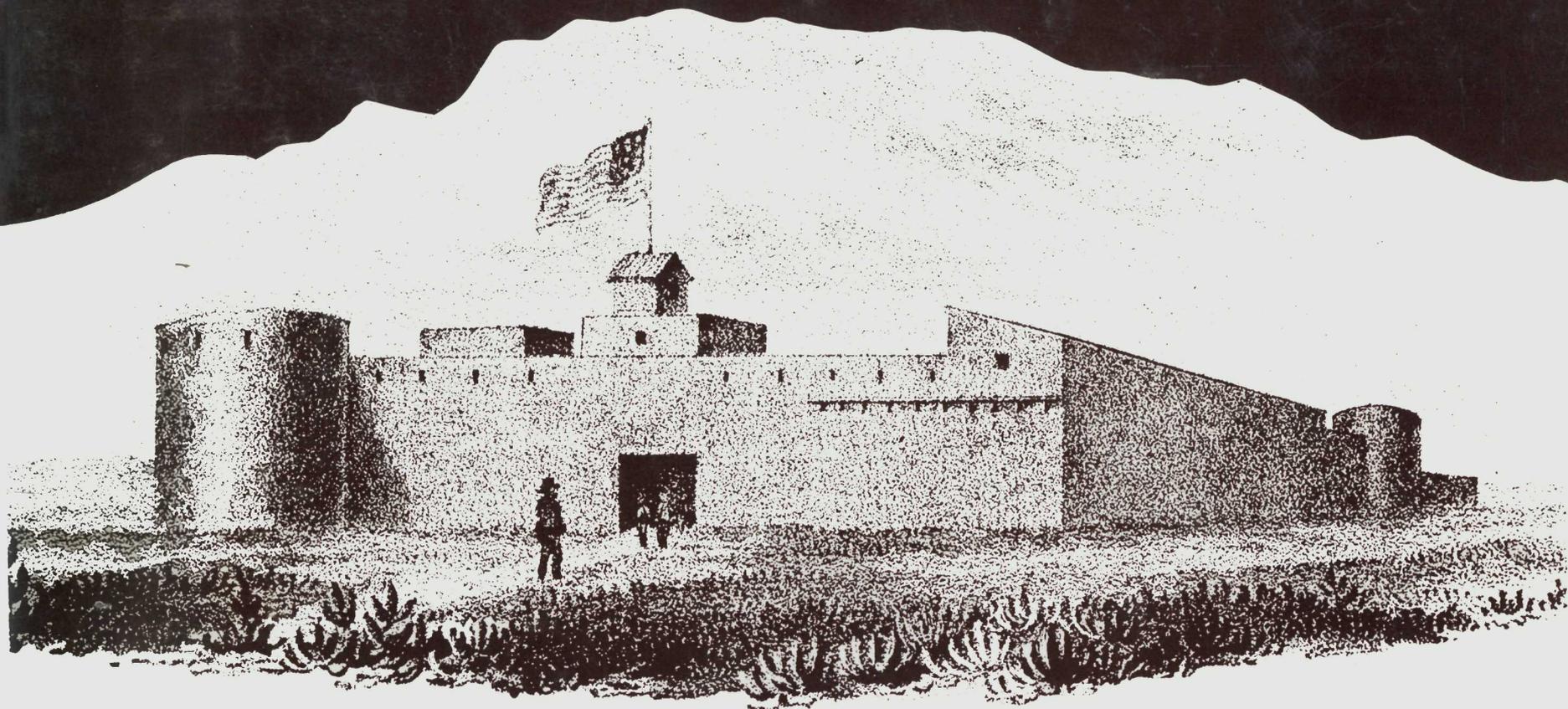


BENT'S OLD FORT

An Archeological Study



BY JACKSON W. MOORE, JR.

WITH AN HISTORICAL INTRODUCTION
BY DWIGHT E. STINSON, JR.

