts

A surprisingly large sample of nails and other construction hardware were recovered from the excavated deposits and surface. The majority were common cut square nails (72) with 22 other kinds of square cut nails, 11 unidentifiable fragments, 5 modern nails and screws (all surface), and 4 horseshoe nails.

Analysis of each nail was done with reference to several published records of mid 19th century nails (Berge 1980, Fontana 1965, Fontana and Greenleaf 1962, and Nelson 1968). Distinguishing characteristics of several nail types were applied in the identification of Camp Payne nails.

Square cut and hand wrought

FIGURE 13: 1856 Half-dime and 1865 Indian Head Penny from Camp Payne, Wyoming.

nails have certain differences. Wrought nails were hand forged and varying in thickness along the shanks, taper on all four sides of the shank toward the end point, and do not have the parallel striations along the shank, as do cut square nails. Cut square nails were machine made and have shear marks or striating from the smear of the cutting blade. They also are of uniform thickness (being machine made) and the taper of the shank is on two opposite sides (Fontana and Greenleaf 1962:52).

Fontana and Greenleaf (1962:54-55) have presented a succinct summary of nail chronology:

> Before Christ-A.D. 1800: Nails were handmade, wrought nails, universally characterized by uneven rectangular shanks that taper on all four sides to a point (Figure 11 m). For certain purposes wrought nails continued in use until as late as 1850, and in isolated instances may have been made in the United States when square cut or wire nails were not available.
>
> 1790-1810: This period is characterized by machine-cut nails, the nail plate being reversed under alternate blow of the cutter to give the cross section shown in Figure 11q. A few stamp-headed nails occur, but most are headed by a single hand-driven hammer blow. Angle-headed or L-headed nails made from headless nails also appear and continue in use until after the 1850s for use in floors and clapboards (Figure 11p).
> 1810-1825: Machines are invented to make cut nails that obviate the necessity of having to turn the nail plate. The result is the cross section in the shank shown in Figure 11 r. Until 1825 such nails continued largely to be headed simply by being struck with a hammer.
>
> 1826-1830: Cutting of nails continues as immediately

above, but water-powered machines are developed that head them automatically. The heads, however, are rather thin and lop-sided (Figure 11o).

circa 1830-circa 1855: Wire nails are invented in France (hence "French nails") that are ground to a point and headed by hand. The first such nails are made in the United States by William Hassall (or Hersel) of New York City. They are rare in the United States during this period.

1830-circa 1890: Cut nails are produced in machines that cut and head them uniformly. Heads are less thin, more uniform, and comparatively square. They are extra heavy on large nails. Cross section of shanks on virtually all nails is as shown in Figure 11r. Cut nails in the United States during this period outnumber all other kinds with respect to both numbers and varieties.

circa 1855-present: Machines are invented in France to make complete wire nails automatically. A few are exported to the United States, soon to be replaced by machines of American manufacture. It is about 1890, however, before wire nails outnumber cut nails. Wire nails today are the common variety in this country.

In order to better classify the recovered nails, attributes other than those used in dating (the recovered square nails undoubtedly are from the military occupation) were used to distinguish various types of square cut nails.

The different sizes of nails were expressed in pennyweights with the symbol "d". The pennyweight of a nail theoretically equalled the number of pounds per 1,000 nails; thus, 1,000 five penny nails weight five pounds. The relationship between pennyweight, length and number of nails became relatively standardized in the 1880s (Fontana and Greenleaf 1962:55-56 and Table 1).

Perhaps as a universal rule, machine-stamped heads on square cut nails after 1830 were flat in sizes from 2 d. to 12 d. In sizes from 16 d. to 60 d. heads are thicker and have a raised platform of metal on top. This is because heavier and more repeated blows are required to drive heavier nails and the heads must be heavier to withstand the punishment. Fencing nails, because they were driven into hard wood, had these heavier heads in all sizes. Such heads are rarely found in archaeological specimens because the driving of these nails flattens the heads completed. Only on nails that were driven partially or not at all would the thicker head remain evident.

The size of nail used for specific purposes was largely a matter of judgment on the part of the builder. Customarily, however, 4 d. cut nails were used for shingling and slating; 6 d. for clapboarding; 6 and 8 d. for finish; 8 and 9 d. for

flooring; 9 and 10 d. for boarding; and 40 d. and larger for framing (Blackhall 1888:73).

Fontana and Greenleaf (1962:57-60) have also characterized the most common subtype of square cut nails, some of which appear at Camp Payne:

Common Cut

"Used more than any other form of square cut nail, common cut nails were made in sizes 2d to 60d. All sizes have beveled shanks and all shanks are rectangular in cross section at the point. They were used in sheathing, siding, and framing. The most common sizes of 6 to 8d were used in light framing as well as in boxes and wooden crates. The 16d and heavier common cut nails were used in heavy framing, rafters, studding for partitions, and as stringer holders in wood bridges. For more than anything else, 60d common cut nails were used to secure planks to wooden bridges.

Brad

Common brads, ordinarily coming in sizes 6, 7, 8, and 10d, are rectangular in cross section at the point of the shank. All have beveled shanks. Square cut brads, like square cut casing nails, have a taper in the shank beneath the head. As mentioned above, this taper is somewhat more extended in brads than in casing nails. The taper and rectangularly-shaped point of brads were made for ease of driving and to allow the nail to run flush with rounded surfaces without splitting the wood. Brads were customarily used in mouldings. The 6d brad was commonly employed in quarter-round base shoes (an old-style moulding at the right angle between the floor and wall of a building). Larger weights, such as 10d, were sometimes used for inside door and window casings if the wood were hardwood.

Finishing

Square cut finishing nails were used for all finish work inside of buildings. The heads were used for all finish work inside of buildings. The heads were extremely small to allow the nail to be counter-sunk into the wood and the hole concealed with putty or a mixture of hot glue and sawdust. In very fine work, a carpenter used a special tool to pry up a splinter (without tearing it free) of the board to be nailed; drove the finishing nail underneath the splinter; and glued the splinter over the nail concealing it entirely. Square cut finishing nails were regularly made in sizes 6, 8, and 10d, size 6d only having a beveled shank. All are approximately square at the point of the shank.

Fine Blued

Made in sizes 2d and 3d, square cut fine blued nails are square at the point and are without beveled shanks. They were used almost exclusively in wood lath work. Lathers commonly worked by holding several of these nails in their mouths to make them speedily accessible. A

prolonged stint of lath work caused the carpenter's mouth to become sore, and if the nails were not sterilized, infection ("lather's mouth") could result. Fine blued nails were the result of heat-treating nails to sterilize them, the iron turning blue upon cooling. Such heat treatment also adventitiously served to retard corrosion of the nails.

Barrel

Square cut barrel nails were retailed by length rather than by weight 3/4", 7/8", 1", 1 1/8", and 1 1/4" being the common sizes. Rectangular at the point, all shank were beveled. Length of barrel nails was critical because such nails were used to secure metal hoops to barrel staves. One did not want to accidentally drive a nail clear through the stave of his water or whiskey barrel or his beer keg.

Clinch

Square cut nails were made of softer more malleable iron than other nails. Before 1870 such nails generally ruptured as they were cliched, but after that date they were regularly annealed and thus toughened to prevent their splitting open. They usually came in sizes 6, 7, 8, 9, and 10d, and were generally used for making 3/4" to 1 1/4"-thick tongue-in-groove planks into batten doors and gates. One would drive them through the wood onto the surface of an anvil or other hard iron, thus bending them. The points of clinch nails were beveled rather than flat, thus helping them to bend back. Sometimes a man would stand on one side of the plank driving the nail while a man on the other side caught the beveled point on a maul and turned it into the wood.

Tobacco

Square cut tobacco or lining nails were advertised in a single size, 7/8 inch. The shank is square at the point and has no bevel. We were unable to learn the use of such nails, but doubtless they were used around tobacco-packing sheds in the South. They were not used to join the wood in cigar boxes inasmuch as cigar box nails, coming in sizes 1/2, 5/8, and 3/4 inch were advertised separately (Kimbark 1876:95).

Basket

Made with both oval and flat heads and in sizes ranging from 1/2 to 1 1/4 inches long, basket nails were used principally to bind the wooden rims to the tops of woven wooden baskets. This same job today is performed by staples."

Discussion

Nails, screws and bolts are arranged according to surface location and excavation unit in Table 6. Figure 14 is an illustration of the various types represented.

The common cut square nail has the largest percentage (72 of 114 or 63.2%) of the sample. However, there are a variety of sizes within this category. Each nail was measured as to its total length and the penny weight estimated on the basis of length and comparison of illustrated

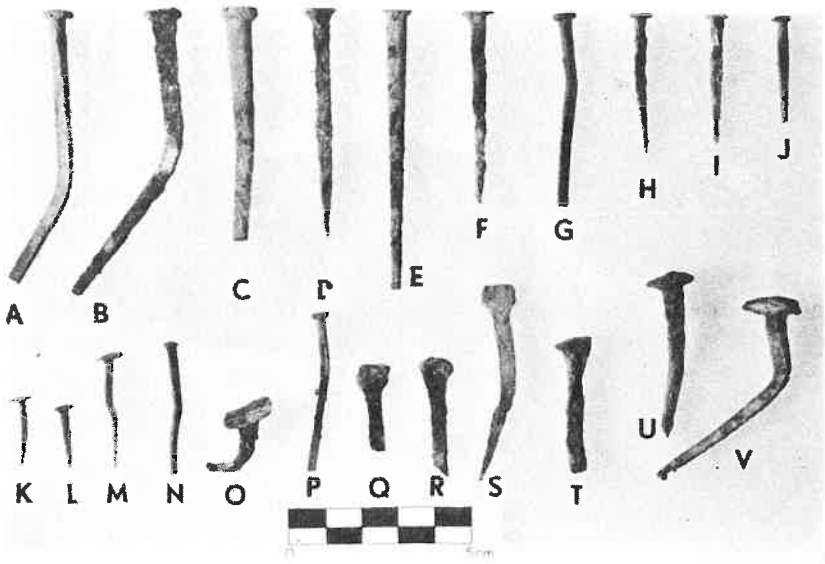

FIGURE 14: Selected nails from Camp Payne, Wyoming. See Table 6 for key.

Provenience	Type	Size	Head	Comments	Illustrated
Surface #22	Common cut square	4-Penny+ 1 1/2 in.+	Flat-square	Broken, rusted	
#38	Common cut square	12-Penny 3 1/4 in.	Flat-square	Rusted and bent	Figure 14:B
#40	Common cut square	9-Penny?, 2 3/4 in.	Flat-rounded?	Rusted, end broken	
#40	Basket (?)	.70 in.	Flat-oval	Rusted	Figure 14:L
#42	Tobacco (?)	3/4 in.+	Flat-oval	Rusted and bent	Figure 14:K
#42	Common cut square	(?) 7-16-Penny 2 1/4 in.+	Flat-square	Broken end, bent, rusted	
#42	Common cut square	9-Penny+ 2 3/4 in.+	Flat-oval	Broken end, rusted	
#53	Common cut square?	5-Penny+ 1 3/4 in.+	Flat-square	Broken end, rusted	
#56	Common cut square	7-9-Penny 2 1/4 - 2 3/4 in.	Flat-square	Broken end, bent, rusted	Figure 14:G
#71	Common cut square	16-20-Penny 3 1/4 in.+	Flat-square	Broken end, rusted	Figure 14:E
#82	Common cut square	10-Penny 3 in.+	Flat-square	Broken end, rusted	

TABLE 6: Nails, screws and bolts from Camp Payne, Wyoming.

Provenience	Type	Size	Head	Comments	Illustrated
#89	Clinch (?)	5-6 Penny 1 3/4 - 2 in.	Large square, rusted	Bent, rusted	Figure 14:U
#90	Horseshoe	2 in.	--	Bent, rusted	Figure 14:S
#114	Common cut square ?	?	Flat-rectangular	Head and partial shank (.58 in. total)	
#115	Clinch (?)	8-Penny 2 1/2 in.	Large, semi-oval, slightly raised	Bent, rusted	Figure 14:V
#117	Bolt ?	1.83 in. long 0.16 in. long	--	Round shank only, rusted	
#117	Common cut square ?	?	?	End only (.88 in. total)	
#118	Common cut square	?	?	Mid section 1.15 in. total	
#122	Screw and nut	2 in. long 1/4 in. wide	Flat screw type	Modern	
#136	Finishing (?)	4-Penny+ 1 1/2 in.+	Small, flat square	Bent, rusted and broken	
#A (519)	Common cut square	4-Penny+ 1 1/2 in.+	Flat-oval to square	Broken end, rusted	Figure 14:I
#D (522)	Common cut square	6-Penny+ 2 in.+	--	Broken head and end, mid shank (1.86 in. total)	
#E (523)	1) Modern wire 1) Modern wire	3 1/2 in. 2 3/4 in.	-- --	Bent, rusted Bent, rusted	
#F (524)	Modern screw	.90 in.	Six-sided, recessed	Slightly rusted	
#G (525)	Fine blued	3-Penny 1 1/4 in.	Flat-rectangular	Slightly rusted	Figure 14:J
#I (527)	Common cut square	8-Penny+ 2 1/2 in.+	Flat-square, broken end	Rusted	Figure 14:C
#J (528)	Modern wire	8-Penny 2 1/2 in.	Slightly bent	Rusted	
#L (530)	Common cut square	10-Penny+ 3 in.+	Flat-square	Broken end, bent, rusted	Figure 14:A
#M (531)	Common cut square	?	?	Mid shank, 2 in. total	
#N (532)	Common cut square	10-Penny (?) 3 in. (?)	Flat-square	Broken end, rusted	

TABLE 6: (continued).

Provenience	Type	Size	Head	Comments	Illustrated
#O (533)	Common cut square	?	?	Mid shank, 1.5 in. total	
#R (536)	Common cut square	2-Penny+ 1 in.+	Flat-square	Broken end, rusted	
#S (537)	Common cut square	6-Penny+	Flat-square	Broken end, rusted	Figure 14:N
#V (540)	Common cut square	8-Penny+ 2 1/2 in.+	Flat-square	Broken end, rusted, bent	
#AA (544)	Common cut square	?	?	Mid shank, 1.2 in. total	
#DD (547)	Bolt (?)	1 3/4 in.+	Oval-raised	Broken end	
#1083	Finishing (?)	9-Penny+ 2 3/4 in.+	Missing	Bent, rusted	
Test Unit					
T.U. 2 0-10 cm	Barrel ? or common cut square	3-Penny 1 1/4 in.	Flat-rectangular	Highly rusted	
T.U. 2 0-10 cm	Horseshoe	?	?	Highly rusted (.95 in. total)	Figure 14:Q
T.U. 4 10-20 cm	Common cut square	8-Penny+ 2 1/2 in.+	Flat-oval	Broken and rusted, bent	
T.U. 6 N½ 20-30 cm	Common cut square	?	--	End fragment (1.3 in. total)	
T.U. 6 N½ 10-20 cm	Finishing or common cut square	5-Penny+ 1 3/4 in.+	Small-flat-square	Broken end, rusted	Figure 14:P
T.U. 7 0-10 cm	Common cut square	6-8 Penny 2 in.+	--	Rusted	
T.U. 11 10-20 cm	Common cut square	6-Penny 2 in.	Flat-semi-oval	Bent, rusted	
T.U. 14 N½ 0-10 cm	1 common cut square	4-Penny+ 1 1/2 in.+	Flat-square	Broken end, rusted, bent	
	1 finishing (?)	5-Penny+ 1 3/4 in.+	Small, flat, square	Broken end, rusted	
T.U. 14 N½ 30-40 cm	Common cut square	?	--	End fragment .74 in. total	
T.U. 14 S½ 10-20 cm	Tack (?)	2-Penny 1 in.	Large, semi-oval	Bent, rusted	Figure 14:O
T.U. 14 S½ 10-20 cm	1 common cut square	?	Flat-square	Head fragment .48 in. total	
	2 common cut square	?	--	2 end fragments .80 in. total, 1 curved	

TABLE 6: (continued).

Provenience	Type	Size	Head	Comments	Illustrated
T.U. 16 0-10 cm	Common cut square	6-Penny+ 2 in.+	Flat-square	Broken end	
T.U. 17 10-20 cm	?	?	--	One mid shank fragment, 1.0 in. total rusted	
T.U. 20 10-20 cm	Common cut square	6-Penny+ 2 1/2 in.+	Flat-semi-oval	Broken end, rusted	
T.U. 20 10-20 cm	Common cut square (?)	?	?	Mid shank fragment (.94 in. total) rusted	
T.U. 20 10-20 cm	Horseshoe	1.3 in. total	--	Head fragment, rusted	Figure 14:R
T.U. 21 0-10 cm	Common cut square	12-Penny 3 1/4 in.	Tapered oval	Bent, rusted	
T.U. 21 10-20 cm	2 common square cut	?	?	2 mid shank fragments 1.03 in. total .65 in. total	
T.U. 21 20-30 cm	? (unidentifiable)	.82 in total	?	Rusted, exfoliated	
T.U. 22 10-20 cm	? (2 unidentifiable)	?	?	2 rusted fragments	
T.U. 23 10-20 cm	Horseshoe nail	--	--	Rusted	
T.U. 25 0-10 cm	Common cut square (?)	2-Penny+ 1 in.+	Missing	Mid shank fragment (1.12 in. total) rusted	
T.U. 25 0-10 cm	? (unidentifiable)	?	?	Mid shank fragment (.62 in. total)	
T.U. 26 0-10 cm	Hand wrought (?) spike (?)	.48 in. total	Irregular rectangle, cross (+) stamp	Shank tapers from head, irregular form, rusted	Figure 14:T
T.U. 28 10-20 cm	Common cut square (?)	3-Penny+ 1.3 in. total	Flat-square	Very flat shank, rusted	
T.U. 30 10-20 cm	? (unidentifiable)	?	?	3 rusted exfoliated fragments	
T.U. 31 0-10 cm	Common cut square (?)	.71 in. total	?	Head fragment, highly rusted	
T.U. 32 0-10 cm	Common cut square (?)	?	--	Mid shank fragment (1.19 in. total)	
T.U. 32 10-20 cm	? (unidentifiable)	1.51 in. total	--	2 mid shank fragments rusted, exfoliated	
T.U. 36 10-20 cm	Common cut square (?)	6-Penny+ 2 1/2 in.+	--	Mid shank fragment rusted and exfoliated	

TABLE 6: (continued).

Provenience	Type	Size	Head	Comments	Illustrated
T.U. 39 0-10 cm	Common cut square	8-Penny+ 2 1/2 in.+	Flat-rectangle	Broken end, rusted	Figure 14:D
T.U. 40 0-10 cm	2 common cut square	2, 4-Penny 2, 1 1/2 in.	Flat-square	Rusted	
T.U. 40 10-20 cm	1 common cut square	1, 4-Penny 1, 1 1/2 in.	Flat-square	Rusted and bent	
	1 common cut square	?	?	3 mid shank fragments	
T.U. 43 0-10 cm	Common cut square	6-Penny 2 in.	Flat-square	Bent, rusted	
T.U. 43 0-10 cm	Common cut square (?)	?	?	Mid shank fragment (.90 in. total)	
T.U. 43 0-10 cm	Fine blued ? or Barrel (?)	3-Penny 1 1/2 in.	Flat-semi-oval	Bent, unrusted	Figure 14:M
T.U. 43 0-10 cm	? (unidentifiable)	1.69 in. total	--	Mid shank fragment, rusted	
T.U. 44 0-10 cm	Brad (?) or common cut square	5-Penny 1 3/4 in.	Flat-rectangular	Broken end, rusted	
T.U. 45 0-10 cm	Common cut square (?)	?	?	Head fragment (.85 in. total) rusted	
T.U. 45 0-10 cm	Common cut square (?)	1.05 in. total	Flat-semi-oval	Head fragment, rusted	
T.U. 46 0-10 cm	Common cut square	5-Penny+ 1 3/4 in.+	Flat-semi-oval	Broken end, highly rusted, exfoliated	
T.U. 51 0-10 cm	Common cut square	4-Penny 1 1/2 in.	Flat-oval	Rusted	Figure 14:H
T.U. 53 0-10 cm	Common cut square	?	Flat-oval	Head and shank fragments	
T.U. 56 0-10 cm	Common cut square	?	?	Head fragment (.64 in. total) highly rusted	
T.U. 62 0-10 cm	? (unidentifiable)	?	?	Highly rusted and exfoliated	
T.U. 65 0-10 cm	Common cut square (?)	?	?	Mid shank fragment (1.03 in. total)	
T.U. 67 0-10 cm	? (unidentifiable)	?	?	Highly rusted and exfoliated	
T.U. 68 0-10 cm	Common cut square	4-Penny+ 1 1/2 in.+	Flat-rectangular	Broken end, highly rusted	
T.U. 77 0-10 cm	Common cut square (?)	3-Penny+ 1 1/4 in.+	Flat-rectangular	Broken end, highly rusted	

TABLE 6: (continued).

Provenience	Type	Size	Head	Comments	Illustrated
T.U. 84 0-10 cm	Common cut square (?)	7-Penny 2 1/2 in.	Flat-semi-oval	Broken end, highly rusted	Figure 14:F
T.U. 88 0-10 cm	2 Brads (?)	4-Penny+ 1 1/2 in.+	Flat, tapered to shank	Broken ends, rusted	
T.U. 89 0-10 cm	Common cut square (?)	?	--	Rusted, exfoliated (1.03 in. total)	
T.U. 89 0-10 cm	2 common cut square	?	Flat-semi-oval to rectangular	2 head fragments (1.02 in. and 0.75 in. totals)	
T.U. 90 0-10 cm	? (unidentifiable)	?	?	Mid shank fragment, rusted and exfoliated	
T.U. 90 0-10 cm	Common cut square (?)	4-Penny+ 1 1/2 in.+	Missing	Mid shank fragment, rusted	
T.U. 90 0-10 cm	Finishing (?)	4=Penny+ 1 1/2 in.+	Missing	Mid shank fragment, rusted	
T.U. 91 0-10 cm	Common cut square	8-Penny+ 2 1/2 in.+	Flat-rectangular	Broken end, rusted and bent	
T.U. 91 0-10 cm	Brad(?)	?	Flat-rectangular	Head and shank fragments	
T.U. 92	Common cut square	?	Missing	Mid shank fragment (.55 in total), rusted	
T.U. 93 0-10 cm	Barrel (?) or common cut square	2-Penny+ 1 in.+	Flat-rectangular	Broken end, rusted	
T.U. 95 0-10 cm	Common cut square	4-Penny 1 1/2 in.	Flat-rectangular	Broken end, rusted	
T.U. 96 0-10 cm	Common cut square	6-9-Penny 2 1/2 - 2 3/4 in.	Flat-rectang-	Broken end, rusted	
T.U. 96 0-10 cm	Common cut square	?	Flat-square	Head fragment (1.3 in. cotal) rusted	
T.U. 97 0-10 cm	Common cut square	6-Penny 2 in.	Flat-square	Broken end, rusted	
T.U. 97 0-10 cm	Common cut square	?	Flat-square	Head fragment (.81 in. total) rusted	
T.U. 97 0-10 cm	2 common cut square	?	?	2 end shank fragments	
T.U. 100 0-10 cm	Barrel (?) or common cut square	3-Penny 1 1/4 in.	Flat-semi-oval	Broken end, rusted, bent.	

TABLE 6: (continued).

nails in Fontana (1965). Because the specimens were largely corroded and rusted to a high degree and most incomplete, these measurements must be only best approximation of the original nail size.

Most if not all of the square cut nails appear to be machine made although heads shapes are irregular, probably from use wear and decomposition. It is possible that some nail heads were hand wrought or reworked through forging.

Of the identifiable specimens square nails sizes are most common in the 4-penny to 8-penny range. Several finishing nails of 4-5-penny and 9-penny were found as well as several brads from the 2-5-penny sizes. Two clinch nails (one 6-penny and one 8-penny) were found as well as two 3-penny fine blued nails.

Clearly, some building construction occurred at Camp Payne. The size of nails found indicates that a structure with roof and floor was probably built. There may have been a cabin built (possibly Feature 5) and floor boards for tent barracks may have required nails for construction (see Discussion below).

Other Metal Artifacts

A variety of other metal objects were recovered, most of which were probably associated with the military occupation. These artifacts are listed in Table 7.

Much of this miscellaneous metal cannot be assigned a specific function or relationship to the military occupation. Items such as chain links and pieces of sheet metal may or may not be part of the military camp.

Other items are probably broken refuse from Camp Payne. These items include several tin cans such as the matchstick filler hole top with soldered seams dating from 1840-1880 (see Berge 1980 and Rock 1981). Barrel strap fragments are present in the surface and midden deposits as well as "kitchen" gear such as knife and fork fragments and pot/skillet pieces. Several canteen pieces are present. Samples of lead, apparently from a heating pot for bullet manufacture, were found. One probable ox and one mule shoe were found.

Several of the sheet metal pieces were cut into various shapes. One in particular (T.U. 109 0-10 cm) has chisel or saw cuts and was formed into a irregular triangle, perhaps for a metal projectile point. It is quite possible that Indian groups scavenged the metal (and other) remains left when the site was abandoned by the military.

Leather

A relatively small number of leather artifacts were found in the excavation units. These fragments appear to have been parts of belts, boots, laces and other unidentifiable articles of clothing, tack or equipment. The leather artifacts are listed in Table 8.

Glass

A relative large sample of glass artifacts was recovered from the surface and excavation units. Most of the glass artifacts consist of bottle and window glass body fragments with only a few neck and base pieces.

Several excellent histories of 19th century glass manufacturing developments have been written (Berge 1980, Firebaugh 1983, Lorrain 1968 and Ward et al. 1977). These sources and others were consulted and the following brief history of 19th

Provenience	Type	Measurements	Dates	Comments
Surface #20	Copper round wire fragment	2.5 in long .17~.20 in wide	?	Bent, smoothed
#24	Brass (?) eliptical piece cut from sheet metal, 2 countersunk nail holes	.66 in long .52 in wide .02 in thick	?	Possible Indian ornament or gun decoration
#27	Iron metal strap w/two holes	3.74 in long .78~.84 in wide .06 in thick	?	Rusted, bent and broken
#27	Iron metal strap w/one hole	1.94 in long .28~.52 in wide .06 in wide	?	Tapered and twisted, rusted, broken
#27	Rounded lead from lead pot	---	?	---
#40	Iron metal strap w/one hole	1.71 in long 0.68 in long 0.6 in wide	?	Broken, bent, rusted
#43	Matchstick filler hole can top, machine soldered?	---	1840-1880	Knife opened
#66	Flat wire (?)	---	?	Twisted
#67	Wedding ring, sterling silver (?)	.81~.89 in diameter .05 in width	?	Unmarked
#79	Crimped oval seal (?) w/hinge of zinc (?)	---	?	Distorted shape
#80	2 chain links	1.65~1.80 in long .95 in wide .25 in thick	?	Rusted
#83	Knife blade (butcher knife?)	---	?	End fragment
#99	Crimped seam zinc (?)/ metal fragment	---	?	---
#100	Canteen spout, lead	---	Civil War era?	Flattened
#103	Metal strap w/hole in center	1.69 in diameter	?	Rusted
#108	Tack (?) Pewter (?) head w/iron pin	.85~.86 in diameter (head) .93 in long (pin)	?	Medallion ?
#110	Iron handle (?) car part (?)	---	?	Broken
#111	Iron staple	Body - 2 1/2 in long Tines - 2~2 1/2 in long	?	Bent

TABLE 7: Other metal artifacts, Camp Payne, Wyoming.