BENT'S OLD FORT

An Archeological Study

Bent's Old Fort has long been recognized as a key site in the history of westward expansion. Advantageously located on the north bank of the Arkansas River, the fort was able to tap both the rich Santa Fe Trail traffic and the lucrative Indian trade during the early nineteenth century.

For nearly two decades Bent's Old Fort served as an important and prosperous trading center. As an outpost of American civilization, it was also a natural stopping place for many prominent figures of the day, including Marcus Whitman, Francis Parkman, George F. Ruxton, and Kit Carson.

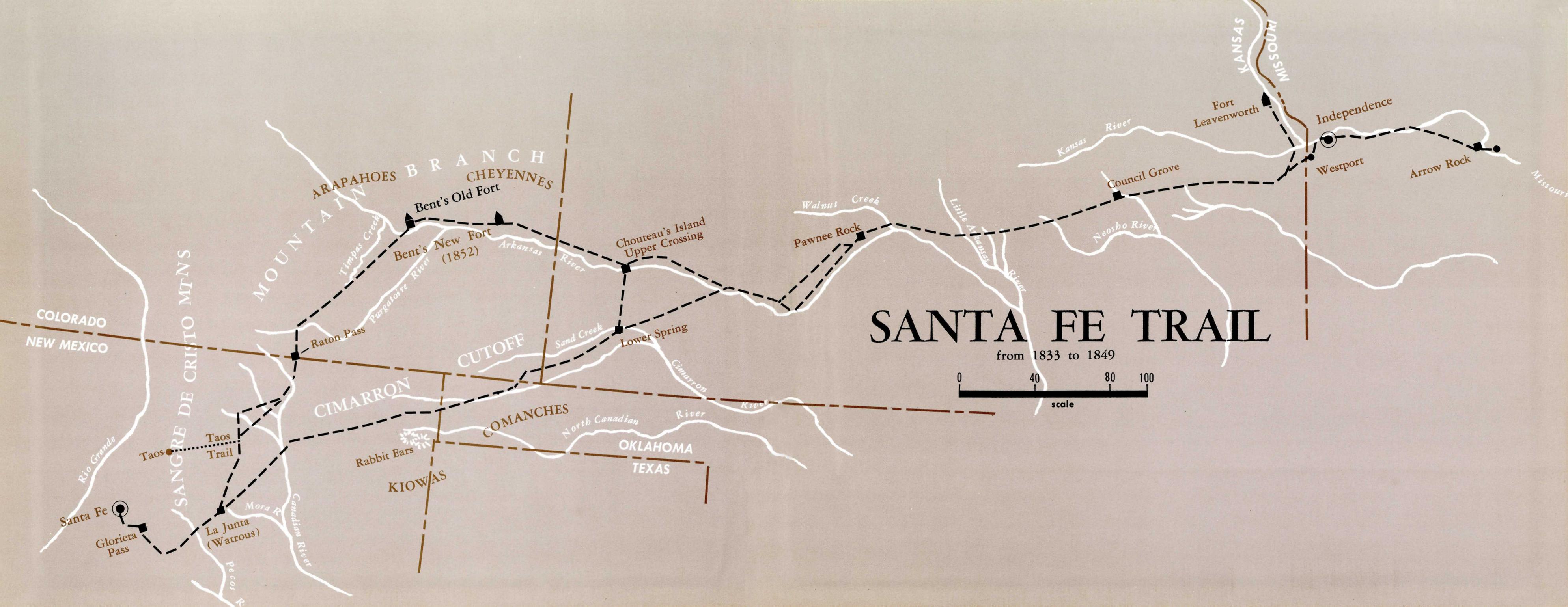
In 1953 the Daughters of the American Revolution of La Junta donated the site of Bent's Old Fort to the State Historical Society of Colorado. The federal government recognized the area as a National Historic Site, and in 1963 the Society turned over the site to the National Park Service.