Provenience	Type	Measurements	Dates	Comments
#113	Iron skillet handle	10 3/4 in long	?	Rusted
#117	Triangular iron piece w/ three holes at wide end	---	?	Rusted
#120	Meat can, three piece, soldered	---	pre 1880	Rusted and flattened
#121	Iron metal strap	2.5 in long 1.05 in wide .11 in thick	?	Rusted, broken
#123	Iron staple	Body-2 in long Tine-2 in long	?	Bent, one tine broken
#124	3 ornamental (?) fittings tin (?) w/2 bottom holes	---	?	---
#125	Oval iron rim (?) (unknown function)	---	?	Highly rusted
#B	2 iron metal straps, one w/ one hole	1 - 1.40 in long .73 in wide .06 in thick 1 - 1.08 in long .39-.54 in wide .06 in thick	?	Both broken, rusted
#C	Ring w/5 settings, middle blue rhinestone?	.68 in diameter .08 in wide .03 in thick	?	Modern?
#E	Iron metal strap w/one hole	2.65 in long .72 in wide .06 in thick	?	Broken, rusted
#K	S-chain links, 4 total	---	?	Rusted, hand wrought (?)
#T	Iron axe blade fragment (?) or wedge (?)	---	?	Pounded end
#T	One half of one chain link	.18 in thick	?	---
#X	Small fragment iron metal strap w/one hole	.72 in long .40 in wide .08 in thick	?	Rusted
#BB	Rolled sheet metal (iron?) cone shaped	---	?	Rusted
#CC	Iron metal strap cut into triangle	2 3/4 in long .63 in wide .07 in thick	?	Rusted, bent
#310	Iron metal strap, no holes	.93 in wide .06 in thick	?	Twisted
#1163	Probable ox shoe	---	--	Rusted, only ½ present

TABLE 7: (continued).

Provenience	Type	Measurements	Dates	Comments
#1169	Brass ring	---	?	--
#1170	2 iron keys (?)	---	?	Rusted, broken
#1083	Lid, single piece, non-soldered	3 in diameter	?	Rusted
#1083	Lid, 2 piece, crimped seam, non-soldered	2 1/2 in diameter	?	Rusted
#1192	Probable mule shoe	---	?	Rusted, only ½ present
T.U. 2 0-10 cm	Unidentifiable sheet metal fragments	---	?	Highly rusted
T.U. 2 0-10 cm	1 iron metal strap and unidentifiable sheet metal fragments	1.07 in long .65 in wide .06 in thick	?	Rusted, broken
T.U. 3 0-10 cm	Unidentifiable sheet metal fragment	---	?	Rusted, broken
T.U. 4 0-10 cm	Unidentifiable sheet metal fragment	---	?	Rusted, broken
T.U. 4 20-30 cm	Match stick filler hole large can top	8 in+ diameter	1840-1880	Large storage or supply vessel, knife opened
T.U. 6 N½ 20-30 cm	Unidentifiable can or sheet metal fragments	---	?	Highly rusted
T.U. 6 N½ 20-30 cm	Unidentifiable can or sheet metal fragments	---	?	Highly rusted
T.U. 8 0-10 cm	Unidentifiable sheet metal fragment	---	?	Highly rusted
T.U. 14 S½ 10-20 cm	Can fragments, crimped seam soldered	?	?	Burned
T.U. 14 N½ 10-20 cm	Unidentifiable sheet metal fragments	---	?	---
T.U. 14 N½ 10-20 cm	Brass ring or band	.65 in diameter .40 in wide .04 in thick	?	Seam visible
T.U. 15 10-20 cm	Sheet metal (can?) fragments,	---	?	---
T.U. 17 0-10 cm	Can fragment side w/crimped seam	---	?	---
T.U. 17 10-20 cm	Can fragment, top w/wide, irregular solder ring	---	1840-1880?	---
T.U. 20 20-30 cm	Unidentifiable metal fragment	---	?	Rusted, exfoliated

TABLE 7: (continued).

Provenience	Type	Measurements	Dates	Comments
T.U. 20 30-40 cm	Can top	?	?	Highly rusted, broken
T.U. 21 10-20 cm	Sheet metal (can?)	---	?	---
T.U. 26 0-10 cm	Metal strap (lead?)	2.46 in long 0.6 in thick	?	Burned
T.U. 26 20-30 cm	Rounded sheet metal fragment	.62 in long .23 in wide .05 in thick	?	Rusted, broken
T.U. 28 0-10 cm	Circular lead piece	.34 in diameter .10 in thick	?	---
T.U. 28 10-20 cm	Sheet metal (can?) fragments	---	?	Rusted, broken
T.U. 28 10-20 cm	Canteen (?) lid	---	?	Broken
T.U. 29 0-10 cm	Can fragments	---	?	Rusted, broken
T.U. 29 10-20 cm	Can fragments	---	?	Rusted, broken
T.U. 30 20-30 cm	Iron metal strap	9.51 in long 1.2 in wide	?	Rusted, broken
T.U. 31 10-20 cm	Can fragments	---	?	---
T.U. 32 0-10 cm	Can fragments	---	?	---
T.U. 32 10-20 cm	Can fragments	---	?	---
T.U. 39 10-20 cm	Can fragments	---	?	---
T.U. 40 0-10 cm	One can fragment	---	?	---
T.U. 40 10-20 cm	One can fragment	---	?	---
T.U. 40 10-20 cm	Iron staple	1.65 in long	?	Rusted, tines
T.U. 40 20-30 cm	Iron metal strap	9.5 in long 1.2 in wide .06 in thick	?	Rusted, broken
T.U. 42 0-10 cm	Sheet metal fragment	---	?	---

TABLE 7: (continued).

century glass is presented.

By the early 19th century the American glass industry was becoming firmly established.

> . . . All of the manufacturing techniques used free-hand blowing, blowing into molds, pressing, drawing, and casting - and the coloring and decorating methods were known at the beginning of the century. The changes during the nineteenth century consisted of new ways to improve the known techniques to speed and simplify production . . . (Lorrain 1967:35).

In the early 1800s the most common glass manufacturing technique was by blowing. This could be done by hand-blowing, free-blowing or off-hand blowing. Characteristics of blown glass are that the surface of hand-blown pieces are shiny and smooth and without impressions (Lorrain 1968:35). The bases of off-hand-blown bottles have a pontil mark, a spot of rough glass that is formed when a pontil rod (long iron rod) is attached to the base with a bit of molten glass inorder to hold the bottle while the blowpipe is struck off and the top edge is finished (Lorrain 1968:35-36). Free-blown bottles are also frequently asymmetrical and off-hand-blown bottles will not have mold marks (Lorrain 1968:36).

Another aspect of bottle manufacture was the use of a push up or "kick up" at the base. The push up was in essence a purposefully formed indentation in the base which took several forms. Explanations for this indenting are as follows:

1) Because glass makers had difficulty making a bottle base flat enough for a bottle to stand upright without wobbling, they partially solved the problem by indenting the base.

2) A push-up helped to produce a stronger bottle. Part of the reason was that the glassmaker, while the bottle was being made, often rested the bottle on its base which allowed the glass to flow towards the basal area (Bontemps 1868:510). In pushing up the base, the glass was redistributed and thinned. If glass is too heavily concentrated in one place the annealing process is less effective and stresses are set up in the bottle which make it weaker. It is also possible that the push-up is structurally useful in helping the bottle withstand great internal pressure from contents such as sparkling wines.

3) Many authors suggest that push-ups were made deliberately deep, particularly in dark green glass bottles, so the bottle looked much larger than they actually were.

4) Many people also believe that the push-up assists in the sedimentation of wines (Mendelsohn 1965:51 - quotation Jones 1971:63).

From 1840-1860 a number of important glass manufacturing developments occurred. In 1845 an improved pontil was developed. The attachment of a molten piece of glass was replaced by using a larger tip on the end of the

Provenience	Type	Measurements	Dates	Comments
T.U. 104 0-10 cm	Can fragment (?)	52 x 18 x 1 mm	?	Rusted
T.U. 108 0-10 cm	Can fragment (?)	49 x 22 x 1 mm	?	Rusted
	5 unidentifiable metal fragments	---	?	Rusted
T.U. 109 0-10 cm	Cut shell metal	35 x 29 x 1 mm	?	Chisel(?) cut into irregular triangle

TABLE 7: (continued).

Provenience	Description
T.U. 6S½ 20-30 cm	One leather strap (belt?) and two cut fragments
T.U. 14N½ 10-20 cm	Sole, small sized shoe or boot - distorted
T.U. 17 10-20 cm	One cut fragment
T.U. 22 0-10 cm	Shoe or boot fragment with rusted nails in place and 2 soles - distorted
T.U. 22 10-20 cm	One or two sole fragments - distorted and rotted
T.U. 23 10-20 cm	Two sole (?) fragments
T.U. 24 0-10 cm	Several rotted fragments
T.U. 25 20-30 cm	One cut fragment
T.U. 26 20-30 cm	Two lace (?) fragments
T.U. 31 10-20 cm	One strap fragment
T.U. 32 10-20 cm	One partial boot fragment - distorted and rotted
T.U. 33 10-20 cm	One cut fragment
T.U. 36 10-20 cm	One fragment - distorted
T.U. 38 0-10 cm	One lace (?) and two rotted fragments
T.U. 42 0-10 cm	One sole (?) fragment - distorted
T.U. 45 0-10 cm	One rotted fragment
T.U. 46 0-10 cm	One rotted fragment
T.U. 53 0-10 cm	One cut fragment
T.U. 83 0-10 cm	One rotted fragment
T.U. 95 0-10 cm	One rotted fragment

TABLE 8: Leather artifacts from Camp Payne, Wyoming.

Provenience	Type	Measurements	Dates	Comments
T.U. 71 0-10 cm	Iron metal strap	3.75 in long .25 in wide .10 in thick	?	Rusted, broken
T.U. 72 0-10 cm	Can fragments	---	?	---
T.U. 72 0-10 cm	Chain link	---	?	---
T.U. 75 0-10 cm	Can fragments	---	?	---
T.U. 77 0-10 cm	Ornamental metal	---	?	Bent
T.U. 83 0-10 cm	Can fragments	---	?	---
T.U. 83 0-10 cm	One nut w/piece of bolt	.85 in	?	Rusted
T.U. 83 0-10 cm	3 pieces of iron strap	Variable length width .18 in thick	?	Rusted
T.U. 85 0-10 cm	Wire piece	---	?	Rusted
T.U. 88 0-10 cm	Tool (?) bit	---	?	Broken, both ends
T.U. 89 0-10 cm	Unknown metal objects	---	?	Rusted
T.U. 89 0-10 cm	Lead frame lead pot	---	?	Rusted
T.U. 91 0-10 cm	Pewter (?)	---	?	Broken
T.U. 91 0-10 cm	Metal bar, curved, tapered	2.0 in long .52-1.5 in wide .16-.35 in thick	?	Rusted, broken
T.U. 92 0-10 cm	Lead from pot fragment	---	?	---
T.U. 95 0-10 cm	Iron metal strap w/two holes	.04 in thick	?	Rusted, broken
T.U. 97 0-10 cm	Can fragments	---	?	---
T.U. 100 0-10 cm	Sheet metal can (?) fragments	---	?	---
T.U. 102 0-10 cm	Washer	.40 in diameter .06 in thick	?	Rusted

TABLE 7: (continued).

Provenience	Type	Measurements	Dates	Comments
T.U. 43 0-10 cm	Metal bar - tapered	11.6 in long 1 in wide .35 in thick	?	Rusted
T.U. 43 0-10 cm	One iron metal strap w/hole and can fragments	1.06 in long .68 in wide .10 in thick	?	Rusted, broken
T.U. 46 0-10 cm	Sheet metal can (?) fragments	---	?	---
T.U. 47 0-10 cm	Iron metal strap	1.56 in long .44 in wide .08 in thick	?	Rusted, broken
T.U. 49 0-10 cm	Unidentifiable metal fragment	---	?	---
T.U. 53 0-10 cm	Can fragment	---	?	---
T.U. 53 0-10 cm	Iron bar	5.3 in long 1.15 in wide .22 in thick	?	Rusted, broken
T.U. 54 0-10 cm	Sheet metal (can?) fragments	---	?	---
T.U. 58 0-10 cm	Sheet metal (can?) fragments	---	?	---
T.U. 58 0-10 cm	Iron metal strap fragments	---	?	Several broken from same strap (?)
T.U. 59 0-10 cm	Brass knob and iron shank	---	?	---
T.U. 62 0-10 cm	Metal fragment	---	?	---
T.U. 65 0-10 cm	Iron metal strap w/one hole	13.75 in long 2.70 in wide .10 in thick	?	Rusted, broken
T.U. 65 0-10 cm	Sheet metal (can?) fragments	---	?	---
T.U. 66 0-10 cm	Sheet metal (can?) fragments	---	?	---
T.U. 66 0-10 cm	Suspender buckle	---	?	---
T.U. 66 0-10 cm	Two tine carving fork	---	?	Rusted, broken
T.U. 69 0-10 cm	Iron metal strap	2.75 in wide .06 in thick	?	Rusted, broken

TABLE 7: (continued).

pontil rod which was heated red hot. The improved pontil was applied to the base as in the previous method and when broken off only a circular or rectangular depression was left at the base. The improved pontil was used with the 1870s (Firebaugh 1983:13).

> The first molds for bottles were invented by at least the first century A.D. (Toulouse 1969:527), but did not surpass free-blown bottles in popularity and production until the 1840's. To manufacture a mold-blown bottle, a gob of glass was gathered on the end of blowpipe and inserted into the mold (Kendrick:1966b:30). The glass was then blown into the mold until it filled it, taking on the desired shape (Stewart and Cosentino 1976:18). The bottle was then removed from the mold for finishing. The earliest molds were called open molds. In this type of mold, only the body and base portions of the bottle were blown. The mold was shaped so that the circumference of the body was larger than that of the base, allowing the bottle to be easily withdrawn from the mold. The shoulders, neck, and finish were drawn out of the body by hand, and the completed bottle was then detached from the blowpipe (Kendrick 1966a:33). The open mold was also used as a pattern for larger bottles that were initially blown in the mold, then removed and expanded in size by additional blowing. Such bottles were much more uniform in shape than completely free-blown bottles (Firebaugh 1983:13).

Furthermore,

> . . . The bottles of this [1840-1860] period and earlier were formed by open molds in which only the body was formed. The neck and finish had to be shaped by hand. This type of mold leaves a seam on the bottle body which terminates on the shoulder or the low neck (Kendrick 1966a:47). It was the practice of glassmakers to form finishes by applying a strip of glass around the sheared end of the neck. The manufacture of free-blown bottles died out around 1860, so that the seamless bottles of irregular shapes are seldom encountered after this date. . .
>
> Between 1850 and 1860, the pontil was gradually replaced by the snap-case. The rod was not physically attached to the bottle base, but rather a tong that snapped tight to the bottle heel was used; when removed it left no marks on the base. This left the base free for lettering or decoration (Kendrick 1966a:29).
>
> There was little concern over the color of glass until food-stuffs began to be bottled. Then came the desire to see what was in the bottle, so glass had to be made lighter. Dark olive-green or black glass, common up to 1860, began to be replaced by clearer and lighter colored types of glass. . . (Berge 1980:72).

The snap case invention is very significant for dating and identification of mid-19th century bottles. Lorrain (1968:40) places its invention at about 1857. The

map case was a tool with four curved, padded arms which were clamped around the bottle. Usually no marks were left by the tool but on occasion slight indentations were produced. A bottle with mold marks, hand finished lip and no pontil mark was most likely made with a snap case (Lorrain 1968:40).

> With the snap case holding the base, the lip could be finished with a lipping tool (Fig. 6); most bottles were manufactured by this method after 1840 (Ketchum 1975:34). The lipping tool consisted of a central plug which was inserted into the mouth of the bottle, and two hinged arms which clamped around the outside (Switzer 1974:6). The arms were shaped in a particular lip pattern which, when rotated around the bottle, was impressed onto the pliable glass of the finish in a uniform manner.
>
> There were two methods of completing a bottle finish, both of which made use of lipping tools (Clint 1976:23). One, called the "wiped top" by Clint, simply used the lipping tool directly on the bottle neck after it had been reheated to increase plasticity. This type exhibits a smooth connection between the neck and finish, though stretch marks are often present. The other method required that a blob of glass be added to the severed neck, forming a pliable ring to which the lipping tool was applied. This type, called an "applied top," or "blob top" (as opposed to a blob type finish), can often be recognized by the presence of an uneven attachment between neck and finish, or by a so-called "stuck on" appearance (Clint 1976:23). Whatever mold marks may have been present on the neck or finish of the bottle are obliterated by both the reheating process and the rotation of the lipping tool. A wide variety of lipping tools became available during the latter half of the nineteenth century, which opened the way for the development of new bottle closures (Firebaugh 1983:16).

Another early 19th century development was the pressing machine patented in 1827. Pressed glass is identified by well defined, impressed patterns on the exterior surface and a smooth inner surface. Pressed glass was produced in piece molds and mold marks are present. Pressed glass made before 1850 has a grainy finish with stippled background. Fire polishing on later pressed glass removed the stippling and resulted in pieces with a smooth reflective finish (Lorrain 1968:39).

> Closures provide accurate records of numerous style changes through time (Fig. 9.5, Tab. 9.2). Until development of the lipping tool for application of glass finishes, bottles were limited to the sheared lip style. This included both flared and laid-on finishes for cork closures. Although these early bottles could be sealed airtight, the closures could not withstand pressure. The creation of Mason jars for home canning (1858) and discovery of pasteurization techniques a short time later

(1873) spurred the search for more satisfactory closures. With the aid of lipping tools, deep screw finishes and blob tops were applied to accommodate hermetic closures. These styles soon proved, however, to be too slow for filling and sealing. Patent records reveal that many new inventions were offered in the 1870s and 1880s, but most were quickly deemed unsanitary or impractical. Something better was still needed. It had to be cheap, quick to apply and remove, but remain airtight and pressures resistant. The crow cap (for beverages) and Phoenix shallow screw cap (for foods) were developed and found to fit most needs. Consequently, methods have changed little since. In the 1920s, the establishment of set dimensions, first for jars and later for bottles, ensured safe, inexpensive, and convenient glass packaging (Ward et al. 1977:230).

Finally, the color of glass can be used as a relative dating tool. The natural color of glass is light green to amber. Other colors were artificially produced with the addition of metallic oxides. Iron slag was added to glass to produce the black or dark green colors. Black glass was to be replaced by amber, brown and aqua colors for commercial containers toward the end of the 19th century. These hues were transparent, but also guarded against light penetration, thus allowing the contents to be visible, but at the same time, protecting the contents from spoilage.

Colored glass can be dated according to the following ranges from Ward et al. (1977:240): black or dark green, 1815-1885; aqua, 1880-1910; purple, 1880-1917; brown, 1980 present; amber, 1914-1930; and clear, 1930-present.

Window glass can be dated on its average thickness. Before 1850, window glass was generally less than 1.6 mm thick. After 1850 window glass was 2-2.4 mm thick.

Glass artifacts recovered from Camp Payne are presented in Table 9 and selected specimens are illustrated in Figures 15 and 16. Most of the glass artifacts recovered are fragments. An attempt was made to identify the type of glass, vessel portion, and type and attributes which might lead to a more firm association of age based on the foregoing discussion and referenced sources.

Most of the glass fragments are black (dark green) bottle glass and window glass. There are also a large number of aqua colored bottle glass fragments and pressed glass fragments. Post-military occupation glass types are present, mostly on the surface of the site. There are a variety of glass types including liquor bottles and other bottle types (several probable medicinal types) and ornamental pieces (pressed glass). The window glass was undoubtedly associated with structural remains. Based on the manufacturing techniques (where evident) and glass color most if not all of these glass fragments are from the military occupation.

Clay Pipes

One of the most interesting finds from the Camp Payne excavations were the 255 fragments and whole sections of clay pipes.

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Size and Comments	Illustrated
Surface #8	1 fragment dark green or black	Bottle	Base	Slight push up w/small pontil mark	1815-1870	Push up and pontil mark even and symmetrical	Fig. 15:C
#12	Black fragment	Bottle(?)	Body	---	1815-1885	12 x 15 mm, 6 mm thick	---
#13	Dark green or black	Bottle-liquor(?)	Neck, collar and lip	Champagne or wine bottle type, unevenly applied collar or lip below aperature	1840-1860± 10 years	Burned	Fig. 16:F
#14	Dark green fragment	Bottle(?)	Body	---		Burned	---
	Clear fragment w/light purple tint	Bottle(?) - Jar(?)	Body	Slightly curved so not window glass	1880-1915 (?) - post 1930?	15 x 23 x 8 mm thick	---
#16	2 dark brown or black fragments	Bottle (?)	Body	---	1815-1885	1-33 x 33 x 6 mm thick 2-25 x 17 x 5.5 mm thick	---
#19	Brown or amber beer bottle fragment	Bottle	Body	---		Modern(?) beer bottle	---
#32	3 dark green or black fragment	Bottle (?)	Body	---	1815-1855	1-43 x 24 x 6 mm thick 2-20 x 18 x 5 mm thick 3-21 x 7 x 4 mm thick	---
#44	5 pale green or aqua fragments	Bottle	1 partial base 4 body	Insufficient size to determine	?	Natural color? 1 base fragment 41 x 22 x 4 mm 2-20 x 20 x 3 mm 3-20 x 14 x 2 mm 4-14 x 8 x 2.5 mm 5-16 x 18 x 2 mm	
#55	Window glass fragment pale green color	Window	---	2 mm thick	post 1850	29 x 14 mm fragment	---
#112	Black fragment	Bottle	Base	---	1815-1885	---	---
#116	1 clear fragment	Bottle	Body	---	post 1930	19 x 12 x 5.5 mm	---
	3 pale green-aqua fragments	Bottle(?)	Body	---	?	Natural color? 1-23 x 10 x 3 mm 2-25 x 8 x 1.5 mm 3-15 x 5 x 2.5 mm	---
#123	Dark green fragment	Bottle?	Body	---	1815-1885	19 x 16 x 4 mm	---
#124	Dark green fragment	Bottle?	Body	---	1815-1885	32 x 26 x 5 mm	---
#129	Dark green fragment	Bottle?	Base	Wine bottle type w/ high kick up	1815-1885	---	---
	Dark green fragment	Bottle?	Body	---	1815-1885	37 x 27 x 4 mm	---
#130	Purple wide mouth-household container	Food bottle or jar	Neck	Glass cap closure?	1880-1913	---	---
#132	Pale green-aqua fragment	Bottle(?)	Body	---	?	18 x 18 x 5 mm	---
#138	Pale green window glass fragment	Window	---	2.2 mm thick	post 1850	15 x 14 mm	---
#142	6 dark green glass fragments	Bottle?	Body	---	1815-1885	1-23 x 16 x 2 mm 2-16 x 14 x 2 mm 3-29 x 15 x 2 mm 4-15 x 13 x 2.5 mm 5-15 x 11 x 3.5 mm 6-14 x 7 x 3 mm	---
	1 pale green fragment	Bottle?	Body	---	?	1-12 x 9 x 2 mm	---
#144	Purple fragment	Bottle	Neck	Trumpet mouth	1880-1917	4 fragments	---
#145	Dark green f agment	Bottle?	Body	---	1815-1885	33 x 31 x 2.5 mm	---
#146	2 dark green fragments	Bottle	Base	Push up evident	1815-1885	2 fragments	---
#147	Pale green-aqua fused fragment	?	?	---	1815-1885	Burned-fused	---
#148	Pale green window glass	Window	---	2.3 mm thick	post 1850	39 x 22 mm	---
#149	Dark green fragment	Bottle(?)	Body	---	?	29 x 22 x 5 mm	
#151	Pale green fragment	Bottle (?)	Body	---	?	20 x 14 x 2.5 mm	---
#299	3 pale green-aqua fragments	Bottle (?)	Body	---	?	1-19 x 17 x 3.5 mm 2-23 x 12 x 2 mm 3-15 x 11 x 2 mm	---
#306	Dark green fragment	Bottle (?)	Body	---	1815-1885	39 x 26 x 6 mm	---
#315	Dark green fragment	Bottle (?)	Body	---	1815-1885	43 x 27 x 8 mm	---
#E	2 window glass fragments	Window	---	2 mm thick	post 1850	16 x 13 mm 12 x 12 mm	---
	1 pale green fragment	Bottle (?)	Body	---	?	19 x 16 x 3 mm	---
	1 dark green fragment	Bottle	Neck portion	Unevenly applied collar	1840-1860± 10 years	---	---

TABLE 9: Glass artifacts from Camp Payne, Wyoming.

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
Test Units							
T.U. 2 0-10 cm	Pale green-aqua fragments	Bottle-pharmaceutical type (?)	Neck, lip	Packer(?) type unevenly applied collar w/recessed aperature	?	---	Fig. 16:D
	Dark green fragment	Bottle	Shoulder	---	1815-1885	Heavily patinated	---
	27 dark green fragments	Bottle	Body	---	1815-1885	Range 8 x 8 x 2 mm to 34 x 26 x 3 mm	---
	Window glass fragment w/ pale green tint	Window	---	2.1 mm thick	post 1850	12 x 10 mm	---
	2 pale green fragments 1 clear fragment	?	?	Thin, pressed glass w/ smooth surface	post 1845	One burned	---
	3 window glass fragments w/pale green tint	Window	---	1.5-2.0 mm thick	post 1850	1-8 x 8 mm 2-10 x 9 mm 3-18 x 12 mm	---
	5 clear fragments	Light bulb?	Body	Curved	1879-present	---	---
T.U. 4 10-20 cm	Pale green fragment	Ornamental or household type?	Body	Pressed glass w/ smooth surfaces	post 1845	Highly patinated	---
	2 dark green fragments	Bottle (?)	Body	---	1815-1885	1-33 x 20 x 6 mm 2-22 x 11 x 6 mm Heavily patinated	---
T.U. 4 20-30 cm	3 dark green fragments	Bottle (?)	Body	---	1815-1885	1-38 x 37 x 4 mm 2-15 x 15 x 2 mm 3-12 x 8 x 2 mm	---
T.U. 5 0-10 cm	Clear fragment	Bottle (?)	Base	Portion of moulded letters	post-1930	---	---
T.U. 6 S½ 0-10 cm	3 window glass fragments light green tint	Window	---	2.0-2.3 mm thick	post-1850	1-25 x 18 mm 2-24 x 12 mm 3-21 x 11 mm	---
	4 pale green-aqua fragments	Bottle	Body	---	?	1 melted	---
	Clear fragments	Bottle or jar	Body and par-	Six(?) sided vessel	post-1930	---	---
	Dark green fragment	Bottle	Body	---	1815-1885	68 x 28 x 5 mm	---
10-20 cm	2 window glass fragments w/green tint	Window	---	2.0 mm thick	post 1850	1 burned 1-26 x 17 mm 2-15 x 10 mm	---
	1 pressed glass fragment pale green	?	Body	---	post 1845	---	---
	Pale green-aqua fragment	Bottle (?)	Body	---	?	Heavily patinated 20 x 15 x 2 mm	---
	2 dark green fragments	Bottle (?)	Body	---	?	1-20 x 17 x 4 mm 2-14 x 9 x 2 mm	---
T.U. 6N½ 0-10 cm	Clear fragment	Bottle or jar	Base	Border type-automatic bottle made(?)	post 1917	Fits with T.U. 6 0-10 above	---
	Clear fragment	Bottle or jar	Body	---	post 1917	22 x 16 x 3 mm	---
	3 pale green aqua fragments	Bottle or jar	Body	---	?	1-38 x 12 x 2.5 mm 2-19 x 14 x 2 mm 3-9 x 8 x 2 mm	---
T.U. 7a 10-20 cm	Dark green or black fragments	Bottle	Body	---	1815-1885	Heavily patinated 42 x 19 x 3 mm	---
T.U. 7 0-10 cm	Dark green or black fragment	Bottle	Base	Slight push up with pontil mark, two rings around pontil mark	1815-1870	---	Fig. 15:D
	9 dark green or black fragments	Bottle	Body	---	1815-1885	Range 19 x 16 x 3 mm to 11 x 3 x 3 mm	---
T.U. 8 0-10 cm	Dark green fragment	Bottle	Partial base-body	Partial kick up visible	1815-1885	Burned-heavily patinated	---
T.U. 8 0-10 cm	12 dark green fragments	Bottle	Body	---	1815-1885	Burned-heavily patinated, Range 42 x 26 x 6 mm to 9 x 5 x 3.5 mm	---
	13 window glass fragments-pale green tint	Window	---	2 mm thick	post 1850	Burned-Range 25 x 20 mm to 9 x 8 mm	---
T.U. 8 10-20 cm	Pale green fragment	Bottle (?)	Body	---	?	Burned-20 x 11 x 2 mm	---
T.U. 9 0-10 cm	1 dark green or black	Bottle	Body	---	1815-1885	31 x 15 x 4 mm	---
T.U. 10 0-10 cm	1 window glass fragment	Window	---	2.0 mm thick	post 1850	---	---
	15 dark green-black fragments	Bottle (?)	Body	---	1815-1885	Range-40 x 34 x 5 mm to 12 x 5 x 3 mm	---
T.U. 11 10-20 cm	Dark green fragment	Bottle (?)	Body	---	1815-1885	Burned-29 x 21 x 2.5 mm	---
T.U. 12 0-10 cm	4 dark green fragments	Bottle	Body	---	1815-1885	Range-46 x 24 x 5 mm to 17 x 7 x 3 mm	---
	6 window glass fragments, pale green tint	Window	---	1.8 to 2.0 mm thick	post 1850	Range-20 x 9 mm to 9 x 9 mm	---
T.U. 13 10-20 cm	14 dark green fragments	Bottle (?)	Body	---	1815-1885	Burned, heavily patinated - Range 95 x 34 x 5 mm to 17 x 8 x 2.5 mm	---
T.U. 13 20-30 cm	Dark green fragment	Bottle (?)	Body	---	1815-1885	Heavily patinated, 20 x 16 x 6.5 mm	---
T.U. 14S½ 0-10 cm	8 dark green fragments	Bottle ?	Body	One burned	1815-1885	Range-32 x 25 x 2 mm to 15 x 8 x 2 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
	3 window glass fragments w/pale green tint	Window	---	2.0-2.5 mm thick	post 1850	Range-38 x 35 mm to 11 x 11 mm	---
T.U. 14S½ 10-20 cm	Clear fragment	Bottle or jar	Body	---	post 1917	31 x 22 x 6 mm	---
T.U. 14S½ 10-20 cm	Dark blue fragments	?	?	Burned and fused	?	---	---
	5 window glass fragments	Window	---	2.0-2.4 mm thick	post 1850	Range-30 x 15 mm to 12 x 8 mm	---
	11 pale green-aqua fragments	Bottle ?	Body	---	?	15 x 10 x 2.5 mm to 8 x 9 x 1 mm	---
	2 dark green fragments	Bottle ?	Body	---	1815-1885	1-18 x 10 x 2.5 mm 2-20 x 9 x 2.5 mm	---
	2 dark green fragments-pressed glass	Household type (?)	Body	Angular facets	post 1845	---	---
	4 pale green fragments	Bottle (?)	Body	---	?	Highly patinated, Range-25 x 19 x 2 mm to 10 x 12 x 2 mm	---
T.U. 14S½ 20-30 cm	2 pale green-aqua fragments	Bottle (?)	Body	---	?	1-24 x 8 x 3 mm 2-9 x 3 x 2 mm	---
	4 window glass fragments-pale green tint	Window	---	2 mm thick	post-1850	Range-20 x 13 mm to 18 x 14 mm	---
T.U. 14S½ 30-40 cm	1 dark blue fragment pressed?	Ornamental ?	Body	Angular facet	post 1845	---	---
	1 dark green fragment	Bottle	Body	---	1815-1885	38 x 30 x 3.5 mm	---
T.U. 14N½ 0-10 cm	Clear fragment	Bottle or jar (?)	Body	Pressed or moulded decoration (?)	post 1917	Burned (?)	---
	2 pale green-aqua fragments pressed glass	?	Body	---	post 1845	Patinated	---
	5 window glass fragments	Window	---	1.5-2.0 mm thick	post 1850	Range-29 x 24 mm to 10 x 8 mm	---
	1 dark green, 4 pale green tint						
	2 pale green-aqua fragments	Bottle	Body	---	?	Heavily patinated	---
	3 blue fragments	?	Body (?)	---	?	Burned-fused	---
T.U. 14N½ 10-20 cm	6 dark green fragments	Bottle (?)	Body	---	1815-1885	Range-33 x 25 x 3 mm to 25 x 23 x 2.5 mm	---
	14 window glass-pale green tint	Window	---	2 mm thick	post 1850	Range-41 x 13 mm to 8 x 5 mm	---
	1 clear fragment	Bottle or jar	Body	---	post 1917	44 x 25 x 4 mm	---
	1 pale green-aqua fragment	Bottle-liquor	Base and Body	Slight push up-no pontil mark	1880-1913?	Patinated	---
T.U. 15 0-10 cm	2 dark green fragments	Bottle (?)	Body	---	1815-1885	1-18 x 12 x 2 mm 2-11 x 6 x 3 mm	---
	1 pale green-aqua fragment	Bottle (?)	Body	---	?	9 x 7 x 1.5 mm	---
T.U. 15 10-20 cm	1 window glass fragment	Window	---	1.6 mm thick	post 1850	---	---
	8 pale glass fragments	Bottle (?)	Body	---	?	Range-19 x 11 x 3 mm to 8 x 3 x 3 mm	---
T.U. 16 0-10 cm	4 dark green or black fragments	Bottle (?)	Body	---	1815-1885	1-26 x 12 x 3 mm 2-12 x 10 x 3 mm 3-30 x 27 x 2 mm 4-26 x 5 x 3 mm	---
	1 blue fragment	?	Body	Pressed (?)	post 1845?	42 x 18 x 5 mm burned	---
	1 pale green-aqua fragment	Ornamental household type?	Body	Pressed glass w/design	post 1845	16 x 13 x 1.5 mm	---
	1 purple fragment	Bottle or jar	Body	Angular facet	1880-1917	26 x 19 x 3 mm	---
	1 window glass fragment pale green tint	Window	---	2 mm thick	post 1850	15 x 13 mm	---
T.U. 17 0-10 cm	4 dark green fragments	Bottle (?)	Body	---	1815-1885	Range-68 x 43 x 4 mm to 21 x 10 x 3 mm	---
	1 window glass fragment pale green tint	Window	---	2 mm thick	post 1850	16 x 12 mm	---
	1 purple fragment	Ornamental household (?)	Body	Pressed glass w/design	1880-1917	18 x 13 x 2 mm	---
	1 pale green-aqua fragment	Bottle (?)	Body	---	?	Patinated 48 x 22 x 4 mm	---
T.U. 17 10-20 cm	Black fragment	Bottle	Base	Push up and pontil mark	1815-1885	---	Fig. 15:A
	5 dark green fragments	Bottle (?)	Body	---	1815-1885	Patinated - Range 26 x 12 x 3 mm to 11 x 5 x 2 mm	---
	Dark green or black fragment	Bottle (?)	Body	---	1815-1885	Heavily patinated 45 x 35 x 6 mm	---
	Dark green or black fragment	Bottle (?)	Body	Angular facet	1815-1885	Patinated	---
	2 pale green or aqua fragments	Bottle (?)	Body	Pressed glass	post 1845	Patinated 1-10 x 5 x 3 mm 2-10 x 6 x 3 mm	---
T.U. 17 10-20 cm	5 window glass fragments	Window	---	2 mm thick	post 1850	Range-16 x 11 mm to 11 x 5 mm	---
T.U. 18 0-10 cm	14 dark green fragments	Bottle (?)	Body	---	1815-1885	Burned - Range 26 x 18 x 2 mm to 9 x 8 x 1 mm	---
	6 window glass fragments	Window	---	2.0-2.4 mm thick	post 1850	Range-25 x 9 mm to 9 x 8 mm	---
T.U. 19 0-10 cm	21 dark green fragments	Bottle	Body-shoulder	Angular facets on some body sherds	1815-1885	Range-35 x 32 x 4 mm to 9 x 6 x 2 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 20 0-10 cm	Black fragment	Bottle	Body	---	1815-1885	Highly patinated 103 x 48 x 5 mm	---
	2 dark green fragments	Bottle (?)	Body	---	1815-1885	1-33 x 17 x 3 mm 2-28 x 17 x 3 mm	---
	6 window glass fragments pale green tint	Window	---	2.0-2.2 mm thick	post 1850	Range-28 x 22 mm to 9 x 6 mm	---
	Pale green-aqua fragment	?	?	---	?	Fused piece	---
	Clear fragment	Ornamental household (?)	Body	Pressed design	post 1917	29 x 22 x 3 mm	---
T.U. 20 10-20 cm	Black fragment	Bottle	Base	Push up and pontil mark present-square base	1815-1860+	---	Fig. 15:B
	Dark blue fragment	?	?	---	?	Fused piece	---
	8 pale green-aqua fragments	?	Body	Pressed glass	post 1845	Range-20 x 19 x 4 mm to 7 x 6 x 1.5 mm	---
	2 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	1-29 x 14 mm 2-9 x 9 mm	---
	3 pale green-aqua fragments	Bottle (?)	Body	Pressed glass (?)	post 1845	Range-20 x 18 x 2.0 mm to 9 x 6 x 1.5 mm	---
	2 window glass-pale green tint	Window	---	2.0 mm thick	post 1850	1-18 x 17 mm 2-14 x 8 mm	---
	1 dark green fragment	Bottle (?)	Body	---	1815-1885	Burned-35 x 20 x 4 mm	---
T.U. 20 20-30 cm	9 pale green-aqua fragments	Ornamental household (?)	Body	Pressed glass w/ornamentation	post 1845	Patinated	---
T.U. 21 0-10 cm	6 dark green fragments	Bottle	Body	---	1815-1885	Range-28 x 19 x 2 mm to 12 x 7 x 2 mm	---
	7 window glass fragments pale green tint	Window	---	2.0-2.4 mm thick	post 1850	Range-24 x 22 mm to 9 x 9 mm	---
	6 pale green-aqua fragments	Bottle ?	Body	Pressed glass w/angular facets	post 1845	Patinated - Range 32 x 14 x 2 mm to 9 x 7 x 1.5 mm	---
	3 dark green fragments	Bottle ?	Body-Base	Base w/pontil mark	1815-1860	Patinated 1-34 x 31 x 4 mm 2-22 x 17 x 4 mm 3-27 x 15 x 3 mm	---
	1 clear fragment	Bottle ?	Body	---	post 1915	19 x 8 x 2 mm	---
	5 dark green fragments	?	?	---	?	Fused pieces	---
T.U. 21 10-20 cm	5 pale green fragments	Bottles (?)	Body	---	?	Patinated, 2 fused	---
	9 window glass fragments pale to dark green tint	Window	---	2.0 mm thick	post 1850	Range-25 x 19 mm to 10 x 8 mm	---
	1 clear fragment	Bottle (?)	Body	Pressed glass	post 1915	16 x 11 x 2 mm	---
T.U. 22 0-10 cm	6 window glass fragments pale green tint	Window	---	2 mm thick	post 1850	Range-27 x 20 mm to 13 x 7 mm	---
	3 pale green fragments	Bottle or vial(?)	Neck and lip	Lip applied over on inside of aperature	?	---	Yes
	4 dark green fragments	Bottle ?	Body	One w/angular facet	1815-1885	Range-26 x 15 x 6 mm to 11 x 11 x 2 mm	---
	5 pale green fragments	Bottle ?	Body	One melted	?	Patinated - Range 18 x 16 x 2 mm to 11 x 2 x 1.5 mm	---
	3 dark blue fragments	?	Body	---	?	Fused	---
	7 clear fragments	Bottle	1 base, 6 body	Base with portion of mark	post 1917	6 body - Range 26 x 15 x 2 mm to 13 x 10 x 3 mm	---
T.U. 22 10-20 cm	6 pale green-aqua fragments	Bottle (?)	Body	One w/angular facet	?	Range-25 x 16 x 5 mm to 7 x 7 x 2 mm	---
	3 dark green fragments	Bottle (?)	Body	---	1815-1885	Range-27 x 16 x 3 mm to 8 x 6 x 2 mm	---
T.U. 22 20-30 cm	1 window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	33 x 26 mm	---
T.U. 23 0-10 cm	11 window glass fragments-pale green tint	Window	---	1.5-2.4 mm thick	post 1850	Range-32 x 14 mm to 8 x 7 mm	---
	8 pale green-aqua fragments	Bottle (?)	Body	---	?	Patinated - Range 19 x 10 x 2 mm to 7 x 7 x 2 mm	---
T.U. 24 0-10 cm	3 dark green fragments	Bottle (?)	Body	1 neck and lip-double ring	1815-1885	Heavily patinated Body fragments 1-37 x 34 x 3 mm 2-24 x 20 x 3 mm	Fig. 16:G
	3 window glass fragments pale green tint	Window	---	1.5-2.0 mm	post 1850	Average-16 x 10 mm	---
T.U. 25 0-10 cm	Dark green fragment	Bottle	Body (?)	Crudely applied makers mark w/SW	1815-?	---	Fig. 15:F
	4 black fragments	Bottle	Body (?)	---	1815-1885	Heavily patinated 1-19 x 15 x 3 mm 2-24 x 22 x 3 mm 3-16 x 3 x 3 mm 4-20 x 7 x 2 mm	---
	3 dark green fragments	Bottle	Body (?)	One w/angular facet	1815-1885	1-53 x 16 x 2 mm 2-14 x 11 x 2.5 mm 3-15 x 16 x 2 mm	
	8 dark blue-green	?	?	---	1815-1885	Fused	---
	2 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	1-20 x 18 mm 2-32 x 16 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 25 10-20 cm	7 window glass fragments pale green tint	Window	---	1.5-2.0 mm thick	post 1850	Range-29 x 13 mm to 11 x 6 mm	---
	9 dark blue-green fragments	?	?	---	?	Fused-melted	---
	5 dark green fragments	Bottle (?)	Body	---	?	Heavily patinated Range-21 x 19 x 5 mm to 18 x 11 x 3 mm	---
	5 pale green aqua fragments	Bottle (?)	Body	One melted-one pressed glass	post 1845	Range-36 x 22 x 25 mm to 19 x 9 x 3 mm	---
T.U. 25 20-30 cm	Dark green fragment	Bottle (?)	Body	Large fragment w/angular facets	1815-1885	1-27 x 57 x 2.5 mm 2-36 x 12 x 2.5 mm 3-19 x 8 x 2 mm	---
	Pale green-aqua fragments	Bottle (?)	Body	3 pressed glasses, one	post 1845	Range-11 x 10 x 1.5 mm to 13 x 6 x 3 mm	---
	1 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	21 x 18 mm	---
T.U. 26 0-10 cm	6 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	Range-20 x 12 mm to 11 x 10 mm	---
	22 pale green-aqua fragments	Bottle (?)	Body	One w/angular facets 2 fused	?	25 x 24 x 3 mm to 6 x 4 x 2 mm	---
	2 dark green fragments	Bottle (?)	Body	---	?	Heavily patinated 21 x 18 x 3.5 mm to 20 x 22 x 5 mm	---
	4 clear fragments	Bottle (?)	Body	Angular facets	post 1917	Range-26 x 27 x 2 mm to 15 x 13 x 2 mm	---
T.U. 26 10-20 cm	1 clear fragment	Bottle (?)	Body	---	post 1917	21 x 11 x 11 mm	---
	5 pale green fragments	Bottle (?)	1 neck-4 body	One burned	?	Range-20 x 17 x 3 mm to 12 x 9 x 5 mm	---
	1 black fragment	Bottle (?)	Body	Angular facets	1815-1885	---	---
T.U. 26 20-30 cm	7 dark blue-green fragments	?	?	---	?	Fused glass	---
	6 window glass fragments	Window	---	2.0 mm thick	post 1850	Range-29 x 23 mm to 23 x 19 mm	---
	8 dark green fragments	Bottle ?	Body	---	?	Patinated - Range 41 x 19 x 4 mm to 11 x 10 x 2 mm	---
	5 pale green-aqua fragments	Bottle ?	Body	1 pressed glass	post 1845	Range-17 x 13 x 3 mm to 9 x 6 x 2 mm	---
	6 clear fragments	Bottle ?	Body	---	post 1917	Range-24 x 13 x 3.5 mm to 10 x 9 x 2 mm	---
T.U. 26 30-40 cm	5 pale green-aqua fragments	?	?	---	?	Fused	---
T.U. 26 30-40 cm	5 pale green-aqua fragments	Ornamental household (?)	Body	All pressed glass	post 1845	Range-13 x 11 x 2 mm to 7 x 7 x 1.5 mm	---
	5 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-17 x 15 mm to 14 x 4 x 3 mm	---
T.U. 27 0-10 cm	Dark green fragment	Bottle	Neck-lip	Unevenly applied collar	1815-1885	Patinated	---
	9 dark green fragments	Bottle	Body	---	1815-1885	Patinated - Range 63 x 21 x 6 mm to 20 x 9 x 5 mm	---
	13 dark green or black fragments	Bottle (?)	Body	---	1815-1885	Heavily patinated Range-36 x 20 x 4 mm to 16 x 8 x 3 mm	---
T.U. 28 0-10 cm	1 pale green fragment	Bottle	Base	Octagonal impression w/ pontil mark	pre-1870	Patinated	Fig.
	5 pale green fragments	Bottle (?)	Body	---	?	Patinated - Range 25 x 23 x 3 mm to 16 x 9 x 3 mm	---
T.U. 28 10-20 cm	3 clear fragments	Bottle (?)	Body	---	post 1917	Range-21 x 19 x 3 mm to 15 x 9 x 3 mm	---
	4 pale green-aqua fragments	Bottle (?)	Body	One fused	?	Range-26 x 13 x 3 mm to 9 x 6 x 2 mm	---
	9 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-62 x 32 mm to 8 x 7 mm	---
T.U. 29 0-10 cm	Pale green fragment	Bottle	Base, body	High kick up	to 1913?	Patinated	Fig. 16:B
	Pale green fragment	Bottle	Base, body	High kick up	?	Patinated - 25 x 20 x 5 mm	---
T.U. 29 10-20 cm	Pale green-aqua	Bottle	Stopper	Flathead type	?	Patinated	Fig. 16:A
	7 pale green-aqua	Bottle	Body	---	?	Patinated - Range 27 x 12 x 2.5 mm to 8 x 3 x 3 mm	---
	2 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Patinated 1-25 x 13 mm 2-22 x 6 mm	---
T.U. 29 20-30 cm	3 dark green fragments	Bottle (?)	Body	---	1815-1885	Patinated 1-26 x 14 x 2 mm 2-13 x 9 x 4 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 30 0-10 cm	Pale green-aqua fragments	Bottle	Lip	Double ring-unevenly applied collar	post 1840s (?)	Patinated	Fig. 16:C
	9 pale green-aqua fragments	Bottle (?)	Body	4 melted	?	Patinated - Range 26 x 25 x 2.5 mm to 8 x 6 x 2 mm	---
	3 dark green fragments	Bottle (?)	Body	---	1815-1885	1-45 x 25 x 2 mm 2-31 x 18 x 5 mm 3-17 x 9 x 3 mm	---
	2 window glass fragments-pale green tint	Window	---	1.8 mm thick	post 1850	1-29 x 22 mm 2-29 x 20 mm	---
	3 clear fragments	Bottle (?)	Body	One pressed w/angular facets	post 1917	1-38 x 28 x 3 mm 2-20 x 8 x 2.5 mm 3-12 x 5 x 2 mm	---
T.U. 30 10-20 cm	1 clear fragment	Bottle (?)	Body	---	post 1917	34 x 32 x 4 mm	---
	1 dark green fragment	Bottle (?)	Body	---	1815-1885	15 x 11 x 3 mm	---
	14 pale green-aqua fragments	Bottle	Body, neck, lip	6 melted/fused 1 prescription type finish (?)	?	Range-68 x 40 x 2 mm to 9 x 4 x 1 mm	Neck, lip, Yes
T.U. 30 20-30 cm	2 pale green-aqua fragments	Bottle (?)	Body	1 melted	?	1-13 x 11 x 1.5 mm	---
	Dark green fragment	Bottle	Neck, lip	Bead (?) finish	1815-1885	10 x 8 x 4 mm	---
T.U. 31 0-10 cm	6 dark green fragments	Bottle	Body	One burned, melted One w/angular facets	1815-1885	Patinated - Range 59 x 20 x 2.5 mm to 11 x 8 x 4 mm	---
	9 pale green-aqua fragments	Bottle	Body	One fused	?	Patinated - Range 27 x 22 x 5 mm to 10 x 7 x 3 mm	---
	10 window glass fragments-pale green tint	Window	---	2.3 to 2.4 mm thick	post 1850	Range-23 x 22 mm to 11 x 4 mm	---
T.U. 31 10-20 cm	14 window glass fragments-pale green tint	Window	---	2.0 to 2.4 mm thick	post 1850	Range-22 x 13 mm to 10 x 8 mm	---
	13 dark green fragments	Bottle	Body	---	?	Range-47 x 35 x 3.5 mm to 11 x 9 x 2.5 mm	---
T.U. 31 20-30 cm	24 pale green fragments	Bottle	Body	One pressed	post 1845	Range-29 x 22 x 3 mm to 9 x 6 x 1 mm	---
T.U. 32 0-10 cm	1 pale green fragment	Bottle	Body, neck, lip	Pressed glass-lip applied over onto aperature	post 1845	Patinated-cork in place	Fig. 16:E
	12 pale green-aqua fragments	Bottle (?)	Body	---	?	Patinated - Range 43 x 22 x 3 mm to 8 x 6 x 2 mm	---
	8 window glass fragments-pale green tint	Window	---	2.0-2.5 mm thick	post 1840	Range-67 x 39 mm 9 x 8 mm	---
	3 clear fragments	Bottle (?)	Body	---	post 1917	Range-19 x 18 x 4 mm to 13 x 16 x 4 mm	---
	4 dark green fragments	Bottle (?)	Body	---	1815-1885	Patinated - Range 48 x 42 x 6 mm to 16 x 9 x 3 mm	---
	3 dark blue fragments	?	?	---	?	Fused pieces	---
T.U. 32 10-20 cm	2 pale green fragments	Bottle (?)	Body	1 fused	?	1-14 x 6 x 1.5 mm 2-18 x 9 x 3 mm	---
	1 dark green fragment	Bottle (?)	Neck	Finish portion missing	1815-1885	Burned-19 x 18 x 3 mm	---
	5 window glass fragments-pale green tint	Window	---	2.5 mm thick	post 1850	Range-175 x 100 mm to 61 x 17 mm	---
T.U. 33 0-10 cm	3 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-21 x 17 mm to 20 x 12 mm	---
	5 clear fragments	Bottle (?)	Body	One pressed glass	post 1917	Range-26 x 15 x 2.5 mm to 14 x 9 x 2 mm	---
	4 dark green fragments	Bottle (?)	Body	---	1815-1885	Range-24 x 20 x 3 mm to 14 x 10 x 2 mm	---
	5 pale green fragments	Bottle (?)	Body	---	?	Range-16 x 8 x 6 mm to 11 x 8 x 2 mm	---
T.U. 33 10-20 cm	1 window glass fragment-pale green tint	Window	---	2.2 mm thick	post 1850	40 x 29 mm	---
T.U. 34 0-10 cm	5 window glass fragments-pale green tint	Window	---	2.0 to 2.4 mm thick	post 1850	Range-41 x 20 mm to 12 x 11 mm	---
	2 dark green fragments	Bottle	Body	---	1815-1885	1-34 x 32 x 3 mm 2-27 x 18 x 3 mm	---
	Pale green-aqua fragment	Bottle	Base	Octagonal impression w/ pontil mark	pre-1870	---	---
	Pale green-aqua fragment	Bottle	Neck and lip	Pressed glass-lip applied over onto aperature	post 1845	---	---
	6 pale green-aqua fragments	Bottle	Body	Pressed glass	post 1845	Range-27 x 14 x 2 mm to 10 x 8 x 1.5 mm	---
T.U. 35 0-10 cm	Window glass fragment	Window	---	1.8 mm thick	post 1850	20 x 12 mm	---
T.U. 36 0-10 cm	3 window glass fragments	Window	---	2.0 mm thick	post 1850	Range-15 x 12 mm to 12 x 7 mm	---
	3 dark green or black fragments	Bottle	One partial base, body	Slight push up on base	1815-1885	Patinated - Range 69 x 65 x 6 mm to 8 x 8 x 3 mm	---
	8 pale green-aqua fragments	Bottle	Body	---	?	Patinated - Range 31 x 16 x 2.5 mm to 11 x 9 x 1 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 36 10-20 cm	7 pale green-aqua fragments	Bottle	Body	Pressed glass	post 1845	Patinated - Range 26 x 22 x 2 mm to 12 x 6 x 2 mm	---
	2 clear fragments	Bottle	Body	Pressed glass	post 1917	1-30 x 16 x 2 mm 2-26 x 14 x 2 mm	---
	2 dark green fragments	Bottle	Body	---	1815-1885	Patinated 1-39 x 24 x 5 mm 2-33 x 24 x 3 mm	---
	14 window glass fragments	Window	---	1.8 to 2.0 mm thick	post 1850	Range-20 x 18 mm to 8 x 7 mm	---
T.U. 37 0-10 cm	8 window glass fragments	Window	---	2.0-2.5 mm thick	post 1850	Range-25 x 21 mm to 10 x 6 mm	---
	16 dark green fragments	Bottle	Body	---	1815-1885	Patinated - Range 35 x 19 x 3 mm to 12 x 8 x 2 mm	---
	12 pale green-aqua fragments	Bottle	Body	---	?	Patinated - Range 28 x 25 x 2.5 mm to 15 x 12 x 1 mm	---
T.U. 36 0-10 cm	8 pale green-aqua fragments	Bottle	Body	---	?	Range-25 x 12 x 2 mm to 8 x 6 x 2 mm	---
	2 dark green fragments	Bottle	Body	---	1815-1885	Patinated 1-28 x 18 x 3 mm 2-12 x 8 x 2 mm	---
	2 purple fragments	Bottle	Body	---	1880-1917	1-13 x 7 x 2 mm 2-11 x 8 x 2 mm	---
	2 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	1-10 x 9 mm 2-11 x 7 mm	---
T.U. 39 0-10 cm	Clear fragment	Bottle (?)	Body	Pressed glass	post 1917	15 x 10 x 3 mm	---
	Dark green fragment	Bottle (?)	Body	---	1815-1885	24 x 9 x 2 mm	---
	Pale green-aqua fragment	Bottle (?)	Body	Pressed glass	post 1845	14 x 5 x 1.5 mm	---
	2 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	1-28 x 9 mm 2-19 x 15 mm	---
T.U. 39 10-20 cm	4 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-14 x 10 mm to 12 x 7 mm	---
	1 clear fragment	Bottle (?)	Body	---	post 1917	16 x 11 x 2 mm	---
	1 dark green fragment	Bottle (?)	Body	---	1815-1885	39 x 24 x 5 mm	---
	2 pale green-aqua fragments	Bottle (?)	Body	---	?	Patinated 1-22 x 16 x 3 mm 2-21 x 10 x 2 mm	---
T.U. 40 0-10 cm	4 pale green-aqua fragments	Bottle (?)	Body	Melted-fused	?	---	---
	Clear glass fragment	Bottle (?)	Body	Angular facet	post 1917	19 x 14 x 4 mm	---
	3 window glass fragments	Window	---	2.0 mm thick	post 1850	Range-16 x 11 mm to 15 x 11 mm	---
T.U. 40 10-20 cm	2 dark green fragments	Bottle (?)	Body	---	1815-1885	Patinated 1-24 x 8 x 3 mm 2-11 x 10 x 2 mm	---
	12 pale green-aqua fragments	Bottle (?)	Body	One pressed glass	post 1845	Range-20 x 13 x 4 mm to 8 x 8 x 2 mm	---
T.U. 41 0-10 cm	2 pale green-aqua fragments	Bottle (?)	Body	One fused	?	1-14 x 9 x 2 mm	---
	2 dark green fragments	Bottle (?)	Body	---	1815-1885	1-26 x 20 x 3 mm 2-22 x 13 x 5 mm	---
T.U. 41 0-10 cm	1 window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	19 x 8 mm	---
T.U. 42 0-10 cm	1 dark green fragment	Bottle (?)	Body	---	1815-1885	11 x 5 x 2 mm	---
	5 pale green-aqua fragments	Bottle (?)	Body	2 pressed glass	post 1845	Range-35 x 31 x 2.5 mm to 12 x 4 x 3 mm	---
T.U. 43 0-10 cm	1 pale green-aqua fragment	Bottle (?)	Body	---	?	16 x 15 x 4 mm	---
	4 window glass fragments-pale green tint	Window	---	2.0-2.2 mm thick	post 1850	Range-18 x 14 mm to 14 x 12 mm	---
	Clear fragment	Bottle or jar	Body	Impressed design	post 1917	31 x 21 x 4 mm	---
	13 dark green fragments	Bottle	Body	---	1815-1885	Patinated 46 x 20 x 6 mm to 11 x 6 x 3 mm	---
T.U. 44 0-10 cm	2 dark green fragments	Bottle	Body	---	1815-1885	1-29 x 16 x 4 mm 2-15 x 11 x 3 mm	---
	3 window glass fragments	Window	---	2.0 mm thick	post 1850	Range-33 x 12 mm to 16 x 11 mm	---
T.U. 44 10-20 cm	Pale green-aqua fragment	Bottle ?	Body	Pressed glass w/angular facet	post 1845	26 x 21 x 5 mm	---
T.U. 44 20-30 cm	Pale green-aqua fragment	Bottle ?	Body	---	?	Fused piece	---
	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	15 x 7 mm	---
T.U. 45 0-10 cm	7 window glass fragments-pale green tint	Window	---	2.0-2.4 mm thick	post 1850	Range-24 x 11 mm 8 x 8 mm	---
	5 clear fragments	Bottle or jar	Body	Impressed design	post 1917	Range-30 x 26 x 4 mm to 15 x 13 x 2 mm	---
	12 dark green fragments	Bottle	Body	---	1815-1885	Range-57 x 53 x 4 mm to 16 x 10 x 5 mm	---
	10 pale green-aqua fragments	Bottle	? base fragment	Slight push up 2 melted	?	Patinated - Range 39 x 30 x 3 mm to 10 x 9 x 3 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 46 0-10 cm	4 pale green fragments	Bottle	1 neck, lip	Lip applied over onto aperature, two melted	?	Range-20 x 19 x 3 mm to 14 x 9 x 3 mm	---
	4 window glass fragments-pale green tint	Window	---	1.8 to 2.0 mm thick	post 1850	Range-28 x 23 mm to 11 x 11 mm	---
	7 dark green fragments	Bottle	Body	---	1815-1885	Range-29 x 21 x 3 mm to 14 x 14 x 2 mm	---
T.U. 47 0-10 cm	22 pale green-aqua fragments	Bottle	Body	4 melted-fused 1 pressed	post 1845	Range-22 x 18 x 4 mm to 9 x 7 x 2 mm	---
T.U. 48 0-10 cm	1 pale green-aqua fragment	Bottle	Body	---	?	22 x 11 x 2 mm	---
	2 clear fragments	Bottle	Body	---	post 1917	1-28 x 17 x 2 mm 2-18 x 18 x 2 mm	---
T.U. 49 0-10 cm	1 clear fragment	Bottle	Body	Pressed glass	post 1917	14 x 9 x 1.5 mm	---
	18 pale green-aqua fragments	Bottle	1 base - rest body	Base-pressed glass w/ angular facets and pontil mark	pre-1870	Range-30 x 23 x 2 mm to 10 x 9 x 1 mm	Fig. 15:C
	3 dark green fragments	Bottle	Body	1 w/angular facet	1815-1885	Range-58 x 24 x 4 mm to 47 x 22 x 3 mm	---
T.U. 50 0-10 cm	1 dark green fragment	Bottle	Body	---	1815-1885	25 x 15 x 3 mm	---
T.U. 51 0-10 cm	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	16 x 14 mm	---
T.U. 52 0-10 cm	2 pale green-aqua fragments	Bottle (?)	Body	---	?	1-12 x 4 x 2 mm 2-8 x 7 x 5 mm	---
T.U. 53 0-10 cm	5 pale green-aqua fragments	Bottle (?)	Body	---	?	Range-47 x 38 x 3 mm to 8 x 6 x 2 mm	---
	8 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-19 x 12 mm to 8 x 8 mm	---
	2 clear fragments	Bottle	Body	---	post 1917	1-47 x 29 x 4 mm 2-7 x 6 x 2 mm	---
T.U. 54 0-10 cm	2 clear fragments	Bottle	Body	---	post 1917	1-15 x 13 x 2 mm 2-9 x 9 x 2 mm	---
T.U. 55 0-10 cm	1 clear fragment	Bottle	Body	---	post 1917	14 x 13 x 2 mm	---
T.U. 56 0-10 cm	1 pale green-aqua fragment	Bottle	Body	---	?	8 x 7 x 5 mm	
T.U. 57 0-10 cm	Window glass fragment clear	Window	---	2.0 mm thick	post 1850	17 x 11 mm	---
	Pale green-aqua fragment	Bottle	Body	---	?	Patinated 24 x 19 x 3 mm	---
T.U. 58 0-10 cm	Pale green-aqua fragment	?	?	---	?	Fused piece	---
T.U. 59 0-10 cm	Pale green-aqua fragment	Bottle (?)	Body	---	?	16 x 15 x 3 mm	---
T.U. 60 0-10 cm	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	16 x 13 mm	---
T.U. 62 0-10 cm	Window glass fragment-pale green tint	Window	---	2.5 mm thick	post 1850	18 x 12 mm	---
T.U. 65 0-10 cm	4 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-23 x 19 mm to 13 x 10 mm	---
	2 dark green fragments	Bottle ?	Body	---	1815-1885	1-29 x 25 x 5 mm 2-14 x 13 x 2 mm	---
	12 pale green-aqua fragments	Bottle ?	Body	Pressed glass w/angular facets - 2 fused	post 1845	Range-27 x 22 x 2.5 mm to 9 x 8 x 1.5 mm	---
	5 pale green-aqua fragments	Bottle ?	Body	Pressed glass w/angular facets	post 1845	Range-29 x 20 x 2 mm to 13 x 6 x 2 mm	---
T.U. 66 0-10 cm	2 dark green fragments	Bottle (?)	Body	---	1815-1885	1-15 x 6 x 2.5 mm 2-11 x 11 x 4 mm	---
	9 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-17 x 14 mm to 14 x 9 mm	---
T.U. 67 0-10 cm	5 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	Range-30 x 14 mm to 14 x 9 mm	---
	3 dark green fragments	Bottle	Body	---	1815-1885	Patinated - Range 47 x 29 x 3 mm to 29 x 9 x 4 mm	---
	Pale green-aqua fragment	Bottle	Body	Pressed glass (?)	post 1845?	13 x 7 x 2 mm	---
T.U. 68 0-10 cm	2 pale green-aqua fragments	Bottle	Body	Pressed glass (?) One fused	post 1845?	1-16 x 13 x 1.5 mm	---
	6 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-13 x 9 mm to 12 x 4 mm	---
T.U. 69 0-10 cm	2 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	1-13 x 9 mm 2-12 x 10 mm	---
T.U. 70 0-10 cm	3 window glass fragments pale green tint	Window	---	2.0 mm thick	post 1850	Range-23 x 21 mm to 8 x 7 mm	---
	Dark green fragment	Bottle	Body	---	1815-1885	Patinated 28 x 15 x 3 mm	---
	Pale green-aqua fragments	Bottle	Body	2 melted-fused	?	1-15 x 8 x 3 mm	---
	Pale green-aqua fragments	?	?	Melted-fused	?	---	---
	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	16 x 9 mm	---
	Clear fragment	Bottle or jar (?)	Body	Pressed glass w/angular facet	post 1917	20 x 14 x 2 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 72 0-10 cm	2 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	1-21 x 14 mm 2-10 x 8 mm	---
T.U. 74 0-10 cm	Pale green-aqua fragment	?	?	Melted-fused	?	---	---
T.U. 76 0-10 cm	3 pale green-aqua fragments	Bottle (?)	Body	1 melted	?	Patinated 1-8 x 7 x 2 mm 2-5 x 6 x 1 mm	---
T.U. 77 0-10 cm	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	14 x 11 mm	---
T.U. 78 0-10 cm	Pale green-aqua fragment	?	?	Fused	?	---	---
T.U. 79 0-10 cm	Window glass fragment-	Window	---	2.2 mm thick	post 1850	16 x 14 mm	---
T.U. 80 0-10 cm	Pale green-aqua fragment	Bottle	Neck	---	?	Patinated 21 x 19 x 3 mm	---
T.U. 83 0-10 cm	Pale green-aqua fragment	?	?	Melted	?	22 x 15 x 2.5 mm	---
	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	29 x 18 mm	---
	Dark green fragment	?	?	Flat piece	?	16 x 11 x 1 mm	---
T.U. 84 0-10 cm	Dark green fragment	Bottle (?)	Body	---	1815-1885	14 x 9 x 2.5 mm	---
T.U. 85 0-10 cm	4 dark green fragments	Bottle (?)	Body	---	1815-1885	Range-36 x 20 x 3 mm to	---
	9 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-22 x 15 mm to 11 x 11 mm	---
T.U. 87 0-10 cm	3 window glass fragments-pale green tint	Window	---	2.2 to 2.5 mm thick	post 1850	1-24 x 16 mm 2-19 x 8 mm 3-11 x 5 mm	---
T.U. 88 0-10 cm	5 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-18 x 15 mm to 15 x 9 mm	---
T.U. 89 0-10 cm	4 window glass fragments-pale green tint	Window	---	2.0 to 2.5 mm thick	post 1850	Range-17 x 10 mm to 9 x 7 mm	---
	Dark green fragments	?	?	Fused piece	1815-1885	---	---
T.U. 90 0-10 cm	Dark green fragments	?	?	Fused piece	?	---	---
	10 window glass fragments-clear	Window	---	2.0 mm thick	post 1850	Range-24 x 15 mm to 12 x 4 mm	---
T.U. 91 0-10 cm	Dark green fragment	Bottle (?)	Body	---	1815-1885	11 x 9 x 4 mm	---
T.U. 92 0-10 cm	Pale green-aqua fragment	Bottle (?)	Body	---	?	Patinated 15 x 10 x 3 mm	---
T.U. 93 0-10 cm	Pale green-aqua fragment	Bottle (?)	Body	Pressed glass (?)	post 1845?	9 x 7 x 1.5 mm	---
	Window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	21 x 10 mm	---
T.U. 94 0-10 cm	5 window glass fragments-pale green tint	Window	---	2.0-2.2 mm thick	post 1850	Range-19 x 16 mm to 17 x 8 mm	---
	2 clear fragments	Bottle (?)	Body	Pressed glass	post 1917	1-15 x 13 x 1.5 mm 2-21 x 8 x 1 mm	---
T.U. 95 0-10 cm	3 window glass fragments-pale green tint	Window	---	2.0-2.2 mm thick	post 1850	1-31 x 17 mm 2-11 x 7 mm 3-20 x 4 mm	---
T.U. 96 0-10 cm	1 window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	12 x 9 mm	---
T.U. 96 0-10 cm	Dark green fragment	?	?	Fused	1815-1885	---	---
T.U. 97 0-10 cm	Pale green-aqua fragment	Bottle	Body	---	?	Patinated 28 x 22 x 3 mm to 18 x 9 x 7 mm	---
	12 window glass fragments 8 clear, 4 pale green tint	Window	---	2.0 mm thick	post 1850	Range-21 x 15 mm to 10 x 10 mm	---
T.U. 100 0-10 cm	2 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	1-20 x 17 mm 2-13 x 13 mm	---
T.U. 101 0-10 cm	8 window glass fragments-pale green tint	Window	---	2.0 mm thick	post 1850	Range-27 x 17 mm to 10 x 3 mm	---
T.U. 104 0-10 cm	1 window glass fragment-pale green tint	Window	---	1.8 mm thick	post 1850	22 x 20 mm	---
	5 dark green fragments	Bottle	Body	---	1815-1885	23 x 18 x 8 mm to 10 x 9 x 2 mm	---
	1 dark green fragment	?	Body	---	1815-1885	25 x 19 x 7 mm	---
	1 window glass fragment-pale green tint	Window	---	2.0 mm thick	post 1850	14 x 14 mm	---
	1 pressed glass fragment	Ornamental vessel?	Body	---	post 1845?	19 x 5 x 3 mm	---
T.U. 105 0-10 cm	2 dark green fragments	Bottle	Body	---	1815-1885	Patinated, 20 x 20 x 3, 19 x 17 x 3 mm	---
T.U. 106 0-10 cm	1 dark green fragment	Bottle	Body	---	?	24 x 5 x 3 mm	---
T.U. 108 0-10 cm	1 dark green/brown	Bottle	Base	Push up evident	1815-1885	Patinated, 58 x 37 x 6 mm	---
	1 window glass fragment	Window	---	1.8 mm thick	post 1850	Burned, 15 x 12 mm	---
	1 blue glass fragment	Ornamental vessel?	---	---	?	Burned, 20 x 10 x 5 mm	---
	1 dark green fragment	Bottle	Body	---	1815-1885	21 x 9 x 3 mm	---