Bent's Old Fort: An Archeological Study is the report of the excavation of the National Park Service, begun in September 1963 and concluded in July 1966. Illustrated by photographs, drawings, and graphs, the book discusses the architecture and the artifacts discovered. Published jointly by the State Historical Society of Colorado and the Pruett Publishing Company of Boulder *Bent's Old Fort: An Archeological Study* is an important contribution to the history of the American West.

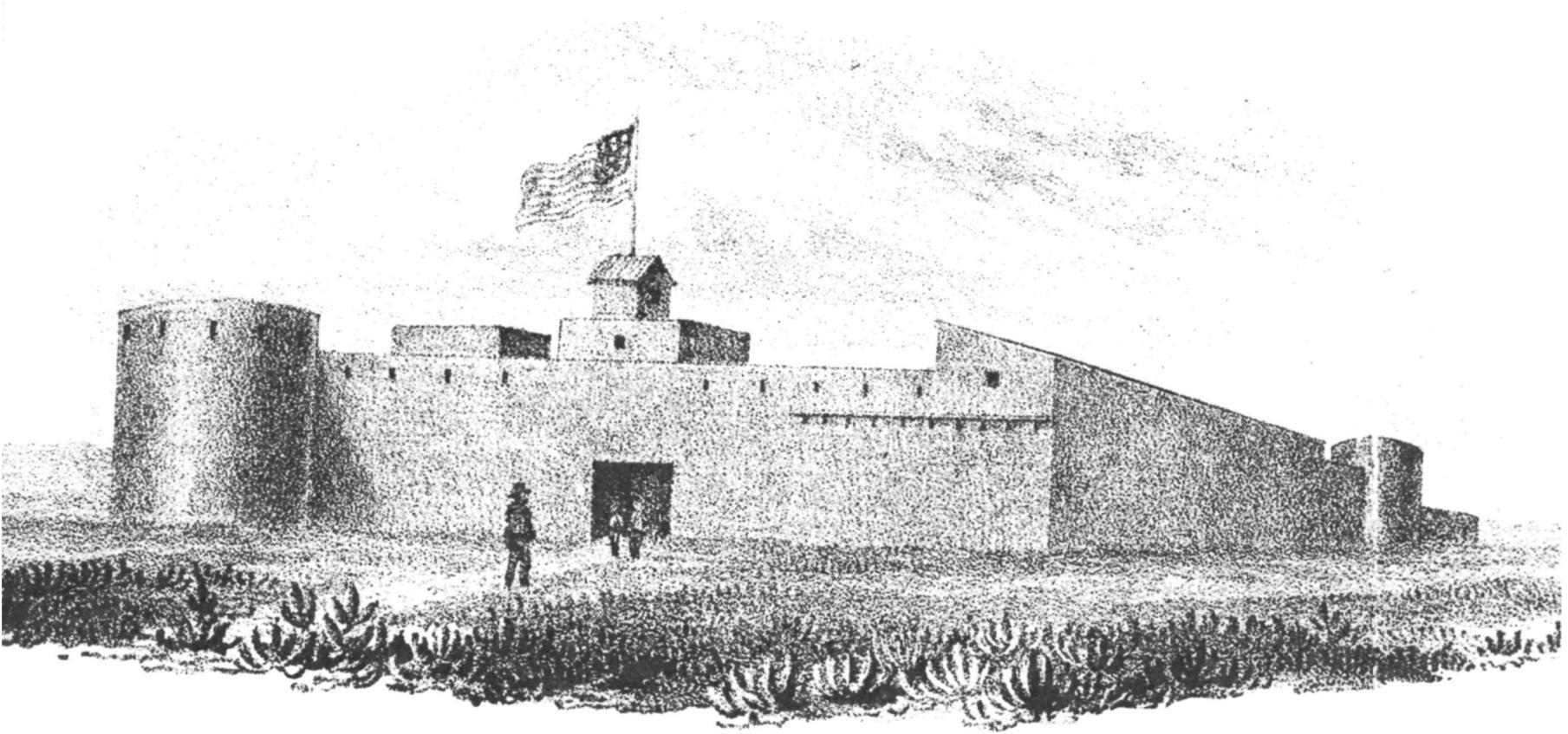
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A study conducted under the National Park Service, U. S. Department of the Interior

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Acknowledgments

The manuscript of this book, in slightly different form, was submitted as a thesis in partial fulfillment of the requirements for an M. A. degree in anthropology at the University of Oklahoma in June 1968. I wish to thank Robert E. Bell, Alex Ricciardelli, and Dewey Buck, members of my thesis committee, for guidance and helpful advice.

Illustrations are photographs by the National Park Service with the exception of the following: drawing of Bent's Fort in 1845 by Lieutenant James W. Abert (*frontispiece*), State Historical Society of Colorado Library; Charles M. Russell drawing, "The Free Trapper" (*page viii*), Albert K. Mitchell Gallery of Western Art, Lovelace Foundation for Medical Education and Research, Albuquerque, New Mexico; drawing of Bent's Fort by William Boggs (*page 5*), State Historical Society of Colorado Library; Charles M. Russell drawing, "Before the White Man Came" (*page 8*), Amon Carter Museum, Fort Worth, Texas; projection of Bent's Fort by Abert (*page 12*), State Historical Society of Colorado Library; National revolver (*pages 62 and 98*), from Satterlee's *Ten Old Gun Catalogues, 1864-1880* (Digest Books); drawings of rifles (*pages 90 and 93*), Hicks's *U. S. Military Firearms* (James E. Hicks and Sons).

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P R E F A C E

Bent's Old Fort has long been recognized as a site of significance to the history of westward expansion and the fur trade in this country, and several generations have practiced and encouraged restraint regarding the ruined structure. In 1920 the Daughters of the American Revolution acquired title to the site for the purpose of preserving the building, but in 1921 it suffered substantially when the "Great Pueblo Flood" washed over the entire site. Despite the protection accorded Bent's Old Fort, it also sustained considerable damage over the years from use by cattlemen and exploitation by pothunters.

In 1954 the DAR gave the site to the State Historical Society of Colorado, and that institution sought to interest the federal government in managing it. In order to demonstrate that beneath the sand and the silt many of the original fort foundations still persisted, the Society made arrangements with Trinidad State Junior College to undertake archeological exploration of the site in the summer of

1954. Dr. Herbert W. Dick, then on the college faculty, was put in charge of the project, which was conducted as a summer field school with eight students providing the labor. The goals were to locate and measure the walls of the fort and its rooms and to prepare a ground plan. Funds available for this project permitted only tracing out the major walls of the structure (figure 1).

The aim of the project was accomplished when the federal government authorized the area as a National Historic Site and the State Historical Society of Colorado donated the property to the federal government, to be administered by the National Park Service.

In the development planning that followed, the National Park Service decided that extraordinary measures would be required to interpret properly the site to the public. Nothing of the original fort remained above ground, and the site itself was flat and barren with no auxiliary features of interest. Reconstruction of the en-

tire fort was felt to be essential. However, before an undertaking of this magnitude could be justified, and then made authentic, it would be necessary to obtain all possible information about original construction, grade levels, and artifacts associated with specific features and periods. An archeological project of major proportions was needed to provide such information. For this purpose the second archeological project at Bent's Old Fort was begun in September 1963, and digging was completed there in July of 1966.

Note on Illustrations

The site photographs and most of the specimen photographs used in this report were taken by the archeological staff using 4 x 5 negatives. These were numbered in chronological sequence and are permanently filed at Bent's Old Fort National Historic Site. Numbered contact prints were also arranged by subject. The prints and negative jackets carry identical data.

Figure 47 was obtained by projecting a color negative onto a screen and then photographing it with a 4 x 5 camera on a tripod.