TABLE 9: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Comments	Illustrated
T.U. 109 0-10 cm	2 dark green/brown	Bottle	Body	---	1815-1885	Patinated, 42 x 22 x 4 mm, 40 x 19 x 3 mm	---
	3 window glass	Window	---	2.0 mm thick	post 1850	30 x 17 mm 12 x 9 mm 11 x 7 mm	---

TABLE 9: (continued).

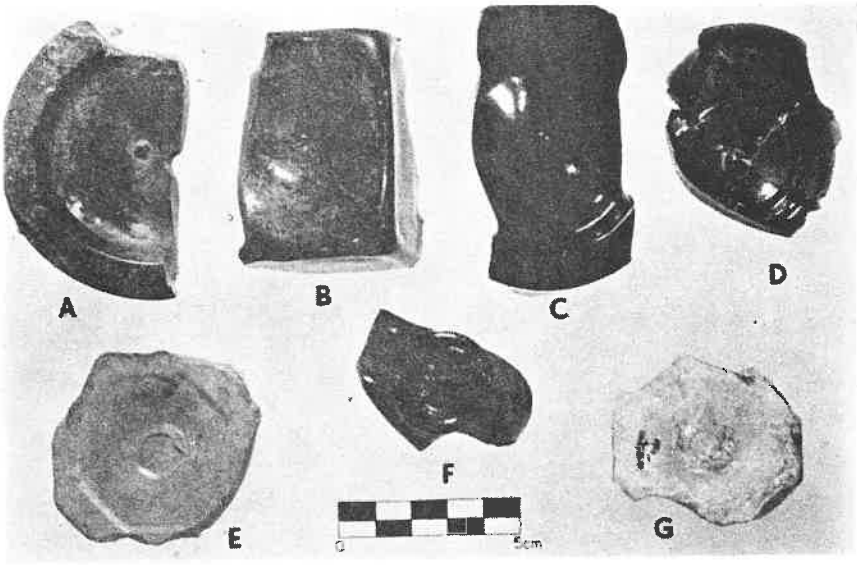

FIGURE 15: Selected bottle glass from Camp Payne, Wyoming. See Table 9 for key.

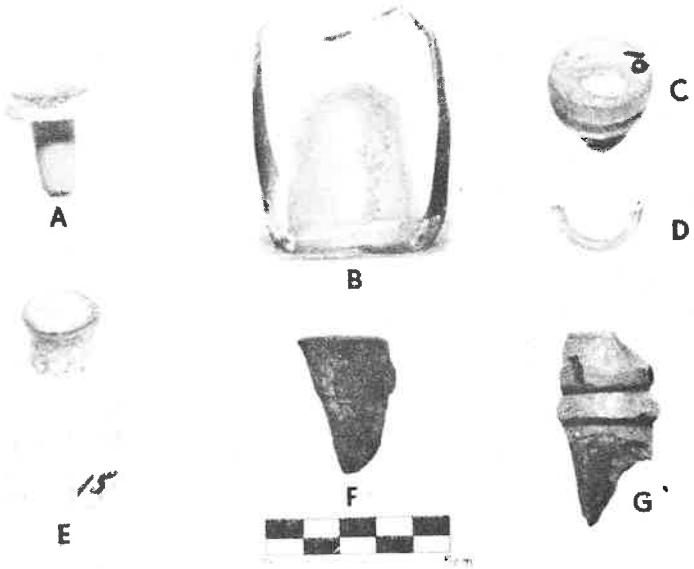

FIGURE 16: Selected bottle glass from Camp Payne, Wyoming. See Table 9 for key.

Most of these artifacts are fragments of various kinds of pipes, but in a number of cases stems and bowls could be reconstructed which aided in identification.

> Around the middle of the 19th century, tobacco pipes were made of a fine-grained plastic white clay, commonly called "pipe clay" in the industry. To make a pipe, the clay was first worked with water into a thin paste. The clay was then allowed to settle in pits, or it may have been passed through a sieve to separate any silicious or other stony impurities. The water was next evaporated until the clay assumed a doughy consistence after which it was well kneaded to make it uniform. Pipe clay is found in numerous localities in Europe but comes chiefly from the island (or peninsula) of Purbeck in Dorsetshire, England, and is distinguished by its perfectly white color and its great adhesion to the tongue after it is fired due to the large proportion of alumina which it contains.
>
> Making a ball of clay from the heap, a child of perhaps twelve began the process of manufacture by rolling the ball into a slender cylinder upon a plank with the palms of his hands in order to form the stem of the pipe. After sticking a small gob to the end of the cylinder to form the bowl, he laid the pieces aside for a day or two during which time some of the moisture evaporated form the mix, leaving the clay with a stiffer texture, more amenable to fashioning into its final form. In proportion as he made these rough figures, he arranged them by dozens on a board, and handed them to the pipemaker.
>
> The pipe was finished by means of a folding brass or iron mold, channelled inside in the shape of the stem and the bowl, and capable of being opened at the two ends. It was made of two pieces, each hollowed out like half a pipe that had been cut lengthwise. When the jaws of the mold were closed, they constituted the exact space for making one pipe. Small pins in one side of the mold, corresponding to holes in the other, served as precise guides for closing the mold.
>
> To form the bore, the workman took a long iron wire, with its end oiled, and pushed it through the soft clay stem, directing it by feeling with his left hand. He then laid the pipe in the groove of one of the jaws of the mold, with the wire sticking in it, applied the other jaw, brought
>
> > them together and held them firmly with a clamp or vice. A lever was then brought down which pressed an oiled stopper into the bowl of the pipe, while it was in the mold, forcing it sufficiently down to form the cavity. Meanwhile the wire was being forced backward and forward so as to pierce the tube completely through. Withdrawing the wire, the jaws of the mold

> were opened, the pipe was taken out, and the excess clay was removed with a knife. After drying a day or two, the pipes were scraped, polished with a piece of hard wood, and the stems were bent into the desired form or left perfectly straight. Finally, they were carried to the kiln where 50 gross could be fired in from 8 to 12 hours. A boy and a workman could easily make five gross of pipes in a day's time (Wilson 1961:122-123).

During the 19th century, most of the clay pipes found in North American historic sites were imported from Scotland (Faulkner 1980:21). Other sources include continental manufacturers in Canada and the United States, as well as England, Ireland, and Holland.

The style of clay pipes evolved over the course of several centuries and there are several characteristics which can be used to date pipes found in an archeological context. These include shape, size, decoration, style, bore size, and maker's marks.

The diameter of clay pipestems has proven to be a useful attribute for dating. ". . . The earliest pipes have quite large (up to 9/64 in.) hole diameters, and gradually through the mid 18th century these bores decrease in size, stabilizing int he late 18th century at between 3/64 and 5/64 in. . ." (Faulkner 1980:22). Faulkner (1980:23) gives the date of 1778 and after as the time after which the average pipestem diameter stabilized at 4/64 in. All of the Camp Payne pipestems were measured and most are 4/64" with a few just under or just over 4/64".

The evolution of pipe bowl form has been researched extensively by Faulkner (1980), Noel-Hume (1980), Oswald (1951), Sudbury (1979), Walker (1977) and need not be repeated here. With regard to the 19th century forms, pipe bowls were generally larger than earlier forms and exhibited funnel-shaped bowls with a spur present at the bottom of the bowl. These may be of either Dutch or English manufacture (Faulkner 1980:34).

> ". . . sometime after 1850 according to Oswald (1975:50), a shorter and wider version of the funnel shape was introduced whose rim, like the old belly bowl pipes, tilted outward away from the smoker. A similar short funnel style [without spur] was popular about this time with both British and American pipemakers, the bowl standing upright, and the rim formed parallel to the stem (Fig. 2 I; also Sudbury 1979:Plate 2, no. 5). Both styles, possibly based on briar prototypes, have been manufactured well into this century. The most curious of shapes, however, is that of the two-piece reed pipe, and elbow shaped bowl, often fluted, into which a reed was inserted (Sudbury 1979). These American made specimens are apparently based on Central European prototypes. Often of redware, these pipes seem to have peaked in popularity sometime during the third quarter of the 19th century, and Ivor Noel Hume

(1970:303) suggests they may go back as far as 1770 . . ." (Faulkner 1980:33-34).

These later types were usually undecorated and unglazed. A probable American source for these pipes is the Pamplin, Virginia area where these kinds of pipes had been manufactured from at least as early as 1739 to the mid 20th century (Hamilton and Hamilton 1972).

Another kind of pipe which may have examples in the Camp Payne sample is the effigy pipe with turboned head, all of which were glazed. These may be imitations of the Jacob pipes made by Gambier of Paris around mid-19th century. The imitations are without the customary beard of the Gambier figures (Wilson 1961:125).

Decorated bowls were manufactured by the Dutch in the early 17th century. After about 1750, English manufacturers copied Dutch styles in this regard. Ribbed designs were common from 1750 to 1850. Commmemorative pipe bowls with moulded caricatures and scenes were made in England and the United States from the early 19th century into the 20th century (Faulkner 1980:39). Pipe bowls with moulded humor heads (portraiture) was common in the 19th century. In the United States, this often took the form of the recreation of a particular president's head and even those of political candidates (see Colver 1931 and Lenik 1970 for examples).

Pipestems which were decorated with ornate designs are generally of Dutch origin. Names stamped into the stem became common in the 19th century. Such pipestems are of Scottish, Canadian or U.S. manufacture. The name could represent the manufacturer, place of manufacture, pipe style, slogan, person's name or event (Faulkner 1980:44).

Discussion

The clay pipe fragments recovered from Camp Payne are of several types. These are listed in Table 10 and several bowls and stems are illustrated in Figure 17. Perhaps the most common type are the glazed decorated heads of red clay with red glaze. Several of these could be reconstructed to reveal inscriptions at the base of the bowl. From Test Unit 35, there is one fragments with ". . . PIER . . ." on the left side and from Test Unit 45 a fragment as "FRA . . ." on the left and ". . . DENT" on the right side. This probably is a commemorative pipe of Franklin Pierce, U.S. president from 1853-1857. This appears to be a variety of portrait type or figurehead pipe similar to those manufactured by A. Coghill of Glasgow, Scotland (Lewis 1975:232). Another portrait type pipe bowl also of glazed red clay is present in the sample. Several more of these pipe fragments have "HENRY (left) CLAY" (right) inscribed. This is likely a politically inspired pipe bowl likeness as Henry Clay was a U.S. senator from 1841-1845 and ran for the U.S. presidency in 1844. He died in 1850.

Another common pipe fragment is the ornate designed stem with the inscription "PETER DORNI IN GOUDA". Gouda was a manufacturing community in Holland (Sackett 1943:77) and pipe manufacturing may have been carried on there around 1850 (Herskovitz 1978:118).

Several glazed bowl fragments bearing a decidedly ugly caricature (gargoyle?) were found. These may be related to the Jacob pipe imitations or an unknown

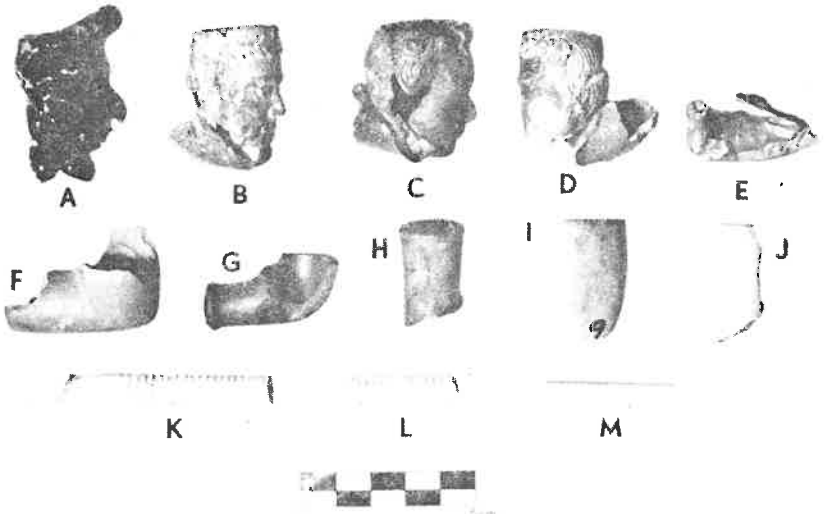

FIGURE 17: Selected clay pipe fragments from Camp Payne, Wyoming. See Table 10 for key.

Provenience	Portion	Clay	Bowl Type	Stem Data	Illustrated	Comments
Surface						
#1	15 bowl fragments 2 front bowl and stem	Red w/red glaze	Head decoration w/wreath	"HE..." left side "CLAY..." right side	Figure 17:E	Henry Clay Political Type
#82	1 bowl fragment	Red w/red glaze	Head decoration w/wreath	--	--	Burned
#140	2 bowl fragments	Red w/red glaze	--	--	--	--
Test Unit						
#2 0-10 cm	2 bowl fragments	Red w/red glaze	Head decoration	--	--	--
#6N 0-10 cm	1 stem? fragment	Wood stem?	--	--	--	--
#6N 20-30 cm	7 bowl fragments	White-unglazed	Plain with rouletting	--	--	Faint stamp visible
#14S 0-10 cm	1 bowl-interior fragment	Red	--	--	--	--
#14S 10-20 cm	4 bowl fragments 1 bowl fragment	Red w/red glaze unglazed brown	Head decoration w/wreath Plain	-- --	-- --	-- --
#14N 10-20 cm	2 bowl fragments 1 stem fragment	White-unglazed	Plain with rouletting	--	Figure 17:J	--
#14N 20-30 cm	1 bowl fragment	Red w/red glaze	--	--	--	--
#14N 30-40 cm	1 bowl fragment	Red/brown unglazed	Plain			Burned
#15 0-10 cm	1 bowl - 1 stem	White unglazed	?	?	--	One burned
#20 10-20 cm	Bowl	Blue glaze d(?)	Decorated head	--	--	--
#20 20-30 cm	Stem fragment	Red w/red glaze	--	Wide stem end "CL..." inscription	--	Henry Clay type?
#21 0-10 cm	2 bowl fragments 2 stem fragments	Red w/red glaze 1 stem white unglazed	Decorated head --	-- "COUD..." "...TER DORN..."	-- --	Burned Peter Dorni in Gouda Type?
#21 10-20 cm	1 stem - 1 bowl fragment	White unglazed	--	Plain stem	Figure 17:N	--
#22 0-10 cm	3 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#22 10-20 cm	1 bowl - 1 stem fragment	Red w/red glaze	Decorated head	Wide stem end	--	--
#23 0-10 cm	1 stem fragment	Red w/red glaze	--	Wide stem end	--	--
#23 10-20 cm	1 bowl fragment	Red w/red glaze	Decorated head	--	--	--
#25 0-10 cm	3 bowl fragments 1 bowl fragment	Red w/red glaze Red unglazed	Decorated head Thick, plain	-- --	-- Figure 17:H	Burned --

TABLE 10: Clay pipes, Camp Payne, Wyoming.