No negative numbers exist for figures 35, 46,

50, and 53, because they are photocopies, nor for figure 63, which is an enlargement of a 35-mm color transparency owned by the author. Figures 46 and 50 are copied from the Andre Jandot drawings in *U.S. Military Firearms, 1776-1956*, by J. E. Hicks (1962). The original drawing from which figure 53 was made appears in a National Arms Company catalog of December 20, 1865, reproduced in L. D. Satterlee's *Ten Old Gun Catalogues, 1864-1880* (1962).

Note on References

All elevations are relative to the elevation of National Park Service Brass Cap "C," plus 20 feet. The elevation of the cap is between 3,990 and 4,010 feet above mean sea level.

References to the 1954 excavations are based either on personal communication with Dr. Herbert Dick or on his article, "Excavation of Bent's Fort," which was published in *The Colorado Magazine* in July 1956.

References to documented occurrences, descriptions, statements, sketches, photographs, etc., are based on discussions with and compilations by former Park Historian Dwight E. Stinson, Jr.

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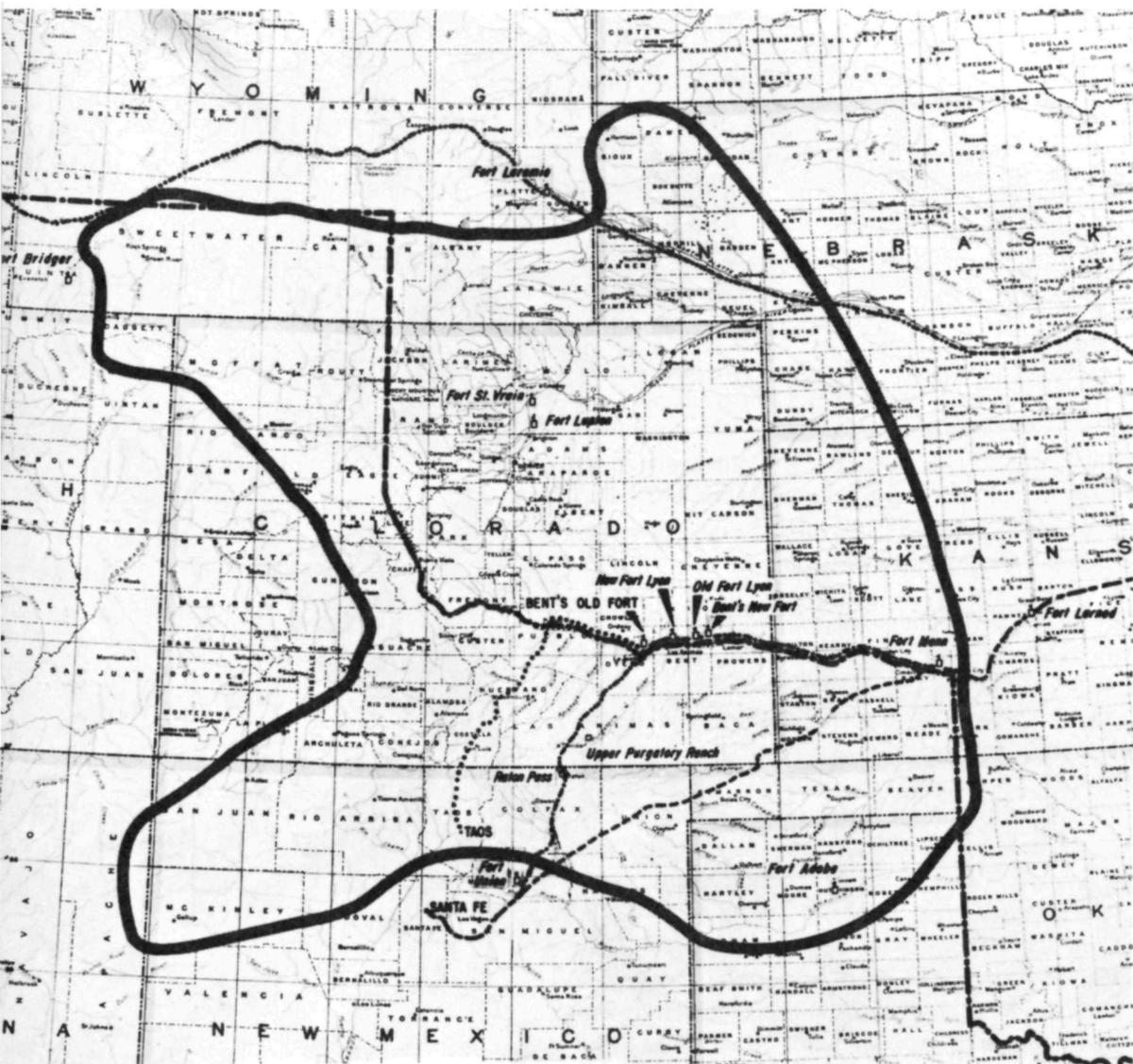
HISTORICAL INTRODUCTION