Provenience	Portion	Clay	Bowl Type	Stem Data	Illustrated	Comments
#25 10-20 cm	1 bowl fragment	White unglazed	?	--	--	--
#25 20-30 cm	5 bowl fragments	1 red w/brown glaze - 4 white unglazed	Undecorated-one white fragment w/rouletting	--	--	--
#26 0-10 cm	4 bowl fragments	2 gray w/black glaze - 3 red w/red glaze	Decorated head	--	--	--
#26 10-20 cm	3 bowl fragments	2 gray w/black glaze	Decorated head	Plain white	--	--
	2 stem fragments	1 red w/red glaze 2 stems-white unglazed				
#26 20-30 cm	Bowl and stem fragments	Red w/red glaze	Decorated head	Wide stem end	--	Most of one pipe present in fragments
#26 20-30 cm	2 bowl - 1 stem fragment	White unglazed	Plain white	Stem inscription "Pet..." "...DA"	--	Peter Dorni in Gouda type
#26 30-40 cm	13 bowl fragments	Red w/red glaze	Decorated head	--	--	--
	1 stem fragment	White unglazed	--	"PETER DORNI"	Figure 17:K	Peter Dorni in Gouda type
#28 10-20 cm	7 bowl fragments	2 white unglazed	--Rouletting	--	--	--
		2 red unglazed	--Plain			
		2 red w/red glaze	--Decorated head			
		1 gray w/black glaze	--Decorated head			
		1 white unglazed	--Plain	--	Figure 17:I	--
#29 0-10 cm	1 stem fragment	Red w/red glaze	--	Wide stem end	--	--
#30 0-10 cm	6 bowl fragments	Red w/red glaze	Decorated head	--	--	--
	1 stem fragment	Red w/red glaze	--	Wide stem end	--	--
	Bowl	White unglazed	Plain white	--	--	--
#30 10-20 cm	4 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#31 0-10 cm	2 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#31 10-20 cm	15 bowl fragments	Red w/red glaze	Decorated head	--	--	2 burned fragments
#32 0-10 cm	2 bowl - 1 stem fragment	Red w/red glaze	--	Wide stem end	--	Stem burned
	1 stem	White unglazed	--	Plain white	--	--
	1 stem	White unglazed	--	Inscription "IN GOUDA"	Figure 17:L	--
#32 10-20 cm	Bowl fragment	Red w/red glaze	--	--	--	--
#33 0-10 cm	6 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#34 0-10 cm	7 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#35 0-10 cm	2 stem fragments	Red w/red glaze	--	Wide stem end inscription "...PIER...."	--	Franklin Pierce President type?
#36 10-20 cm	7 bowl - 2 stem fragments	Red w/red glaze	Decorated head w/wreath	Wide stem - faint inscription	--	--
	3 bowl fragments	Gray w/black glaze	Decorated head	--	--	--
#37 0-10 cm	3 bowl fragments	2 gray w/black glaze	Decorated head - woman's head (?)	--	Yes	--
		2 red w/red glaze	?	--	--	--
#38 0-10 cm	2 bowl fragments	1 red unglazed	--	--	--	--
		1 gray w/black glaze	--	--	--	--
#39 0-10 cm	Bowl fragment	White unglazed	?	--	--	--
#39 10-20 cm	2 stem fragments	Red w/red glaze	--	Wide stem end	--	--
#40 10-20 cm	Bowl or stem portion	Red w/red glaze	Decorated head	Wide stem end - partial inscription "HEN...."		
#41 10-20 cm	Bowl fragment	White unglazed	--	--	--	--
#42 0-10 cm	Stem fragment	Tan or gray w/dark blue or black glaze	--	Wide stem end	--	--
#43 0-10 cm	3 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#44 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head	--	--	--
#44 10-20 cm	Bowl fragment	Red w/red glaze?	?	--	--	Burned
#45 0-10 cm	3 bowl fragments	Red w/red glaze	Decorated head w/wreath	--	--	One burned
	Bowl fragment	Red w/red glaze	Decorated head w/wreath	Partial inscription "FRA . . ." ". . . DENT"	Figure 17:C	Franklin Pierce President type
#46 0-10 cm	Bowl and stem	Tan unglazed	Undecorated	Wide stem end	Figure 17:F	--
#47 0-10 cm	5 bowl fragments	1 white unglazed	Rouletting visible	--	--	--
		2 tan w/black glaze	Decorated head	--	--	Gargoyle(?) figure
		2 red w/red glaze	Decorated head w/wreath	--	--	--

TABLE 10: (continued).

Provenience	Portion	Clay	Bowl Type	Stem Date	Illustrated	Comments
#48 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head w/wreath	--	--	--
#52 0-10 cm	2 bowl fragments	Red w/red glaze	Decorated head w/wreath	--	--	--
#54 0-10 cm	Stem fragment	Red w/red glaze	--	Wide stem end	--	--
#55 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head	--	--	--
#60 0-10 cm	Bowl fragment	Red w/red glaze	--	--	--	--
#63 0-10 cm	Bowl fragment	Red unglazed	Plain	--	--	--
#65 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head	--	--	--
#66 0-10 cm	2 bowl - 1 stem fragment	Red w/red glaze	Decorated head	Wide stem end - "...HENRY"	--	Henry Clay type
#67 0-10 cm	4 bowl fragments	2 red w/red glaze 2 tan unglazed	Decorated head Plain	-- --	-- --	-- --
#68 0-10 cm	Stem fragment Bowl fragment Bowl fragment	White unglazed Red w/red glaze White unglazed	-- Decorated head Rouletting visible	Decorated -- --	-- -- --	Peter Dorni in Gouda type Burned --
#69 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head	--	--	--
#71 0-10 cm	Bowl fragment	Red w/red glaze	?	--	--	--
#73 0-10 cm	Stem fragment	Red w/red glaze	?	--	--	--
#83 0-10 cm	5 bowl fragments 1 stem fragment	Red w/red glaze White unglazed	Decorated head w/wreath --	-- --	-- --	-- Burned
#84 0-10 cm	Bowl fragment	Red w/red glaze	Decorated head w/wreath	--	Figure 17:B	Burned, Henry Clay type?
#85 0-10 cm	3 bowl - 1 stem fragment	Red w/red glaze	Decorated head w/wreath	Wide stem end	--	--
#87 0-10 cm	4 bowl fragment	Grey w/black glaze	Decorated head	--	--	Gargoyle (?) figure
	Bowl fragment	Red w/red glaze	Decorated head	--	--	--
#88 0-10 cm	Bowl and stem portion	Red w/red glaze	Decorated head w/wreath	Wide end stem "HE...."	Figure 17:D	Henry Clay type (?)
#89 0-10 cm	Bowl fragments Stem fragments	Red w/black glaze White unglazed	? --	-- Inscription "GOU...."	-- --	-- Peter Dorni in Gouda type
	1 bowl	Grey w/black glaze	Decorated head	--	Figure 17:A	Gargoyle (?) figure
#90 0-10 cm	2 bowl - 1 stem fragment	Red w/red glaze	Decorated head	Wide end stem	--	--
#95 0-10 cm	9 bowl fragments	Red w/red glaze	Decorated head	--	--	--
#96 0-10 cm	3 bowl - 2 stem fragments	White unglazed	Rouletting visible	Inscription "PET...."	--	Peter Dorni in Gouda type
#97 0-10 cm	4 stem fragments	3 red w/red glaze 1 white unglazed	-- --	Wide end stem Inscription "....DA"	--	Peter Dorni in Gouda type
	Bowl fragment	White unglazed	Undecorated	--	--	--
#98 0-10 cm	2 stem fragments	Red w/red glaze	--	Wide end stem	--	--
#100 0-10 cm	2 bowl fragments	Red w/red glaze	?	--	--	--
#104 0-10 cm	1 stem fragment	Red w/red glaze	--	--	--	--
#106 0-10 cm	1 stem fragment	Red w/red glaze	--	--	--	--
#108 0-10 cm	2 bowl fragments	1 red w/red glaze 1 red unglazed	Decorated head Undecorated	--	--	--
#109 0-10 cm	1 bowl fragment	Red w/ red glaze	?	--	--	--

TABLE 10: (continued).

type.

A number of plain unglazed, white kaolin clay pipe bowl and stem fragments were found. Some of the bowls are plain and some have rouletting near the mouth of the bowl. These are likely similar to or the same as the styles of the 19th century funnel-shaped bowls which were popular well into the 19th century (Noel Hume 1970:303). They commonly occur in western forts dating to the last half of the 19th century (Wilson 1971).

Also present in the sample are several of the thick elbow-shaped reed pipes. These came in several sizes and are similar to some of the Pamplin

pipes. A firm identification cannot, however, be made.

Historic Ceramics

A total of 306 fragments of several kinds of historic manufactured ceramics were collected. While they most probably date to the military occupation, the historic ceramics are less diagnostic as the styles represented here have wide date ranges.

The Camp Payne ceramics were analyzed using data compiled by Berge (1980) and Herskovitz (1978). Berge (1980:170-175) has provided a dating key for the various kinds of historic ceramics which was also used in the identification of the Camp Payne sample.

The Camp Payne historic ceramics are listed in Table 11 and selected examples appear in Figure 18. A few points should be emphasized with regard to the sample.

Because of the small size of most fragments and that few pieces fit together (no whole vessels could be reconstructed), it was difficult to determine precise uses for the ceramic fragments. In addition, because of variation in manufacturing technique, there are not clear cut distinctions between the various kinds of earthenware and stoneware.

A few of the large thick fragments may be ironstone. Ironstone became popular in the 1850s in the United States. It is the most common pottery found in 19th century American sites and the U.S. military used ironstone extensively in the 19th century (Berge 1980:190). Ironstone is a utilitarian product with a thick heavy body. It is heavy, dense and strong, with a white body and clear glaze. Early ironstones have a yellow tinge (Berge 1980:190) as can be seen in the Camp Payne examples.

Several pieces of grayware were also found. This is also a utilitarian ceramic made of finer and denser clays. The past is usually a gray color or light buff to cream. The glazed surface contains small holes where the glaze has been absorbed into the body. Graywares were used primarily for crocks, jars, jugs, churns, etc. (Berge 1980:189).

A number of possible brownware fragments are also present.

> Within this type of earthenware are included those vessels which have a dark brown glaze, usually on both exterior and interior walls. The body pastes range from a reddish to a cream color. Those vessels with a cream-colored body are almost always ornamental pieces that were pressed into molds while in a plastic state (Ramsay 1939:20).
>
> Brownware is transitional between redware and stoneware in that it is clay of a finer texture than the former and less dense or vitreous than stoneware. Redware sherds may have a brown glaze, but the paste determines the classification, since that of Redware is porous and that of Brownware is dense and slightly porous.
>
> Brownware crockery is found in abundance in 19th century sites. Most authors do not include crockery with a brown glaze within this type because they do not vary enough to exclude if from Brownware. Brownware crockery comes chiefly in the form of jugs and crocks, but most likely other forms were

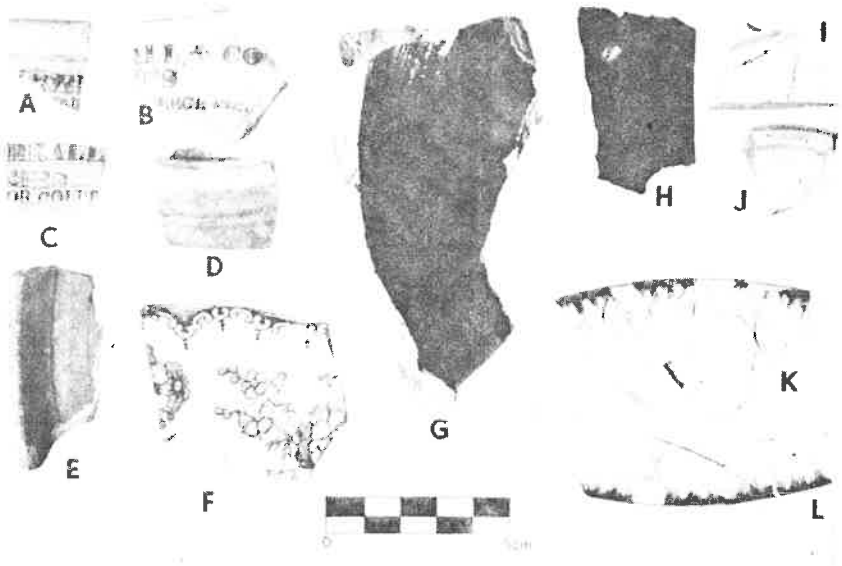

FIGURE 18: Selected ceramic artifacts from Camp Payne, Wyoming. See Table 11 for key.

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Size	Illustrated
Surface							
#3	2 ironstone ? fragments w/interior dark brown glaze, exterior clear glaze, blue letters	Crock?	Body and rim	Rim mark "...CKAER..." Body mark "...ALL & CO ...IES ...LEGE PLA..."	post 1862	42 x 32 x 12 mm 24 x 24 x 12 mm	Figure 18:A,B Yes
#4	5 ironstone ? fragments w/interior dark brown glaze, exterior clear glaze, blue letters	Crock?	Body	One letter on 1 body sherd "....E",	post 1862	Range - 38 x 36 x 7 to 16 x 12 x 12 mm	---
#10	1 earthenware fragment w/ blue glaze	Crock?	Body	---	--	24 x 24 x 10 mm	---
#11	1 grayware (?) fragment	Crock	Rim	Salt glaze? dull green/ gray color - 2 parallel blue lines across rim	1800-1900	31 x 30 x 14 mm	Figure 18:D
#15	1 brownware fragment w/ interior dark brown glaze, exterior clear glaze	?	Body	---	1830-1900	31 x 29 x 6 mm	---
#52	1 brownware fragment w/ interior dark brown glaze, exterior clear glaze	Crock?	Body	---	1860-1900	18 x 14 x 5 mm	---
#54	6 cream colored ware fragments - white slip and clear glaze w/light blue tint	Bowl or dish?	Body, rim?	---	1850-1900	Range - 44 x 28 x 6 to 20 x 19 x 3 mm	---
#58	1 brownware fragment, interior dark brown glaze, exterior clear glaze	Crock	Base	---	19th Cent.	104 x 60 x 18 mm	Figure 18:C
#59	1 cream colored ware fragment - white slip and clear glaze	Dish	Rim	Impressed design	1850-1900	51 x 42 x 9 mm	---
#86	1 grayware? fragment	Crock	Rim	Dull gray glaze, highly weathered	1800-1900	51 x 25 x 12 mm	Figure 18:E
#90	2 cream colored ware fragments - white slip and clear glaze	?	Body	---	1850-1900	18 x 14 x 4 mm 21 x 13 x 3 mm	---
#118	2 blue transferware fragments	Dish?	1 body, 1 rim	Small area with design evident	19th Cent.	23 x 15 x 6 mm 17 x 15 x 3 mm	---
#133	1 brownware fragment, interior dark brown glaze, exterior unglazed	?	Body	---	19th Cent.	52 x 33 x 7 mm	Figure 18:H
#143	1 brownware fragment, interior dark brown glaze, exterior clear glaze	?	Body	---	19th Cent.	19 x 19 x 4 mm	---

TABLE 11: Ceramic artifacts, Camp Payne, Wyoming.

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Size	Illustrated
#382	1 ironstone fragment, interior dark brown glaze, exterior clear glaze, blue letters	Crock	Body - Base	Mark "...RRALL... ...RIES OR COLLE..."	post 1862	27 x 17 x 8 mm	Figure 18:C
Test Unit #2 0-10 cm	1 cream colored ware fragment - white slip clear glaze	?	Body	---	1850-1900	20 x 18 x 10 mm	---
#6S½ 0-10 cm	18 blue shelledged ware fragments	Dish?	Rim and Body	---	---	Range - 29 x 18 x 3 to 9 x 8 x 2 mm	---
#6S½ 10-20 cm	14 blue shelledged ware fragments	Dish?	Rim and Body	---	---	Range - 15 x 15 x 3 to 3 x 3 x 2 mm	---
#7 0-10 cm	2 stoneware (ironstone) fragments w/clear glaze exterior and interior	Crock	1 rim, 1 base	---	19th Cent.	Rim - 16 x 13 x 5 mm Base - 38 x 24 x 11 mm	--- ---
#14N½ 10-20 cm	4 blue shelledged ware fragments	Dish	Body	---	---	Range - 16 x 14 x 2 to 8 x 8 x 1 mm	---
#14N½ 20-30 cm	1 blue shelledged ware fragment	Dish	Body	---	---	14 x 12 x 3 mm	---
#14N½ 30-40 cm	5 blue shelledged ware fragments	Dish	Body	1 large rim piece w/blue shelledged pattern	---	53 x 40 x 6 mm	Figure 18:K
#14N½ 40-50 cm	1 blue shelledged ware fragment	Dish	Body	---	---	8 x 7 x 2 mm	---
#20 0-10 cm	2 white slipped, clear glazed fragments	?	Body	Too small to identify	---	12 x 9 x 2 mm	---
#21 0-10 cm	2 white slipped, clear glazed fragments	?	Body	Too small to identify	---	13 x 10 x 3 mm	---
#23 0-10 cm	8 blue shelledged ware fragments	Dish?	Body	---	---	Range - 16 x 15 x 2 to 11 x 5 x 3 mm	---
#23 10-20 cm	5 blue transferware fragments	Bowl or dish	Rim and Body	Floral design	19th Cent.	53 x 52 x 5 mm	Figure 18:F
#25 0-10 cm	1 blue shelledged ware fragment	Dish?	Rim	---	---	23 x 23 x 4 mm	---
#26 0-10 cm	4 blue shelledged ware fragments	?	Body	---	---	Range - 10 x 9 x 2 to 9 x 8 x 2 mm	---
#28 0-10 cm	2 blue shelledged ware fragments	Dish?	Rim	---	---	21 x 18 x 3 mm	---
#30 0-10 cm and 20-30 cm	6 blue shelledged ware fragments	Dish?	5 body, 1 rim	---	---	Range - 23 x 9 x 3 to 11 x 9 x 2 mm	---
#31 0-10 cm and 10-20 cm	8 blue shelledged ware fragments	Dish?	7 body, 1 rim	---	---	Range - 24 x 17 x 3 to 9 x 8 x 2 mm	---
#32 0-10 cm	5 blue shelledged ware fragments	Dish?	4 body, 1 rim	---	---	Range - 24 x 15 x 4 to 9 x 7 x 2 mm	---
#34 0-10 cm	1 ironstone? fragment	Crock?	Body	---	post 1900	44 x 29 x 8 mm	---
#36 0-10 cm and 10-20 cm	2 blue shelledged ware? fragments	Dish?	Body	---	---	20 x 15 x 2 mm 11 x 10 x 2 mm	---
#37 0-10 cm	14 blue shelledged ware fragments	Dish?	3 rim, 11 body	---	---	Range - 15 x 14 x 4 to 8 x 8 x 3 mm	---
#38 0-10 cm	2 blue shelledged ware fragments	Dish?	2 body	---	---	14 x 8 x 3 mm 7 x 6 x 2 mm	---
#40 0-10 cm	1 blue shelledged ware fragment	Dish?	Body	---	---	34 x 17 x 3 mm	---
#44 0-10 cm	1 blue shelledged ware fragment	Dish?	Body	---	---	20 x 10 x 4 mm	---
#45 0-10 cm	5 blue shelledged ware fragments	Dish	4 body, 1 rim	---	---	Range - 12 x 10 x 4 to 9 x 7 x 2 mm	---
#47 0-10 cm	8 blue shelledged ware fragments	Dish?	7 body, 1 rim	---	---	Range - 16 x 12 x 2 to 11 x 10 x 2 mm	---
#51 0-10 cm	19 cream colored white ware fragments w/white slip and clear glaze	Dish?	Body	---	1850-1900	Range - 34 x 22 x 6 to 10 x 10 x 6 mm	Figure 18:I,J
#52 0-10 cm	21 blue shelledged ware fragments	Dish	13 body, 8 rim	Some fit together	---	Range - 38 x 21 x 5 to 10 x 7 x 2 mm	Figure 18:L

TABLE 11: (continued).

Provenience	Type	Vessel Type	Vessel Portion	Attributes	Dates	Size	Illustrated
#60 0-10 cm	1 blue shelledged ware fragment	Dish	Rim	Fits w/one fragment from T.U. 52	---	21 x 16 x 4 mm	---
	1 cream colored ware fragment	?	Body	---	1850-1900	18 x 18 x 4 mm	---
#66 0-10 cm	1 cream colored ware fragment	?	Rim	---	1850-1900	12 x 7 x 4 mm	---
#70 0-10 cm	2 blue shelledged ware fragments	?	Body	---	---	15 x 10 x 3 mm, 11 x 9 x 2 mm	---
#72 0-10 cm	21 blue shelledged ware fragments	Dish?	19 body, 2 rim	---	---	Range - 43 x 41 x 6 to 11 x 10 x 3 mm	---
#73 0-10 cm	3 cream colored ware fragments	?	Body	---	1850-1900	Range - 13 x 12 x 3 to 9 x 8 x 5 mm	---
#74 0-10 cm	22 blue shelledged ware fragments	Dish?	Body	---	---	Range - 42 x 38 x 10 to 12 x 6 x 5 mm	---
#77 0-10 cm	4 blue shelledged ware fragments	Dish?	2 body, 2 rim	Light blue tint in glaze	---	Range - 15 x 11 x 3 mm to 13 x 6 x 4 mm	---
#81 0-10 cm	2 blue shelledged ware fragments	?	Body	---	---	21 x 14 x 5 mm, 15 x 13 x 4 mm	---
#83 0-10 cm	6 blue shelledged ware fragments	?	Body	---	---	Range - 21 x 12 x 3 to 9 x 6 x 2 mm	---
#100 0-10 cm	1 blue shelledged ware fragment	?	Body	---	---	11 x 10 x 3 mm	---
#101 0-10 cm	2 blue shelledged ware fragments	?	Body	---	---	10 x 8 x 3 mm, 7 x 7 x 3 mm	---

TABLE 11: (continued).

manufactured (Berge 1980:188).

A larger number of fragments of blue shell edged ware was found. These are likely from plates or dishes of unknown types. Blue shell edged ware was manufactured in England from as early as 1779 through the second quarter of the 19th century. The shell edged ware have a decoration of a hand-applied blue underglaze enamel over the moulded design around the rim (Herskovitz 1978:105).

A number of blue transferware pieces are in the sample. Beginning in the late 18th century in Europe, and after 1825 in the United States, blue transferware became a popular ceramic which had printed designs. These ceramics were available to all socioeconomic groups and artistically decorated tableware was first made available to the under classes (Berge 1980:196).

A number of creme colored ware pieces were also recovered. These ceramics have a creme colored clay paste. Early types were covered with a white slip and glaze. In the United States, the creme-colored ware was produced from the 1850s into the 20th century (Berge 1980:203, Herskovitz 1978:105).

Wood, Coal and Clinker

A number of the midden units contained wood fragments (some burned) and coal. These units are listed in Tables 12 and 13. The vast majority of wood and clinker came from the Midden 1 deposits. A few of the wood pieces appear to have been shaped, cut or used as building material; most of the wood is unidentifiable fragments. The wood appears to come from an unknown pine species (Pinus sp.). The coal was probably mined from outcrops on the north side of the North Platte River. Both wood and coal were undoubtedly used as heating fuels.

Test Unit	Provenience #	Comments
#1, 20-30 cm	Screen	20 fragments
#2, 0-10 cm	Screen	15 fragments
#7a, 10-20 cm	Screen	100+ fragments
	#6	2 fragments
	#7	2 fragments
	#8	10 fragments
#8, 0-10 cm	Screen	1 fragment
#10, 0-10 cm	Screen	20 fragments, 4 saw cut (?)
#13, 0-10 cm	Screen	4 fragments
	#1	1 fragment, saw cut (?)
	#2	15 fragments
#13, 10-20 cm	#4	2 fragments
	#6	25 fragments
#13, 20-30 cm	Screen	2 fragments
#14N, 0-10 cm	#5	2 fragments, 1 burned
#17, 0-10 cm	Screen	1 knot
#19, 0-10 cm	#5	Plank fragment 45° saw cut mark
#21, 10-20 cm	#2	3 fragments, one saw cut (?)
#23, 10-20 cm	Screen	Burned wood 1.5 in wide, .35 in thick
#25, 10-20 cm	#14	1 fragment, 2 burned fragments
#28, 0-10 cm	#6	2 burned fragments
#29, 0-10 cm (Feature 5)	#3	1 shaped, tapered fragment (peg?) and 10 fragments
#29, 10-20 cm	Screen	10 fragments, 1 knot
#30, 10-20 cm	Screen	2 fragments
#32, 0-10 cm	#21	Shaped fragment w/nail or screw hole - .70 in wide, .25 in thick
	#26	1 fragment
#32, 10-20 cm	Screen	3 fragments
#43, 0-10 cm	#6	1 fragment with 45° saw cut, both ends
	Screen	Shaped fragment, tapered end (peg?)
		2 twigs
#72, 0-10 cm	Screen	1 fragment
#104, 0-10 cm	#4	1 lag fragment, burned, one side 105 x 48 x 11 mm

TABLE 12: Test units at Camp Payne, Wyoming containing wood.

Miscellaneous Items

Several artifacts of unknown origin and function were found in the Camp Payne deposits. These include a small bone thimble-like object (T.U. 26, 30-40 cm), perhaps an ornamental object. From T.U. 41, 10-20 cm, a fragment of brick or tile was found. In T.U. 2, 0-10 cm, and in T.U. 43, 0-10 cm, pieces of cork were found. These could be canteen, bottle, or jug stoppers. One piece of probable shotgun cartridge wadding (modern) was found in T.U. 14 N½, 0-10 cm. A

Test Unit	Comments
#6N, 0-10 cm	1 burned coal fragment
	2 clinker fragments
#6N, 10-20 cm	1 clinker fragment
	2 reddened sandstone fragments
#6N, 20-30 cm	3 burned coal fragments
#8, 0-10 cm	1 clinker fragment
#14N, 0-10 cm	2 clinker fragments
#14N, 10-20 cm	2 clinker fragments
#15, 0-10 cm	7 clinker fragments
#15, 10-20 cm	2 clinker fragments
#20, 0-10 cm	2 clinker fragments
#20, 10-20 cm	2 clinker fragments
#21, 0-10 cm	1 clinker fragment
#21, 10-20 cm	3 clinker fragments
#22, 10-20 cm	5 clinker fragments
#23, 10-20 cm	5 clinker fragments
#24, 0-10 cm	4 clinker fragments
#25, 0-10 cm	5 clinker fragments
#25, 10-20 cm	8 clinker fragments
#25, 20-30 cm	13 clinker fragments
#26, 0-10 cm	6 clinker fragments
#26, 20-30 cm	9 clinker fragments
#28, 10-20 cm	2 clinker fragments
#31, 10-20 cm	7 clinker fragments
#33, 10-20 cm	1 coal fragment
#38, 0-10 cm	1 clinker fragment
#85, 0-10 cm	2 clinker fragments

TABLE 13: Test units at Camp Payne, Wyoming with clinker and coal fragments.

scrap of newsprint was found in T.U. 14 N½, 10-20 cm, but it could not be dated or identified to the newspaper form which it originated.

Faunal Remains

A total of 532 bone fragments and whole bone element were recovered from the test excavation units. These include a large number of elements and fragments unidentifiable as to genus or species. Identifiable elements include those of *Bos taurus* (modern cow), possible *Bison* sp. (bison), *Sus scrofa* (modern pig), *Odocoileus* sp. (deer), *Antilocapra americana* (antelope), *Lepus* sp. (jackrabbit), *Sylvilagus* sp. (cottontail rabbit), *Equus* sp. (modern horse), *Microtus* sp. (mole), *Tetraonidae* (grouse), and *Centrocercus urophasianus* (sage hen). A large proportion of these remains show evidence of several forms of butchering and many fragments are burned.

Each bone fragment or element was compared to known skeletal remains in the University of Wyoming, Anthropology Department comparative osteological collection. Published osteological keys such as Gilbert (1980, 1981), Lawrence (1951), and Olsen (1960) were also consulted.

A list of faunal remains appears in Table 14. Selected elements showing the various butchering marks are illustrated in Figures 19-21.

At least three different butchering methods are evident on the Camp Payne bone. These are saw cuts, knife or hatchet cuts, and spiral breaks, possibly from the blunt end of a knife or hatchet. Looking at the butchered *Bos taurus* elements (Figure 19), there are saw cuts both perpendicular to the vertebral

Provenience	Element	Portion	Sizes (mm)	Side	Breakage	Burned	Butchering	Species	Age	#
T.U. 2 0-10 cm	Skull?	Fragment	x = 21 x 15 x 4	--	--	--	None	Medium-large artiodactyl	Immature	3
	Various	Fragments	x = 15 x 10 x 3	--	--	20 of 30	Undetermined	probable med. artiodactyl medium-large mammal	Unknown	30
T.U. 6 S½ 0-10 cm	Longbone?	Fragments	x = 14 x 9 x 3	--	--	4 of 4	Undetermined	probable med. artiodactyl medium-large mammal	Unknown	4
10-20 cm	Longbone?	Fragments	x = 17 x 12 x 4	--	--	8 of 8	Undetermined	probable med. artiodactyl medium-large mammal	Unknown	8
T.U. 8 N½ 0-10 cm	Humerus	Proximal ½	53 x 18 x 8	Left	Spiral	--	None	Lepus sp.	Mature	1
	Metapodial?	Shaft fragment	20 x 16 x 6	--	Spiral	1 of 1	Possible saw cut across shaft	Medium artiodactyl	--	1
	Longbone?	Fragments	x = 24 x 18 x 4	--	--	3 of 3	--	Medium-large mammal	--	3
10-20 cm	Humerus	Distal ½	49 x 10 x 5	Left	Spiral	--	None	Lepus sp. (fits with proximal humerus above)	Mature	1
	Longbone	Fragment	37 x 18 x 5	--	--	1 of 1	None	Medium-large mammal	--	1
20-30 cm	Longbone	Fragments	x = 18 x 13 x 5	--	--	16 of 16	None	Medium-large mammal	--	16
30-40 cm	Rib* (Fig. 19:D)	Shaft	210 x 30 x 11	?	Spiral both ends	--	Possible blow marks from blunt instrument, both ends	cf Bos or Bison sp.	--	1
	Innominate*	Ilium	103 x 38 x 14	Right	--	--	Saw cut across shaft, saw? cut along shaft	cf. Sus scrofa	Immature (unfused)	1
	Rib	Shaft	22 x 4 x 2	--	--	--	None	Small-medium mammal	--	1
T.U. 8 0-10 cm	Tooth	Enamel	10 x 5 x 1	--	--	--	None	Medium-large artiodactyl	--	1
	Longbone?	Fragments	x = 11 x 10 x 5	--	--	14 of 14	None	Medium-large mammal	--	14
T.U. 10 0-10 cm	Longbone	Fragment	18 x 13 x 4	--	--	1 of 1	None	Medium-large mammal	--	1
T.U. 14N½ 0-10 cm	Longbone	Fragments	43 x 10 x 8 34 x 11 x 5	--	Spiral	--	None	Medium-large artiodactyl	--	2
	Longbone	Fragments	x = 13 x 10 x 3	--	--	14 of 14	None	Medium-large mammal	--	14
	Rib	Fragment	73 x 27 x 3	--	--	--	None	Large artiodactyl	--	1
10-20 cm	Radius-ulna	Distal end, (unfused)	94 x 59 x 38	Left	--	--	None evident, highly weathered	cf. Bos sp. difficult to distinguish from bison due to weathering	Immature	1
	Intermediate carpal	Entire	51 x 31 x 25	Left	--	--	None evident, highly weathered	cf. Bos sp. difficult to distinguish from bison due to weathering	--	1
	Radial carpal	Entire	49 x 37 x 23	Left	--	--	None evident, highly weathered	cf. Bos sp. difficult to distinguish from bison due to weathering	--	1
	Mandible	Entire	17 x 9 x 3	Right	--	--	None	Microtus sp.	Mature	1
	Innominate	Entire	18 x 5 x 2	Left	--	--	None	Microtus sp.	Mature	1
	Longbone	Fragment	53 x 33 x 11	--	--	--	None	Large artiodactyl	--	1
	Longbones, ribs	Fragments	x = 25 x 10 x 3	--	--	77 of 77	None	Medium-large mammal	--	77
	Innominate	Ilium	46 x 22 x 8	?	Spiral	--	None evident, spiral breaks may be from blunt instrument	cf. Sus scrofa	Immature	1
	Longbones, ribs	Fragments	x = 22 x 10 x 4	--	--	8 of 15	None	Med. mammal	--	15
	Vertebrae	Fragments	28 x 19 x 6 21 x 16 x 10	--	Spiral	1 of 2	None evident, spiral breaks may be from blunt instrument	Med. artiodactyl	--	2
T.U. 14 20-30 cm	Rib	Fragment	66 x 16 x 6	--	--	--	None	Large artiodactyl	--	1
	Longbones, ribs	Fragments	x = 14 x 9 x 6	--	--	11 of 15	None	Medium-large mammal	--	15
30-40 cm	Ulna* (Fig. 20:E)	Shaft	68 x 18 x 9	Right	Spiral	--	Knife? or hatchet cut marks and across mid shaft	cf. Bos or Bison sp.	Immature	1
	Thoracic? vertebra* (Figure 20:D)	Spine	52 x 15 x 8	--	Spiral	--	Knife? cut diagonal across shaft	Medium artiodactyl	--	1
	Humerus	Distal ¼	23 x 9 x 5	Right	Spiral	1 of 1	None	Lepus sp.	Mature	1
	Ribs	Fragments	x = 14 x 8 x 4	--	--	10 of 13	None	Medium-large mammal	--	13
	Vertebra	Spine	36 x 25 x 6	?	--	--	Saw cut at slight diagonal along spine	Medium artiodactyl	?	1

TABLE 14: Faunal remains from Camp Payne. * = illustrated; x = average size.

Provenience	Element	Portion	Sizes (mm)	Side	Breakage	Burned	Butchering	Species	Age	#
40-50 cm	Longbones, ribs	Fragments	x = 17 x 6 x 4	--	--	4 of 4	None	Medium-large mammal	--	4
T.U. 15 0-10 cm	Longbones	Fragments	x = 29 x 17 x 5	--	--	--	None	Medium-large artiodactyl	--	3
	Innominate* (Fig 20:B)	Ilium	65 x 28 x 21	Right	--	--	Saw cut along shaft of ilium	cf. Sus scrofa	Immature	1
	Ribs, longbones	Fragments	x = 25 x 15 x 3	--	--	8 of 10	None	Medium-large mammal	--	10
10-20 cm	Longbone	Fragment	18 x 11 x 6	--	--	--	None	Med. mammal	--	1
T.U. 16 0-10 cm	Longbone	Shaft	x = 23 x 14 x 3	--	Spiral	4 of 4	None	Medium-large artiodactyl	--	4
10-20 cm	Longbones, ribs	Fragments	x = 17 x 14 x 7	--	Spiral	20 of 22	None	Medium-large artiodactyl	--	22
T.U. 17 0-10 cm	Rib	Fragment	20 x 6 x 2	--	--	1 of 1	None	Small-medium mammal	--	1
10-20 cm	Vertebra?	Fragment	23 x 16 x 9	--	--	--	None	Medium artiodactyl	--	1
	Rib	Fragment	24 x 17 x 8	--	Spiral	--	None	Medium artiodactyl	--	1
T.U. 17 10-20 cm	Distal sesamoid	Entire	51 x 15 x 13	Left	--	--	None	Equus sp.	Mature	1
	Radial carpal	Entire	31 x 25 x 21	Left	--	--	None	Equus sp.	Mature	1
	Ribs?, Longbones?	Fragments	x = 17 x 13 x 3	--	Spiral	5 of 6	None	Medium-large mammal	--	6
T.U. 18 0-10 cm	Ribs?, Longbones?	Fragments	x = 21 x 9 x 3	--	--	8 of 10	None	Medium-large mammal	--	10
T.U. 19 0-10 cm	Longbones	Fragments	x = 32 x 10 x 4	--	--	--	None	Medium-large mammal	--	2
T.U. 20 0-10 cm	Hyoid	Fragments	88 x 19 x 4	?	--	--	None	cf. Bos or Bison	?	2
	Rib	Fragment	100 x 18 x 9	--	Spiral break both ends	--	None evident, spiral breaks may be from blunt instrument	Large artiodactyl	?	1
	Lumbar vertebra* (Fig 21:C)	Caudal body	30 x 19 x 18	--	Spiral	--	Spiral break along and across body portion	cf. Odocoileus sp.	Mature	1
10-20 cm	Thoracic vertebra* (Fig. 21:D)	Body	59 x 47 x 15	--	--	--	Saw? cut along length of body	cf. Bos	Immature Epiphyses unfused	3
	Ribs	Fragments	x = 29 x 13 x 3	--	Spiral	1 of 5	None	Small-medium mammal	--	5
	Innominate	Fragment	71 x 19 x 10	Right	--	--	None	Lepus sp.	Mature	1
	Longbones	Fragments	x = 20 x 14 x 4	--	--	8 of 10	None evident	Medium-large mammal	--	5
	Vertebra	Fragment	14 x 12 x 10	--	--	1 of 1	Saw cut across cranial articular process	Medium artiodactyl	?	1
20-30 cm	Metacarpal	Entire	210 x 26 x 11	Left	--	--	None	Antilocapra americana	Mature	1
	Lumbar vertebrae	Fragments	58 x 39 x 29	--	Spiral	--	Possible blow to one of vertebra near caudal body 2 articulated verts.	cf. Odocoileus sp.	Mature	2
	Cervical vertebrae	1 caudal body	48 x 22 x 17	--	Spiral	--	Possible blow to body	Medium artiodactyl	1 Mature	
		1 cranial body	25 x 16 x 11						1 Immature	
	Longbone	Fragment	93 x 41 x 13	?	Spiral	--	Probably blow marks both ends and sides	Large artiodactyl	?	1
T.U. 21 0-10 cm	Scapula	Glenoid	53 x 41 x 27	?	Spiral	--	Knife or hatchet cut marks across shaft	cf. Bos	Mature	1
	Radial carpal	Entire	15 x 12 x 10	Right	--	--	None	Antilocapra americana	Mature	1
	Rib* (Fig. 19:C)	Proximal end	101 x 21 x 15	Right	Spiral	--	Possible blow marks across shaft		Mature	1
	Middle phalanx* (Fig. 21:A)	Fragment	44 x 29 x 25	Left Front	Spiral	--	Possible cut along shaft	Equus sp.	Mature	1
10-20 cm	Longbone	Shaft fragments	x = 65 x 14 x 10	?	Spiral	--	Possible blow marks	Large artiodactyl	?	2
20-30 cm	4th tarsal	Entire	39 x 27 x 22	Right	--	--	None	Equus sp.	Mature	1
T.U. 22 10-20 cm	Ulnar carpal	Entire	30 x 35 x 28	Left	--	--	None	cf. Bos	Mature	1
	Rib	Fragment	62 x 19 x 9	?	Spiral	--	None evident	Large artiodactyl	?	1
	Longbones	Fragments	x = 42 x 24 x 6	--	Spiral	2 of 6	None evident	Large artiodactyl	?	6
	Longbones	Fragment	30 x 6 x 2	?	Spiral	--	None	Small mammal	?	1
	Patella	Fragment	58 x 42 x 28	Right	--	--	Saw or hatchet cut across body	cf. Bos taurus	Mature	1
20-30 cm	Longbone	Shaft fragment	72 x 14 x 3	?	Spiral	--	One clear blow mark on shaft	Medium artiodactyl	?	1
	Thoracic vertebra	Fragment	28 x 22 x 18	--	--	--	None	Medium artiodactyl	Mature	1

TABLE 14: (continued).

Provenience	Element	Portion	Sizes (mm)	Side	Breakage	Burned	Butchering	Species	Age	#
T.U. 23 0-10 cm	Ribs?	Fragments	x = 20 x 10 x 4	--	--	2 of 2	None evident	Medium-large mammal	?	2
10-20 cm	Longbone	Fragment	47 x 25 x 12	?	Spiral	--	None evident	Large artiodactyl	?	1
20-30 cm	Longbone	Fragments	x = 35 x 15 x 6	?	Spiral	1 of 8	None evident	Medium-large artiodactyl	?	8
T.U. 24 0-10 cm	Longbone	Fragment	74 x 42 x 33	?	Spiral	--	Possible hatchet cut across shaft	Large artiodactyl	Mature	1
T.U. 25 10-20 cm	Longbone	Fragments	x = 47 x 16 x 7	?	?	3 of 6	None evident	Medium-large artiodactyl	?	6
20-30 cm	Rib* (Fig. 19:A)	Proximal end	91 x 31 x 13	Right	Spiral	--	2 knife or hatchet cuts across shaft, one cut through shaft	cf. Bos taurus	Immature	1
	Vertebra	Fragment	34 x 23 x 12	--	--	--	Saw or knife/ hatchet cut along body	Medium artiodactyl	Mature	1
	Distal sesamoid	Entire	49 x 19 x 14	Right	--	--	None	Equus sp.	Mature	1
	Longbone	Fragment	113 x 21 x 12	?	Spiral	--	None evident	Large artiodactyl	?	1
	Longbone	Fragment	27 x 14 x 3	?	Spiral	1 of 1	None evident	Medium artiodactyl	?	1
T.U. 26 0-10 cm	Longbone?	Fragments	x = 26 x 9 x 6	--	Spiral	4 of 4	None evident	Medium-large mammal	--	4
30-40 cm	Metapodial	Shaft fragment	53 x 26 x 12	?	Spiral	--	Several knife/ hatchet cuts on one edge across shaft	Large artiodactyl	?	1
	Longbone	Fragments	x = 66 x 15 x 10	?	Spiral	--	Longbone fragments with probable blow marks from blunt instrument	Medium-large artiodactyl	?	13
	Longbone	Fragment	25 x 6 x 2	?	--	--	None evident	Small mammal cf. Leporid	?	1
	Cervical? vertebrae	Fragment	28 x 30 x 8	--	Spiral	--	None evident	cf. Odocoileus sp.	?	1
T.U. 28 0-10 cm	Longbone	Fragments	x = 19 x 15 x 7	?	Spiral	3 of 3	None	Medium mammal	?	3
10-20 cm	Vertebrae	Fragments	x = 28 x 17 x 9	?	Spiral	--	None evident, spiral breaks may be from blows by blunt instrument	Medium artiodactyl	Immature (unfused)	3
	Longbones	Fragments	x = 55 x 13 x 4	?	Spiral	--	None evident	Medium-large artiodactyl	?	5
	Scapula* (Fig.21:E)	Glenoid	58 x 52 x 24	?	Spiral	--	Probable hatchet cuts across shaft	cf. Bos taurus	Mature	1
T.U. 30 0-10 cm	Humerus	Distal end	18 x 8 x 6	Left	Spiral	--	None	Lepus sp.	Mature	1
	Longbones	Fragments	x = 29 x 14 x 3	?	Spiral	7 of 9	None evident	Medium artiodactyl	?	9
10-20 cm	Longbone	Fragment	74 x 40 x 24	?	--	--	2 hatchet or saw cuts diagonal across shaft	Medium-large artiodactyl	Immature	1
	Femur	Distal end	48 x 11 x 7	?	Spiral	--	None evident	cf. Tetraonidae, probable Tympanuchus or Dendragapus but not Centrocercus	Mature ?	
T.U. 31 10-20 cm	Rib	Fragment	150 x 32 x 15	?	Spiral	--	Spiral breaks possibly from blows	Large artiodactyl	?	1
	Rib	Proximal end	52 x 30 x 14	?	Spiral	--	Spiral breaks possibly from blows	cf. Bos taurus	Mature	1
	Longbones	Fragments	x = 44 x 23 x 7	?	Spiral	--	Spiral breaks possible from blows	Large artiodactyl	?	2
T.U. 32 0-10 cm	Longbones?	Fragments	x = 23 x 7 x 4	?	--	2 of 3	None	Medium mammal	?	3
10-20 cm	Rib	Shaft fragment	175 x 30 x 8	?	Spiral	--	Spirally broken ends, knife cut along shaft	Large artiodactyl	?	1
	Longbones	Fragments	x = 65 x 22 x 9	?	Spiral	--	None evident	Large artiodactyl	?	2
	Tibia	Proximal epiphysis	33 x 28 x 11	Left	--	--	None evident	cf. Antilocapra americana	Immature	1
T.U. 33 0-10 cm	Femur* (Fig. 21:B)	Distal end	52 x 44 x 26	Right	Spiral	--	Probably spiral break from blow from blunt instrument	Odocoileus sp.	Immature	1
T.U. 36 0-10 cm	Vertebra?	Fragment	46 x 22 x 11	?	Spiral	--	None evident	Medium-large artiodactyl	?	?

TABLE 14: (continued).

Provenience	Element	Portion	Sizes (mm)	Side	Breakage	Burned	Butchering	Species	Age	#
T.U. 36 10-20 cm	Ulna	Proximal ½	43 x 11 x 44	Left	--	--	None	Lepus sp.	Mature	1
T.U. 37 0-10 cm	Thoracic vertebra spine* (Fig. 19:B)	Fragment	185 x 59 x 10	--	Spiral	--	Probable saw or hatchet cut across shaft	cf. Bos taurus	?	1
T.U. 38 0-10 cm	Longbone	Fragment	22 x 5 x 2	?	--	--	None	Small mammal	?	1
T.U. 39 10-20 cm	Radius and articulated ulnar and intermediate carpals* (Fig. 21:F)	Distal end	68 x 32 x 22	Left	Spiral	--	Probable spiral break from blow	Odocoileus sp.	Mature	3
	Intermediate carpal	Entire	21 x 15 x 12	Right	--	--	Cut marks along distal end	cf. Antilocapra americana	Mature	1
T.U. 40 0-10 cm	Longbone	Fragment	18 x 13 x 4	?	Spiral	--	None evident	Medium mammal	?	1
10-20 cm	Longbone	Fragment	32 x 20 x 7	?	Spiral	1 of 1	None evident	Medium-large mammal	?	1
T.U. 41 0-10 cm 10-20 cm	Longbone	Fragments	x = 45 x 20 x 8	?	Spiral	--	Probable spiral break from blow	Large artiodactyl	?	6
T.U. 44 0-10 cm	Innominate	Fragment	55 x 22 x 9	Right	Spiral	--	None evident	Lepus sp.	Mature	1
T.U. 45 0-10 cm	Rib	Proximal end	90 x 26 x 17	Left	Spiral	--	Probable spiral break from blow	cf. Bos taurus	?	1
	Longbone	Fragments	x = 27 x 9 x 5	?	Spiral	2 of 2	None evident	Medium-large mammal	?	2
T.U. 46 0-10 cm	Longbone	Fragments	x = 52 x 18 x 14	?	Spiral	--	Blow mark evident	Large artiodactyl	?	2
T.U. 47 0-10 cm	Vertebra	Body	21 x 18 x 11	--	--	--	None	cf. Odocoileus sp.	Mature	1
	Ribs	Fragments	x = 35 x 14 x 5	?	--	--	None	Medium-large mammal	?	3
	Thoracic vertebra* (Fig. 20:F)	Spine	113 x 32 x 17	--	--	--	Saw cut along length of spine, distal end w/ spiral break	cf. Bos taurus	Mature	1
T.U. 47 0-10 cm	Ribs	Fragments	x = 32 x 10 x 4	?	--	1 of 4	None evident	Medium mammal	?	4
T.U. 49 0-10 cm	Longbone	Fragment	12 x 9 x 7	?	--	1 of 1	None	Small-medium mammal	?	1
T.U. 51 0-10 cm	Tibia?* (Fig. 20:A)	Shaft fragment	151 x 41 x 13	?	Spiral	--	Blow and knife/hatchet cuts visible across shaft	cf. Bos taurus	?	1
	Rib	Shaft fragment	136 x 25 x 10	?	Spiral	--	Spiral breaks across shaft possible blows	Large artiodactyl	?	1
T.U. 53 0-10 cm	6 Lumbar vertebrae	Entire	--	--	--	--	None	Sylvilagus sp.	Mature	6
	1 sacrum	Entire	--	--	--	--	None	Sylvilagus sp.	Mature	1
	7 ribs	Entire	--	--	--	--	None	Sylvilagus sp.	Mature	7
	1 metapodial	Entire	--	--	--	--	None	Sylvilagus sp.	Mature	1
	1 ulna	Entire	--	Left	--	--	None	Sylvilagus sp.	Mature	1
	1 femur	Distal ½	--	Right	Spiral	--	None	Sylvilagus sp.	Mature	1
	1 tibia	Proximal ½	--	Left	Spiral	--	None	Sylvilagus sp.	Mature	1
T.U. 55 0-10 cm	Innominate	Fragment	74 x 29 x 17	?	Spiral	--	May be saw or hatchet/knife cut diagonal across shaft	Medium artiodactyl	?	1
T.U. 58 0-10 cm	Longbone	Fragments	x = 28 x 21 x 15	--	--	--	--	--	--	4
T.U. 61 0-10 cm	Rib?	Fragment	12 x 7 x 2	?	--	1 of 1	None	Small-medium mammal	?	1
T.U. 62 0-10 cm	Rib?	Fragment	29 x 12 x 6	?	--	1 of 1	None	Small-medium mammal	?	1
T.U. 63 0-10 cm	Rib/longbone?	Fragments	x = 33 x 18 x 7	?	--	1 of 3	None evident	Medium-large mammal	?	3
T.U. 65 0-10 cm	Middle phalanx	Entire	27 x 14 x 10	?	--	--	None	cf. Antilocapra americana	Mature	1
	Middle phalanx	Distal end	13 x 13 x 9	?	Spiral	--	None evident	cf. Antilocapra americana	Mature	1
T.U. 66 0-10 cm	Proximal phalanx	Distal 2/3	38 x 17 x 10	?	Spiral	--	None evident	cf. Antilocapra americana	Mature	1

TABLE 14: (continued).

Provenience	Element	Portion	Sizes (mm)	Side	Breakage	Burned	Butchering	Species	Age	#
T.U. 72 0-10 cm	Tibia	Proximal ½	64 x 17 x 10	Right	Spiral	--	None evident	Lepus sp.	Mature	1
	Longbone	Fragments	26 x 6 x 3	?	Spiral	1 of 4	None evident	Small mammal	?	4
	Longbone	Fragments	x = 25 x 15 x 11	?	Spiral	9 of 11	None evident	Small-large mammal	?	11
	Radius-ulna	Shaft fragment	170 x 33 x 15	Right	Spiral	--	Spiral breakage from blows?	cf. Bos taurus or Bison sp.	?	2
	Scapula?	Shaft fragment	44 x 31 x 7	?	Spiral	--	Spiral breakage from blows?	Large artiodactyl	?	1
T.U. 73 0-10 cm	Longbone	Shaft fragment	44 x 13 x 5	?	Spiral	--	None evident	cf. Leporidae	?	1
	Longbone	Shaft fragments	x = 77 x 23 x 10	?	Spiral	--	Spiral break possibly from blow	Large artiodactyl	?	2
	Vertebra	Articular process	28 x 18 x 13	?	Spiral	--	Knife? cut across process	Large artiodactyl	Mature	1
T.U. 74 0-10 cm	Longbone	Fragments	x = 30 x 6 x 3	?	--	--	None	Small mammal	?	3
	Longbone	Fragment	25 x 23 x 8	?	Spiral	--	None	Large mammal	?	1
T.U. 75 0-10 cm	Longbone	Fragments	x = 28 x 16 x 7	?	Spiral	--	None evident	Medium mammal	?	3
	Longbone	Fragment	39 x 6 x 1	?	Spiral	--	None evident	Small mammal	?	1
T.U. 76 0-10 cm	Vertebrae	Fragments	x = 28 x 15 x 7	?	Spiral	--	Spiral break possibly from blows	Large artiodactyl	Mature & Immature	22
	Longbones	Fragments	x = 35 x 15 x 7	?	Spiral	--	Spiral break possible from blows	Large artiodactyl	?	19
T.U. 77 0-10 cm	Longbone	Fragment	33 x 9 x 7	?	Spiral	--	None	Medium-large mammal	?	1
T.U. 81 0-10 cm	Humerus	Distal 3/4	82 x 11 x 8	Left	Spiral	--	None	Lepus sp.	Mature	1
	Humerus	Distal ½	54 x 10 x 5	Left	Spiral	--	None	Lepus sp.	Mature	1
	Longbone	Fragments	x = 33 x 8 x 2	?	Spiral	--	None	Small mammal	?	2
	Mandible	Fragment	117 x 59 x 13	Right	--	--	Knife cuts diagonal across anterior side	cf. Bos taurus	?	1
	Mandible	Fragments	x = 72 x 17 x 7	?	--	--	None	Large artiodactyl	?	2
	Rib	Fragment	68 x 22 x 9	?	--	--	None	Large artiodactyl	?	1
	Innominate	Fragment	50 x 13 x 9	Left	Spiral	--	None evident	Lepus sp.	Mature	1
T.U. 83 0-10 cm	Tibia* (Fig 20:C)	Shaft fragment	112 x 45 x 33	?	Spiral	--	Probable blow marks	cf. Bos taurus	?	1
	Cervical vertebra	Fragment	50 x 33 x 32	--	--	--	Probable saw cut perpendicular to body	cf. Bos taurus	?	1
	Vertebra	Fragment	37 x 25 x 20	--	--	--	Probable saw cut perpendicular to body	Large artiodactyl	Immature	1
	Vertebrae	Fragments	x = 32 x 26 x 10	--	Spiral	--	Probable spiral break from blow	Large artiodactyl	?	2
	Innominate	Fragment	64 x 15 x 8	Left	Spiral	--	None evident	Lepus sp.	Mature	1
	Femur	Distal end	14 x 13 x 10	?	--	1 of 1	None evident	Lepus sp.	Mature	1
	Tibia	Distal end	31 x 12 x 6	Right	Spiral	--	None evident	Lepus sp.	Mature	1
	Femur?	Shaft fragment	53 x 9 x 7	?	Spiral	--	None evident	Lepus sp.	?	1
	Longbones	Shaft fragments	x = 40 x 8 x 2	?	Spiral	--	None evident	Small mammal	?	8
	Longbones	Shaft fragments	x = 27 x 9 x 5	?	--	2 of 4	None evident	Medium mammal	?	4
T.U. 85 0-10 cm	Longbone	Shaft fragments	x = 18 x 8 x 5	?	--	6 of 16	None evident	Medium mammal	?	16
T.U. 89 0-10 cm	Tibia	Shaft fragment	62 x 12 x 7	Left	--	--	None evident	Lepus sp.	?	1
	Longbone	Shaft fragment	33 x 11 x 9	?	--	1 of 1	None evident	Medium mammal	?	1
T.U. 90 0-10 cm	Innominate	Ischium	27 x 11 x 7	Left	Spiral	--	Cut marks across shaft of ischium	Lepus sp.	?	1
	Rib	Shaft fragment	75 x 23 x 10	?	Spiral	--	None evident	Large artiodactyl	?	1
	Longbone	Shaft fragment	47 x 12 x 10	?	Spiral	--	None evident	Large artiodactyl	?	1
T.U. 91 0-10 cm	Longbone	Shaft fragments	x = 20 x 12 x 5	?	?	2 of 2	None evident	Medium-large artiodactyl	?	2
T.U. 97 0-10 cm	Longbone	Shaft fragments	x = 62 x 15 x 5	?	Spiral	--	Possible spiral breaks from blow	Medium-large artiodactyl	?	4
T.U. 100 0-10 cm	Humerus	Distal ½	48 x 10 x 6	Left	Spiral	--	None evident	Lepus sp.	Mature	1
	Humerus	All but proximal end	78 x 15 x 6	Left	--	--	None evident	cf. Centrocercus urophasionus	Mature	1
	Ulna	Entire	89 x 11 x 6	Right	--	--	None evident	Lepus sp.	Mature	1
T.U. 105 0-10 cm	Ribs?	Fragments	x = 32 x 10 x 3	?	--	--	None evident	Medium mammal	?	2
T.U. 109 0-10 cm	Femur	Proximal 3/4	80 x 21 x 11	Left	Spiral	--	None evident	Centrocercus urophasionus	Mature	1
	Longbone	Fragment	58 x 46 x 12	?	Spiral	--	None evident	Large artiodactyl	?	1

TABLE 14: (continued).

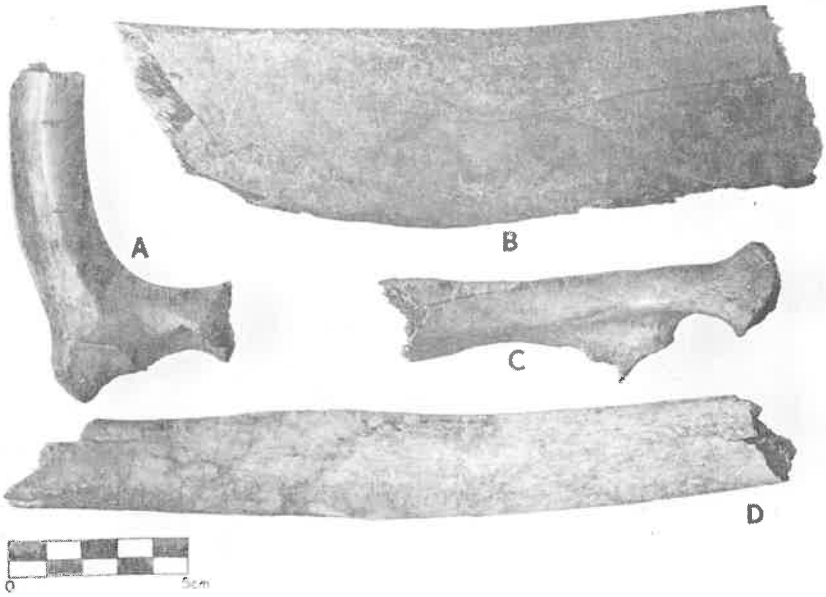

FIGURE 19: Selected faunal remains from Camp Payne, Wyoming. See Table 14 for key.

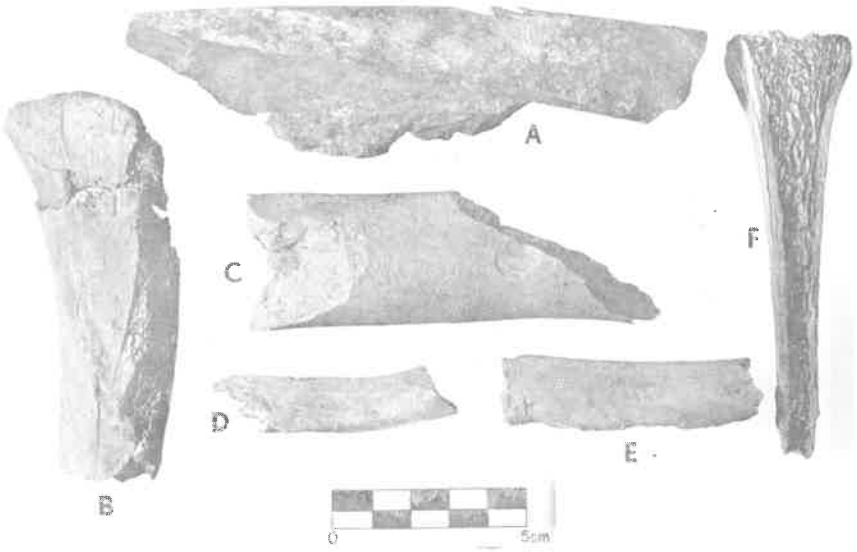

FIGURE 20: Selected faunal remains from Camp Payne, Wyoming. See Table 14 for key.

bodies and along the body, across the thoracic spine and along the length of the thoracic spine. This would indicate both the splitting of carcass in half along the vertebral column and specific cuts of vertebrae into smaller sections. The ribs were apparently broken into smaller sections as evidenced by the proximal ends broken with spiral breaks and knife/hatchet cuts and mid-sections of ribs with spiral breaks. Bos taurus long bones

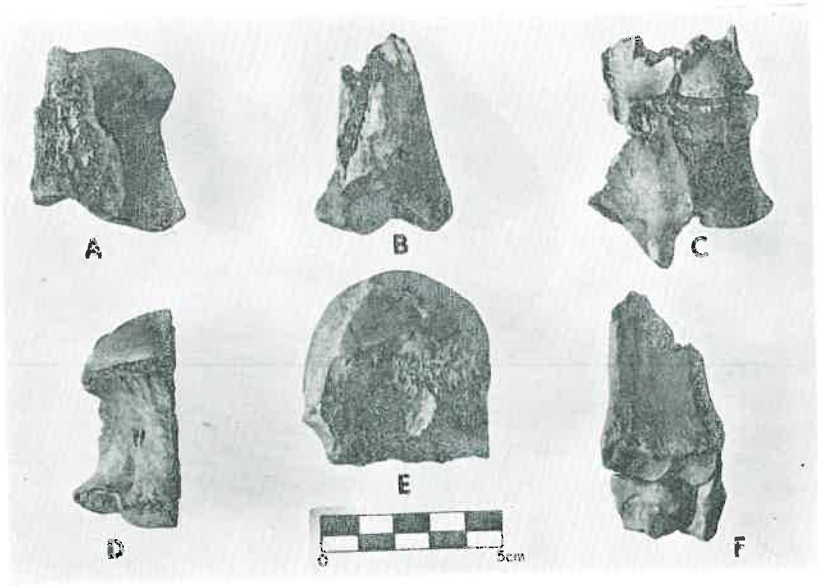

FIGURE 21: Selected faunal remains from Camp Payne, Wyoming. See Table 14 for key.

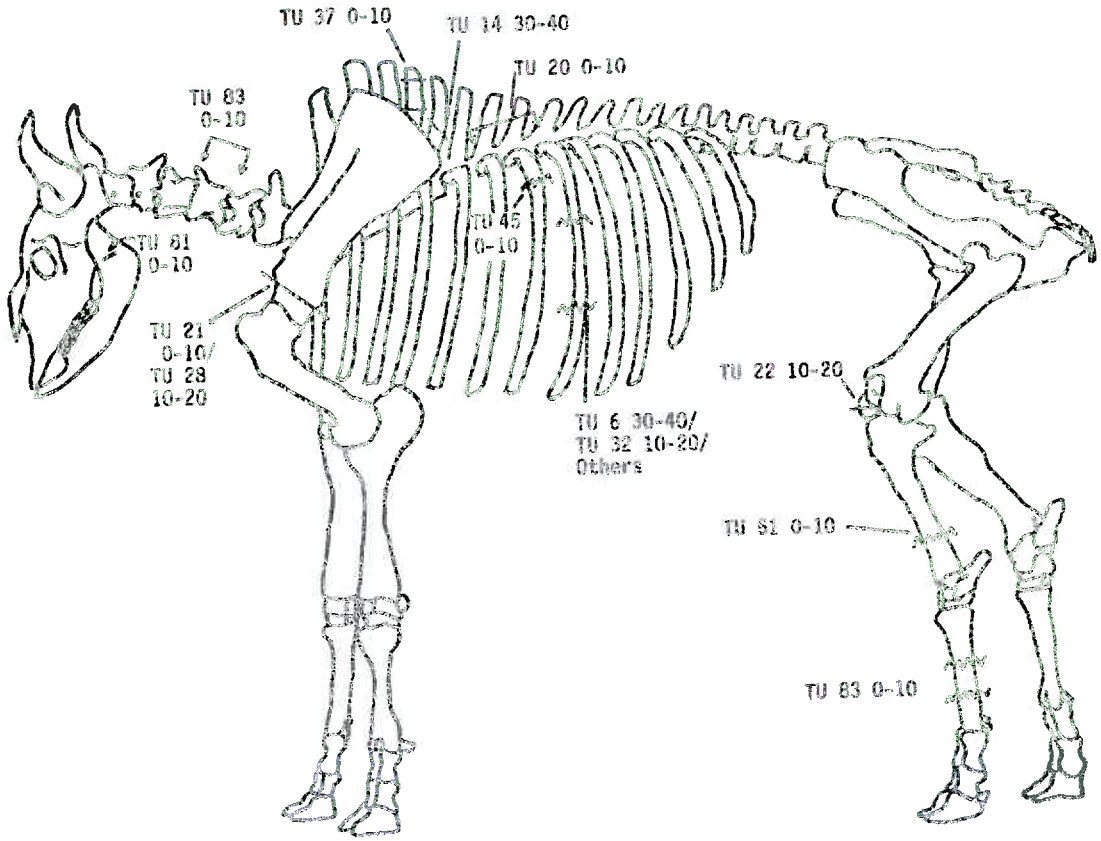

FIGURE 22: Schematic view of Bos taurus, showing butchering marks from Camp Payne faunal remains.

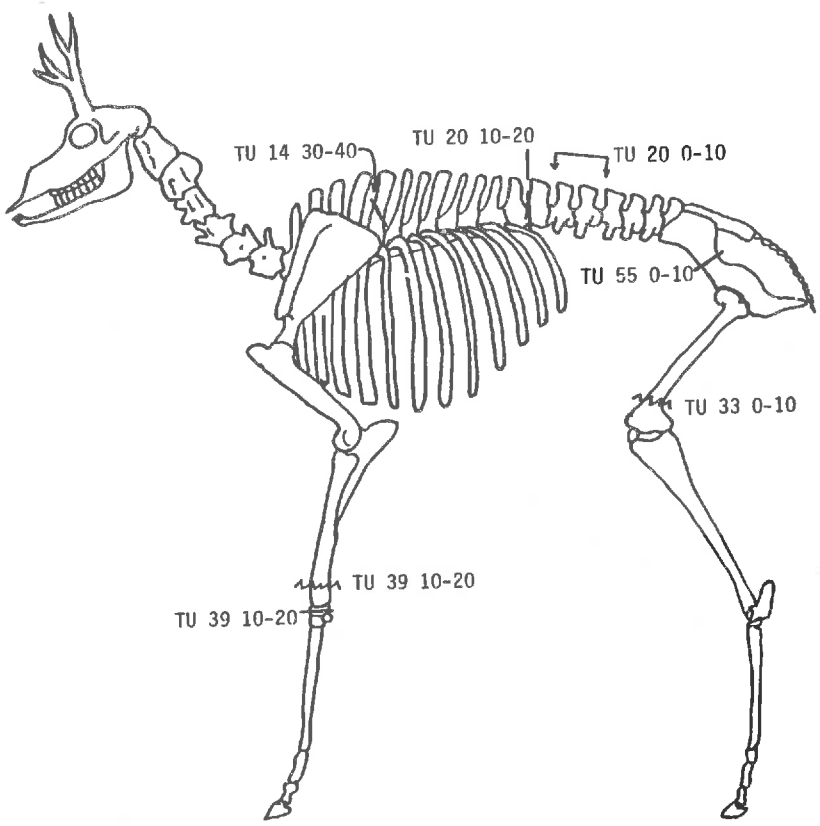

FIGURE 23: Schematic view of Odocoileus sp., showing butchering marks from Camp Payne faunal remains (also includes Antilocapra americana).

have both spiral breaks and knife/hatchet cut marks across the shafts in a number of places (see Figure 22). Most of these breaks occur near the distal ends of the long bones, probably a result of a major step in large muscle mass detachment.

A similar pattern is evident in the Odocoileus sp. elements and those identified as medium to large artiodactyl (Figure 23). The Sus scrofa elements have saw cuts across the innominate elements as well. One Lepus sp. innominate showed a cut mark, probably a knife cut.

Taken together, these butchering marks suggest a fairly regular pattern of dismemberment, including halving of the carcass, removal of large muscle masses at the fore and hind limbs and separation of the vertebral column and ribs into smaller segments. It is suggested that all animals, wild and domestic, were butchered as a whole at or near the site given the presence of skull elements and lower limb and foot bones.

DISCUSSION

The artifacts recovered from the surface and excavated deposits tend to confirm the presence of a military occupation at site 48NA867. These are most likely the remains of the site of Camp Payne, established in the summer of 1858. While some of the artifacts may have been deposited

as a result of earlier occupations by the military at Richard's Bridge, the weight of the evidence points to the site being that of Camp Payne.

Features

Several of the features mapped and excavated contained sandstone slabs or rubble, many of which had been reddened from a fire or fires. These include Features 1, 3, 5, 7, 9, 10, 14, 15, 17(?), 22, 23, 25-28. These features appear as low mounds of sandstone sometimes with an associated depression (some of these may be from artifact hunter's disturbance). Two roughly east-west directed lines of these features are present supporting the idea that they represent the remains of prearranged structures, possibly lines of barracks tents.

Excavations into Feature 7 revealed artifacts that indicate a military use. In Test Units 1 and 10, pieces of wood (from floor boards?) were found, as well as a piece of many blue uniform cloth. The burned sandstone mound is likely the remains of a stone fireplace and chimney from the Sibley tent (see above reference to Sibley tents at Camp Payne in History chapter).

The military buttons also provide evidence for this location as Camp Payne. Buttons of dragoons, artillery, infantry and cavalry dating to the 1850s or before were found. The historical account indicates that at various times all of these units were at Camp Payne.

The 1856 half dime might indicate one of the earlier occupations at Richard's Bridge. Its presence in the Midden 1 deposits indicates that the coin could not have been deposited prior to 1856; it is likely that it was deposited during the military occupation of the site. Coins, however, are often carried around for several years after the date made and circulated. Thus, the coin could be from the 1858-1859 military occupation. The 1865 penny post dates the Camp Payne occupation. Richard's Bridge was destroyed in 1865, so the coin could be from a presence at the Camp Payne site during this time or after 1865 to the present given that it was found on the surface.

The kind of lead projectiles is interesting in this regard. All load balls and Minie' balls are from muzzle loading muskets, rifles, pistols, or revolvers. All of the types, calibers and deformities indicated late 1850s weaponry. The .58 caliber Minie' balls are most likely those made for the 1855 Springfield musket or rifled musket. The crimping visible on several of the .44 and .36 caliber round balls is indicative of the forcing of the ball with the loading level into a Colt or Remington revolver. The rifling marks on the same round balls is also indicative of having been fired from the rifled barrel of such a revolver. The U.S. military issued Colt and Remington revolvers during the late 1850s. Both musket and pistol percussion caps were found, the kind which would have been used with the Springfield and Colt or Remington arms.

The presence of period clay pipes also provides good evidence of the occupation of 48NA867 in the mid to late 1850s. Both the Franklin Pierce and Henry Clay commemorative pipes are evidence of this.

The presence of cow and pig bone is supporting evidence as well. From the historical account, we known that with the

Roberts expedition of 1858, two herdsmen were present. From this we assume domestic animals were brought along with the expedition. The butchering analysis revealed that the domestic animals were likely processed at the site. The presence of wild animals indicates that some hunting also occurred.

The other artifacts are somewhat less instructive as to the time of the occupation. The glass and ceramic artifacts have a wider range of manufacture dates, but are likely the remains of food and liquor supplies and stores. Some of these food items and liquor items could have been obtained from Richard's Trading Post or from parties of emigrants who crossed at Richard's Bridge.

The window glass indicates that more permanent structures were built at the site. Tom Nicholas (personal communication) indicated that a cabin was present near the center of the site until recent times (possibly Feature 5). The rectangular arrangement of prepared sandstone slabs in Feature 5 may be all that remains from this structure. Window glass and a lag fragment were found in Feature 5.

The presence of square nails of various types also indicates some construction took place. This could have been for the floor boards of the Sibley tents or other structures such as Feature 5.

The two midden areas contained the greatest concentrations of period artifacts. Given the presence of military buttons, lead balls, percussion caps, clay pipes, cut domestic animal bone and other items, it can be safely assumed that these were the trash dump areas for the military occupation of Camp Payne. The presence of coal and wood charcoal and clinker in the middens attests to these having been refuse areas. It is likely that the Sibley tents and other structures were cleaned on occasion and fireplaces cleaned out with the refuse dumped over the northern slopes of the site.

Finally, there is good evidence for an Indian camp at the site. There is a concentration of lithic artifacts at the eastern edge of the low ridge including several pieces of Crow pottery. The projectile points (both lithic and metal) found on the surface are from the Late Prehistoric period possibly the Protohistoric or contact period. It is possible that these artifacts are the remains of a contemporaneous occupation of Indian groups with the military camp.

In sum, a wealth of new archeological and historical data have been uncovered regarding the site of Camp Payne. Much remains to be learned. The site is large and contains many unexplored areas and features which could aid in interpreting the site. This site represents a unique opportunity to study both the early history of Wyoming and the relationship between Europeans and Indians. The site deserves to be preserved for this study.

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GEOLOGY OF CAMP PAYNE-RICHARDS TRADING POST SITE, NATRONA COUNTY, WYOMING

BY
ART RANDALL

LOCATION

The Camp Payne-Richard's Trading Post Site is located three miles northeast of the Casper Post Office, and one-half mile north of the Evansville City Hall (Figure 1). The site is located on the south side of a meander of the North Platte River, and on both the east and west sides of the extension of Williams Street in Evansville.

INTRODUCTION

The main portion of Camp Payne (48NA867) is located within an area that is enclosed by a high steel fence. Richard's Trading Post and the accompanying Camp Davis (Fort Clay) (48NA866) are situated in an open area (Figure 5). It is believed that from 1832 and 1861, the early explorers, namely Captain Bonneville, Chiles, John C. Fremont, Captain Stansbury, Captain Raynolds and Robert Stuart, passed in the vicinity of the Camp Payne-Richard's Trading Post Site. The Mormons, Oregon Trail emigrants, and the Pony Express riders also passed nearby.

Similar to many historic sites in Wyoming, the Camp Payne-Richard's Trading Post Site is located on the upper and lower floodplain of a major stream.

Credit is due to Lawrence K. Malnor, of the Casper District Office of the Bureau of Land Management for information on the classification of soils.

STRUCTURAL SETTING

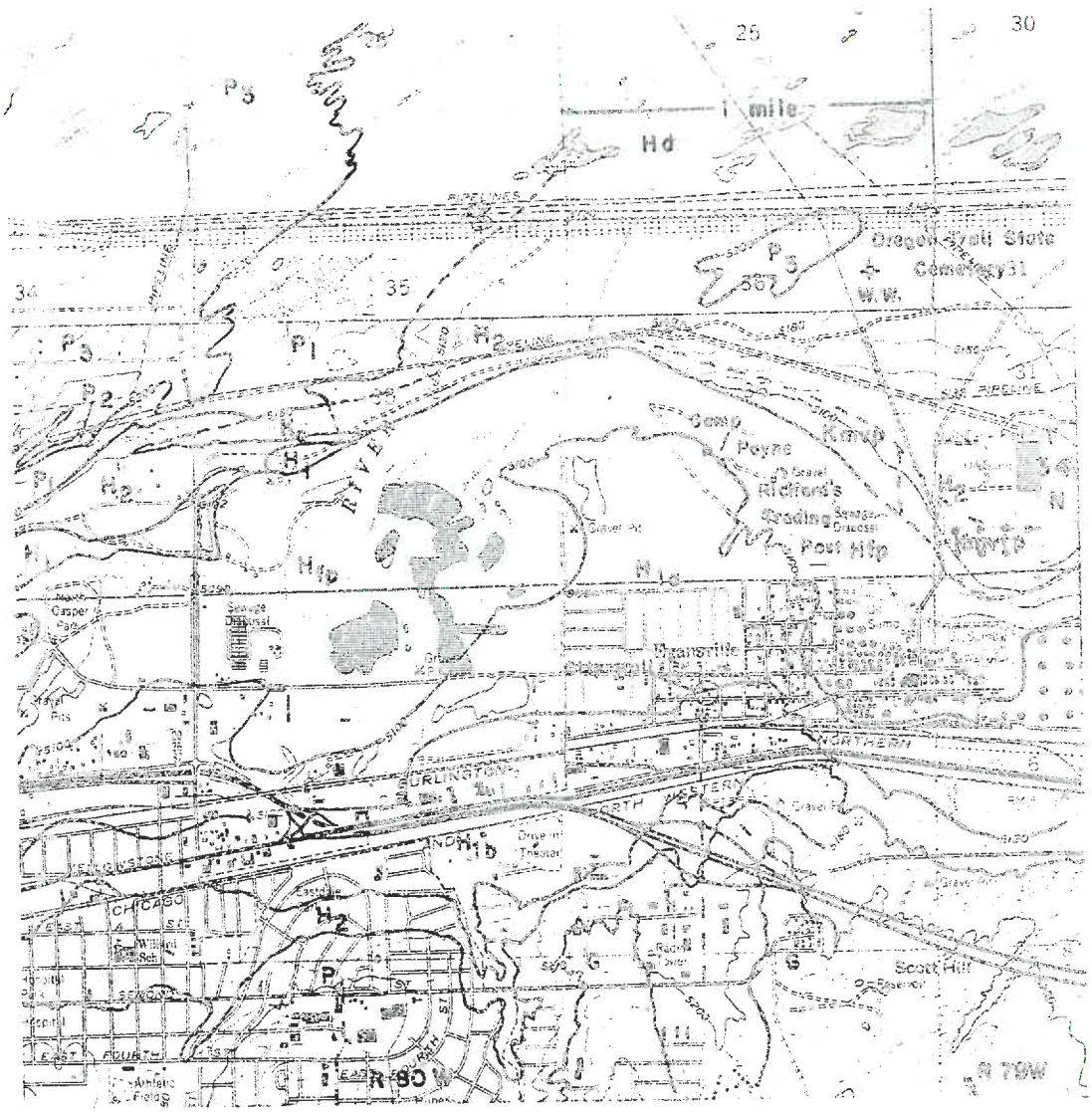
The Camp Payne-Richard's Trading Post Site is located on the southwest flank of the Powder River Basin. Rocks of Upper Cretaceous age dip gently to the east.

A beautiful view of the river valley is afforded from the Camp Payne-Richard's Trading Post Site. The soldiers and civilians were able to see clearly in all four directions, with an especially good view of present-day Casper Mountain.

STRATIGRAPHY

Regional

The Parkman sandstone of the Mesaverde Formation crops out and is exposed as a cliff on the north bank of the North Platte River (Figure 2). The north abutment of the old Reshaw (Richard's) bridge consists of the upper massive unit of the Parkman sandstone. Holocene floodplain and terrace



Hd - Latest Holocene Stabilized Parabolic Dunes
Hfp- Latest Holocene Floodplain
H_1 - Holocene Terrace (600-700 y.o.)
H_1a- Younger Holocene Terrace
H_1b- Older Holocene Terrace
H_2 - Early Holocene Terrace
W.W.- Water Well
G - Gravel

P_1 - Youngest Pleistocene Terrace
P_2 - Middle Pleistocene Terrace (10,000 y.o.+.)
P_3 - Oldest Pleistocene Terrace
Knvtp- U. Cretaceous Mesaverde - Teapot Member
Knvp- U. Cretaceous Mesaverde - Parkman Member
K_c - U. Cretaceous Cody Shale

FIGURE 1: Topographic-Geologic map of Camp Payne-Richard's Trading Post vicinity, Natrona County, Wyoming.

FIGURE 2: Upper Parkman Sandstone exposed in north bank of North Platte River, Camp Payne, Wyoming.

material overlie the Parkman at the Camp Payne-Richard's Trading Post Site.

The marine Cody shale and the Parkman-Teapot members of the Mesaverde Formation are exposed within one and one-half miles of the site.

Holocene and Pleistocene river terraces are well developed in the area, and the bluffs on the north side of the river are capped by latest Holocene stabilized parabolic sand dunes.

Local

The excavations of the Camp Payne-Richard's Trading Post Site are in sediments of late Holocene terrace and floodplain deposits (Figure 1). Well developed Holocene and Pleistocene terraces are present about two miles west of excavations (Albanese and Wilson, 1974). These units continue eastward into the area of the excavations. However, they are obscured by sand dunes which are present on the north side of the North Platte River.

In the late 1850s, coal was used extensively as the major source of fuel at Camp Payne and Richard's Trading Post. Thin lenticular coal seams varying in thickness from 10 to 20 cm are present in the Upper Parkman sandstone and shale that crop out in the north bank of the North Platte River (Figure 2).

A water well was drilled for the Oregon Trail State Veteran's Cemetery in the spring of 1983, and its location is shown in Figure 1. Figure 3 is a columnar section of this well showing the Upper Cretaceous formations that were encountered in the well-bore. Note the occurrence of coal in the upper Parkman. This is the same coal that was mined by the soldiers and civilians at Camp Payne.

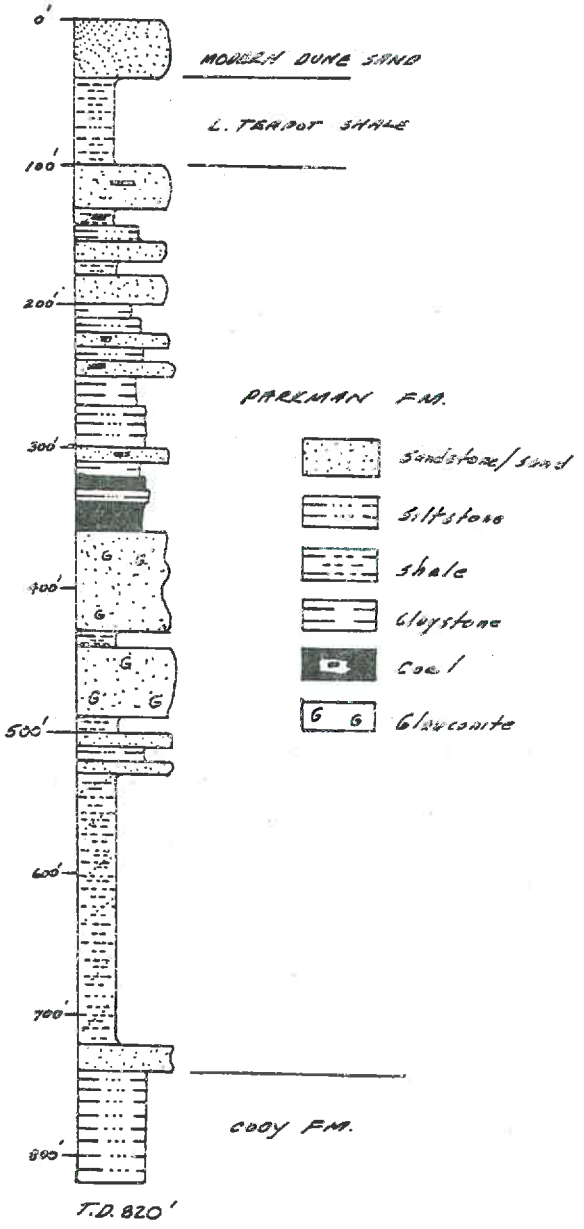


FIGURE 3: Columnar section of Oregon Trail State Veterans Cemetery Water Well No. 1 ($NE\frac{1}{4}$, Sec. 36, T34N, R79W, Natrona County, Wyoming).

Figure 4 is a topographic and soils map compiled from the files of the Bureau of Land Management. The proposed route of extended streets of Evansville which will eventually cross the river to the Oregon Trail Cemetery are shown in the lower right-hand corner of the map.

Both of the Camp Payne middens are located in Nihill gravelly loam, while the Richard's Trading Post Site consists of Evansville sandy loam. Most of the Camp Payne hearths and fireplaces are situated on McRae loam. Petrie clay loam is present within a small drainage system located southwest of the middens. Halverson loam is common south of the fenced area of Camp Payne.

The following is a brief summary of the mapped soils in the Camp Payne-Richard's Trading Post Area:

Fj31-A - Petrie Clay Loam

This soil consists of deep, calcareous, moderately alkali, well-drained clayey soil on nearly level valley fills. It may have a saline water table in the lower part of the root zone during some seasons of the year. It may contain some gravel, and parts of some areas may be covered with slick spots. Runoff is rapid and permeability is slow. The water erosion hazard is severe, and only alkali-tolerant plants grow well.

H8-A - Halverson Loam

This unit is associated with the oldest surface obviously related to present drainage systems. It is normally considered to be a 100-year floodplain.

The soil consists of deep, calcareous, well-drained loams on floodplains along the North Platte River. It occurs on nearly level slopes and may contain some gravel. Runoff is slow to medium and permeability is moderate.

H13-A - McRae Loam

The McRae loam is also associated with the 100-year floodplain. It occurs on zero to

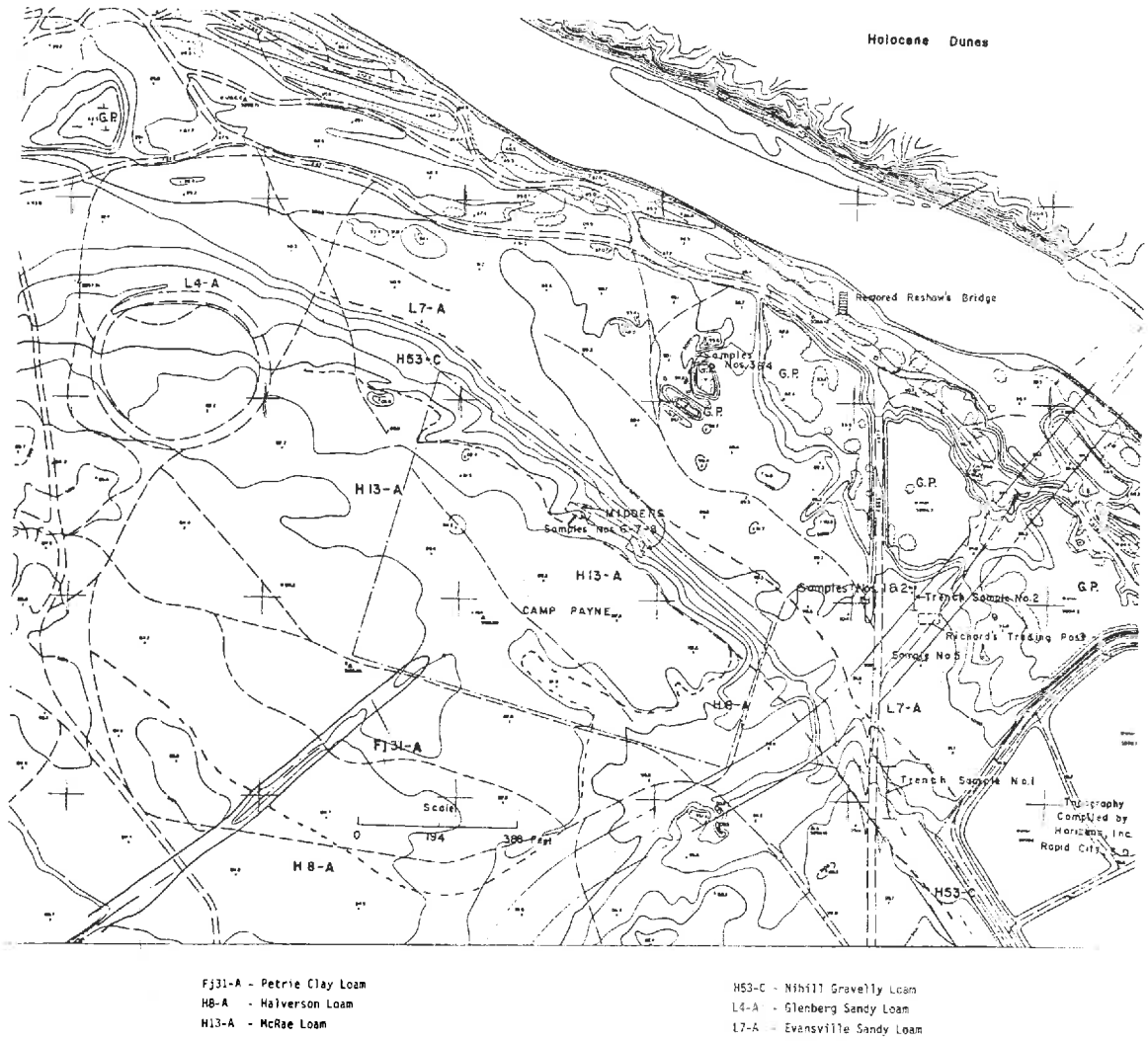


FIGURE 4: Topographic-Soils map of Camp Payne-Richard's Trading Post vicinity, Natrona County, Wyoming.

three percent slopes. It occupies nearly level stream terraces and alluvial fans.

H53-C - Nihill Gravelly Loam

This soil occurs on the upper floodplain of the North Platte River and typically consists of undulating corrugations produced by overbank channeling. Prior to the establishment of upstream water control structures, this surface had a flooding frequency of about 5 to 20 years. The age of this unit is probably middle Holocene.

L4-A - Glenberg Sandy Loam

This sandy loam occurs on the lower floodplain and consists of moderately deep to deep calcareous, well-drained soils over sand and gravel. Runoff is slow and permeability above the sand and gravel is moderately rapid.

L7-A Evansville Sandy Loam

This soil occurs on zero to three percent lower floodplain slopes. The soil has thin, calcareous, sandy loam surface layers over stratified sand and

gravel. This soil is moderately well-drained, has slow runoff, and very rapid permeability above the water table. The wind erosion hazard is severe if the vegetation is destroyed or the soil disturbed (see Figure 5).

SITE SAMPLE DESCRIPTIONS

Sample No. 1

Located in Evansville sandy loam (see Figures 4 and 6). The sand is buff to very light brown, very coarse-grained, some granule-sized grains, sub-angular to well-rounded, 95 percent quartz and feldspars with 5 percent dark minerals.

Sample No. 2

Located in Evansville sandy loam (see Figures 4 and 6). The silt is buff colored with some very fine-grained sand, horizontal bedding, very slightly calcareous, 85 percent quartz and feldspar and 15 percent mafic minerals.

Sample No. 3

Located in Evansville sandy loam on edge of a gravel pit (see Figures 4 and 7). This gravel contains very coarse-grained sand and pebbles that consist of 50 percent quartzite and 50 percent jasper, gneiss, and schist.

Sample No. 4

Located in Evansville sandy loam on edge of a gravel pit (see Figures 4 and 7). This sample contains sand that is fine to very fine-grained, buff, common large quartz grains. The composition is approximately 90 percent light and 10 percent dark minerals.

Sample No. 5

Located in Evansville sandy loam at Richard's Trading Post Site (Figures 4 and 8). This sample consists of siltstone, buff, very slightly calcareous, very fine-grained sandy, some rocks, common rose quartz grains, 95 percent light and 5 percent dark minerals.

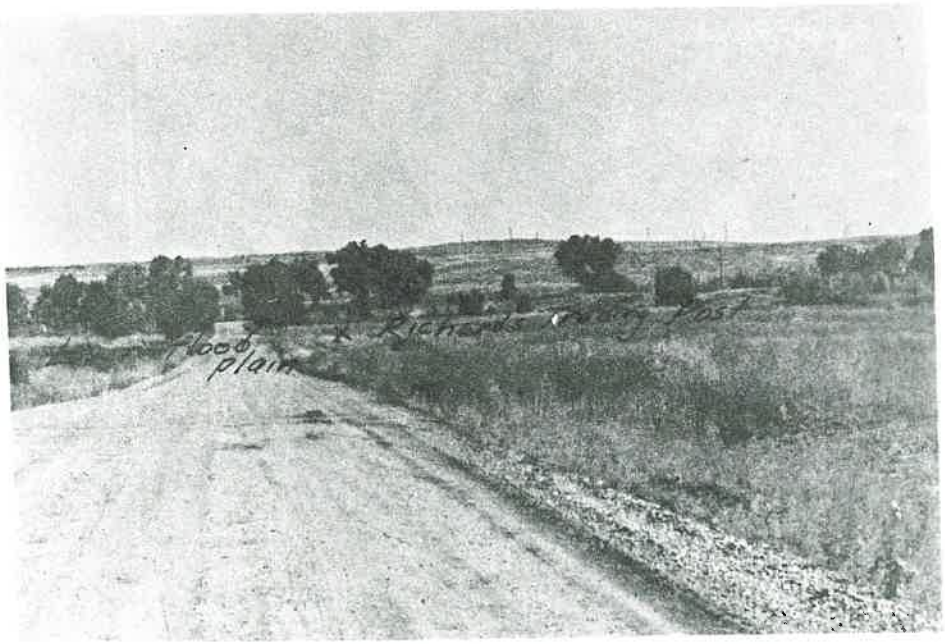


FIGURE 5: Looking north at Camp Payne toward Evansville Sandy Loam (L7-A) of lower floodplain.

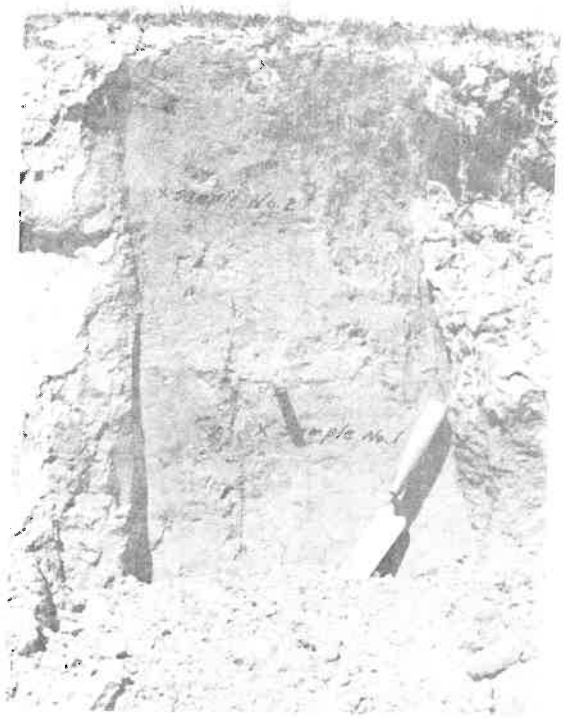


FIGURE 6: Erosional cut exposing samples no. 1 and 2 from Evansville Sandy Loam.

Sample No. 6

Located in McRae loam at TU6-6½N at the main midden at the Camp Payne Site (Figures 4 and 9). The midden rubble always underlies this sand unit. The sample consists of sand - fine to coarse-grained, medium gray to yellowish gray, scattered bone and charcoal fragments, roots, and burnt shale. It is approximately 3 cm thick.

Sample No. 7

Located in McRae loam at TU6-6½N at the main midden, Camp Payne Site (Figures 4 and 9). This is the main midden zone and is approximately 21 cm thick at this locality. It overlies a barren, clean sand unit that is widespread in the main midden. The midden zone consists of sand and silt, charcoal, clinkers, rare pebbles and historic artifacts. The sand varies in size from very fine to coarse.

FIGURE 7: Gravel pit exposure from which samples 3 and 4 were taken, northeast of Camp Payne.

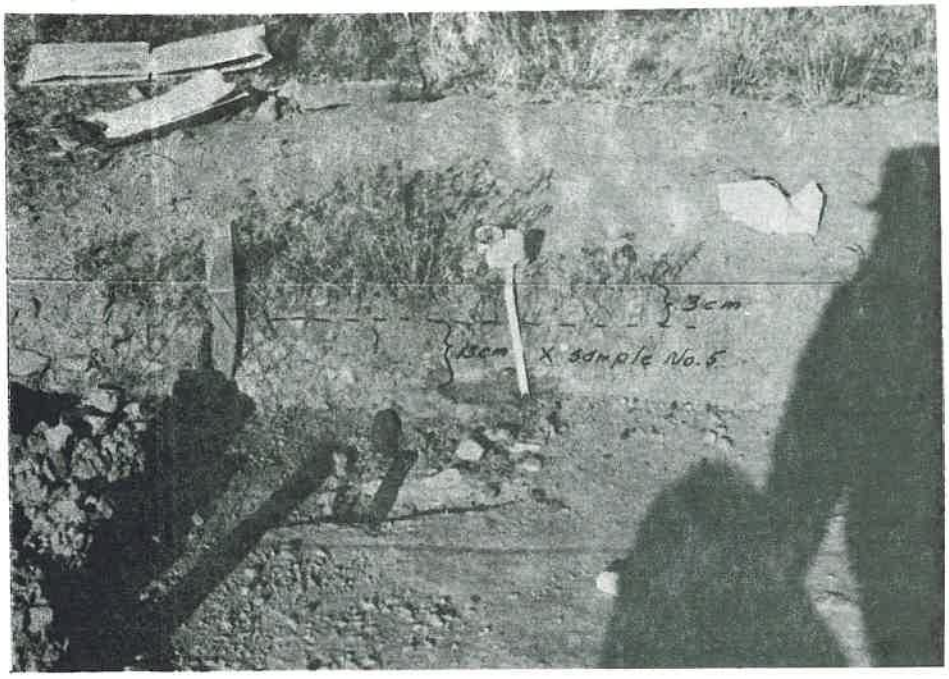


FIGURE 8: Location of sample no. 5 at Richard's Trading Post site, Wyoming.

FIGURE 9: Location of samples No. 6, 7 and 8 at Midden 1 (Test Units 6 and 6½N), Camp Payne, Wyoming.

Sample No. 8

Located in McRae loam at TU6-6½N at the main midden, Camp Payne Site (Figures 4 and 9). This clean sandy unit underlies the main midden zone, and is quite widespread. It consists of sand - buff to tan, coarse to very coarse-grained, angular to well-rounded, very slightly calcareous, 90 percent light and 10 percent dark minerals.

Trench Sample No. 1

Located in Nihill gravelly loam south of the Richard's Trading Post Site (Figures 4 and 10). The sample was taken from a depth of 94 cm. It consists of sand - buff, fine to medium-grained, poorly sorted, angular to sub-rounded, highly calcareous, silty, about 10 percent large sized sand grains, 90 percent dark and 10 percent light minerals.

Trench Sample No. 2

Located in Evansville sandy loam at the Richard's Trading Post Site (Figures 4 and 11). This sample was collected at a depth of 65 cm, and it consists of sand - fine-grained with occasional medium and large grains, buff to tan in color, some iron staining, angular to well-rounded, slightly calcareous, 95 percent light minerals, and 5 percent dark minerals.

CONCLUSIONS

A variety of soils are present in the Camp Payne-Richard's Trading Post Site. These soils are developed on Holocene floodplain and terrace deposits.

The middens and fireplaces are located in Nihill and McRae loams on Holocene river terraces.

FIGURE 10: Trench sample no. 1, from trench located just south of Richard's Trading Post site.

FIGURE 11: Trench sample no. 2, from trench located at Richard's Trading Post site.

The fireplace, hearth and bead sites at Richard's Trading Post are in Evansville sandy loam on the Holocene floodplain.

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BOOK REVIEWS

Bones: Ancient Men and Modern Myths. LEWIS R. BINFORD. Academic Press, New York, 1981. xxviii, 320 pp., figures, tables, references, index. $37.50 (cloth).

As with most of his work, Binford's approach to the study of skeletal assemblages is both a provocative and significant addition to archaeological research. The volume begins with a fundamental observation about the archaeological record. That is, our ideas regarding human behavior during the ancient past often are more dependent on the interpretation of faunal assemblages, with or without associated artifacts, than on the exclusive interpretation of stone tools (Page 1). Archaeologists in Wyoming have long been aware of the interpretative potential of bone assemblages, and Binford's book opens new avenues for creative analysis.

Binford argues for a middle-range theory in archaeology. This means research directed to observations of the behavioral dynamics responsible for the patterns present in archaeological assemblages. To understand these dynamics, scientists have to look beyond the archaeological record. One way to do this is to study behavioral tendencies in living systems, such as surviving populations of hunters and gatherers, or animal predators who scavenge bone assemblages. Both human and animal behavior can modify bone assemblages that eventually become part of the archaeological record.

Other approaches to middle-range research include historical archaeology and experimental archaeology. In the former, written records may exist that detail specific events which influenced patterns observed in the archaeological record. In the latter, scientists can replicate certain types of behavior through controlled experiments. For instance, Wyoming archaeologists are very familiar with the research potential in stone tool replication through flint knapping.

These avenues for "actualistic" study allow archaeologists to evaluate what agents may produce particular patterns seen in archaeological site assemblages. Middle-range research, then, is designed to help scientists define diagnostic criteria from direct behavioral observations that can be applied to pattern recognition in assemblages from the archaeological record.

The book is divided into three parts comprising a total of seven chapters. Part I consists of two chapters with the first being a summary of more traditional approaches to the interpretation of artifacts and archaeological assemblages. Binford discusses unwarranted assumptions archaeologists have made in the past that have influenced the meanings assigned to patterns in the archaeological record. For example, we must be careful not to assume that artifacts and bones were associated in the same behavioral activity just because they co-occur in an archaeological deposit. Stone tools

and animal bones can enter the archaeological record through dramatically different processes.

Chapter two reviews Binford's ideas on middle-range research and the use of actualistic studies. He outlines his theoretical position and argues for more robust and creative methodology.

Part II focuses more specifically on the utility of middle-range research in the study of bone assemblages. Chapter three is a cogent, well illustrated presentation detailing patterns of bone modification by non-human agents. One example is animal scavenging behavior. Binford's research shows how gnawing produces punctures, grooves and breaks on bone. If a researcher is not careful, these attributes may be mistaken as evidence for butchering by humans.

Chapter four analyzes bone modification by humans, and is largely based on Binford's first hand experiences with the Nunamiut of Alaska. Several aspects of their hunting economy are carefully documented and specific behavioral activities that produce characteristic types of bone modification are illustrated.

Chapter five focuses on assemblage composition. The process of archaeological site formation can be very complex. Numerous agents and events can alter the content, character and spatial structure of an assemblage during site occupation and after it is abandoned. This chapter discusses how patterns of bone modification and other assemblage characteristics can enter the archaeological record from diverse causal agents. Individual bones can be both butchered by man and modified by carnivore gnawing. Bone elements also may be discarded by scavenging animals on a human habitation site. Binford even postulates how early human groups themselves may have scavenged animal carcasses originally disarticulated by carnivores.

Part III may be the most controversial section in the book. In chapter six, Binford applies these new pattern recognition criteria to a reanalysis of the archaeological record for early man at Olduvai Gorge in the Great Rift Valley of Africa. His interpretation that Olduvai bone assemblages may indicate human scavenging rather than hunting contrasts with ideas of other researchers in the area. Chapter seven is a concise summary which offers Binford's general conclusions.

Binford's volume on faunal analysis is not without its critics. The book has been widely reviewed by numerous scientists since its release in 1981 (e.g., Bunn 1982, Grayson 1982, Isaac 1983). In addition to the Olduvai Gorge argument, Binford's review of previous research on faunal analysis is one area where criticisms have been leveled. Some readers may consider this aspect of the book a bit rash, yet Binford does succeed in drawing our attention toward highly feasible alternatives to traditional interpretations of bone modification.

Overall, "Bones" is a major contribution to the study of human behavior and the archaeological record. It is particularly relevant to those who study prehistoric hunter-gatherers. The text is quite readable, even though some portions are fairly technical. The cost of the volume may be considered high by some standards, but for Wyoming archaeologists interested in bison kills and bonebeds, the money is well spent.

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Peoples of Prehistoric South Dakota. LARRY J. ZIMMERMAN. University of Nebraska Press, Lincoln and London, 1985, x + 143 pp. $16.50 (cloth).

The relationship between amateur and professional archaeologists is critical to the growth of archaeology as a science. In Wyoming the relationship is a working one and many of the significant sites in the state would have gone unnoticed, without astute concerned amateur archaeologists. It is therefore encouraging to see the publication of a work directed at the amateur archaeologist and lay person dealing with the prehistory of South Dakota. Zimmerman is to be commended for cultivating the amateur/professional relationship by writing a book which is well organized and straight forward and of interest not only to readers in South Dakota, but to all those interested in prehistory and archaeology.

The goal of Prehistoric Peoples of South Dakota is to present a simplified overview of South Dakota prehistory to a non-professional audience. While the book could have been a little less simplified, Zimmerman has succeeded in bringing together a wide variety of information about South Dakota prehistory and the manner in which archaeologists conduct research. The greatest faults of the book are those of omission, but that is the dilemma of overviews, how does one write a succinct, readable book that will appeal to a diverse audience? The answer is that an overview author cannot please everyone; that is where book reviewers come in to point out the strengths and weaknesses of a work and to suggest ideas or literature that will help readers fill out their knowledge of a subject. One of the major omissions of Peoples of Prehistoric South Dakota is that Zimmerman never explicitly states that his archaeological perspective is a culture history - normative view of archaeology and prehistoric cultures. The sense that one gets from Zimmerman is that although archaeologists may disagree on interpretations there is something of an implicit agreement among them as to how archaeology should be conducted and the conceptual perspective under which research is carried out. The fact is that the 'implicit agreement' does not exist. There are several competitive theoretical perspectives in archaeology today. I would suggest that the reader consult Binford's (1983) In Pursuit of the Past or

Thomas's (1979) Archaeology for different views on the theoretical and methodological perspectives that exist in modern archaeology.

In the first two chapters, Zimmerman outlines what he believes are the goals of archaeology and the ways in which archaeologists go about achieving those goals. Archaeology's goals, as presented by Zimmerman, are reconstruction of past behavior and cultures, understanding culture change, and making broad generalizations about culture (pp. 5-7). I disagree with the normative reasoning behind these goals and point out that there are other equally valid goals. Chapter Two also provides a concise rundown of how archaeologists approach fieldwork, artifact analysis, and interpretation of the archaeological record. While there are many things that archaeologists do and don't do when excavating, analyzing and interpreting cultural materials that could have been included in this section, Zimmerman does a good job of presenting the topic and allowing the reader an insight into the more technical aspects of fieldwork and analysis.

Chapter Three is an abbreviated history of South Dakota archaeology which is interesting and spotlights the major figures and institutions that have been the prime movers in the development of archaeology in South Dakota. For many people, the archaeology of South Dakota means the work conducted by the Smithsonian River Basin Surveys. However, Zimmerman demonstrates quite well that the River Basin Surveys were only one part of the development of archaeology in the state, and that credit goes equally well to amateurs, professionals, state and federal agencies.

Chapters Four through Six, respectively titled "The Land", "The People", and "The Tools", also form a logical unit which serves as an introduction to the environmental contexts and material remains of the archaeological record of South Dakota. The chapters are quite condensed in their treatment of the topics, however this has been handled well by Zimmerman. My only objection is to the section on "Bone Tools" (pp.43-44) which conveys the impression that bone tools were common place, particularly in the earlier time periods. I would point out that the topic of bone technology is a highly controversial one which is far from being resolved at this point in time. Readers interested in the bone tool debate should consult Binford's (1981) Bones: Ancient Men and Modern Myths and the work of Bonnichsen and Will(1980) for opposing views on this subject.

Zimmerman begins to chronologically chart the prehistory of South Dakota from Paleo-Indian period to the time of European contact in Chapters 7 - 15. Chapters Seven and Eight are the most glaringly deficient in terms of the depth of treatment and the near refusal to consider Paleo-Indian and Archaic period archaeology outside of South Dakota, a situation which is reversed in later chapters when information from Nebraska, Iowa, and North Dakota is employed freely. While I realize that only a few Paleo-Indian and Archaic sites have been discovered in South Dakota, Zimmerman does considerable injustice to the presentation of these early time periods by almost totally ignoring the wealth of information from sites in eastern Wyoming. It is unfortunate that Frison's (1978) Prehistoric Hunters of the High Plains is left off the list of suggested readings at the end of the chapters since this is probably

the best available synthesis on Paleo-Indian and Archaic archaeology on the Plains.

Chapters 9 through 15 cover the development of sedentary village cultures from the hunting and gathering of Woodland Village period to the later Middle Missouri maize agriculturalists and finally of the rise of the historic bison hunters. While much of the substance of these chapters is straight description of culture traits and the finds at various sites in South Dakota, the reasons given for culture change through time, a confusing combination of environmental change and diffusion of ideas ultimately from Central America, are open to debate (for instance, see Caldwell 1977 and Wood 1977). There is no doubt that cultural complexity and human population density increased dramatically from the Woodland Village period to historic European contact, the reasons for these changes are still not known. Prospective readers of Peoples of Prehistoric South Dakota should approach these chapters with a healthy skepticism. The archaeology of the Middle Missouri is long on imaginative interpretation and short on theoretical explanation.

"The Future of South Dakota's Past" (Chapter 16) is one of the more important efforts of the book. Zimmerman details the importance of conserving and judiciously using the cultural resources of South Dakota, or any state for that matter. Furthermore, there is encouragement to the amateur and lay person to become "active participants" (p. 133) in the preservation of archaeological sites by joining the South Dakota Archaeological Society or by enrolling in a certification program for archaeological training. This is a healthy atmosphere for both professionals and amateurs and Zimmerman is to be congratulated for promoting it.

Overall, I would recommend this book to the lay person or amateur archaeologist. Professional archaeologists may find it useful if they are not familiar with the archaeology of South Dakota. Wyoming readers may find it particularly interesting since the subject matter is a part of the Plains region with a very different kind of archaeological record than they may be familiar with. The 75 illustrations and photographs are well executed and organized with the text and do give the reader a feel for the material remains of the prehistoric peoples of South Dakota. The writing style is quite readable and the organization of the chapters and topics is good.

The reader should be aware, as I have stated previously, that there are omissions which hurt the total presentation. The price of the the book may also give prospective readers pause. A work of this type is intended for a wider audience than archaeological professionals and a lower priced paperback version may have greater acceptance. However, as a starting point for an understanding of the archaeology of South Dakota Peoples of Prehistoric South Dakota allows access to that information.

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