Dwight E. Stinson, Jr.

The partners who formed Bent, St. Vrain and Company about 1831 were not new to the West. The brothers Charles and William Bent and Ceran St. Vrain had ventured out from their native St. Louis to take part in the Upper Missouri fur trade. Armed with experience, some capital, and a willingness to do whatever was necessary to compete with other similarly minded entrepreneurs, they arrived in the Arkansas Valley late in the third decade of the 19th century. Their objective was to locate at a point in United States territory which could serve the dual purpose of tapping the rich Santa Fe traffic as well as the potentially very lucrative Indian trade. They constructed a stockade on Fountain Creek (near present Pueblo, Colorado) for this purpose, but it soon became apparent that the location was badly chosen. The site was well off the Mountain Branch of the Santa Fe Trail and a considerable distance west of the main buffalo-hunting grounds of the Plains Indians. It is said that Yellow Wolf, a Cheyenne chief, pointed out the latter fact and suggested the company's

reestablishment at the Big Timbers (near present Lamar, Colorado). For reasons not completely clear, the partners compromised with Yellow Wolf's idea and instead chose to locate at a spot on the Arkansas some 40 miles upstream from Big Timbers but, nevertheless, on the Mountain Branch Trail.

It is not certain how long it took to construct the adobe building. The historian George Bird Grinnell claims in "Bent's Old Fort and its Builders" (1923) that the construction began in 1828 and was completed in 1832, interrupted somewhat by an outbreak of smallpox. During this time the company operated out of a stockade on the construction site. Other, and seemingly more plausible, accounts, such as a letter from Ceran St. Vrain on July 21, 1847, have the construction beginning in 1833. By the time that the Fort was doing business, William Bent was installed as resident manager, a position he held until the fort's abandonment in 1849.



The trade empire of Bent, St. Vrain and Company about 1840.

The trading activities centered at Bent's Old Fort may be described as three-cornered. Trade goods of American manufacture were hauled along the Santa Fe Trail from Missouri. A portion of the goods was deposited at the fort, and the remainder continued down the Trail into Mexican territory, where it was disposed of at the mercantile outlets operated by St. Vrain and Charles Bent in Taos and Santa Fe. This same method operated in reverse, with goods of Mexican and Navajo origin being allocated to the fort or carried on to Missouri. The third corner consisted of the Indian tribes who either traded their buffalo robes for goods at the fort or were reached by traders traveling to the Indian camps. The robes were transported to the company's eastern outlets. The fort also catered to independent mountain men who bartered beaver pelts and other furs for the equipment and supplies needed to maintain themselves.

The key to such a business as Bent, St. Vrain and Company's operation was to maintain friendly relations with the several Indian tribes involved. A serious breach not only would destroy an integral part of the business but

- Boundary of trade empire
- - - Texas-Mexican boundary
- - - Santa Fe Trail
- · · Cimarron Cutoff, Santa Fe Trail
- · · Taos Trail
- · · Mountain Branch, Santa Fe Trail
- · · Oregon Trail

also conceivably might constitute a very real personal danger to the fort and its occupants. The situation was plain to William Bent, and his efforts soon placed him in a position of great influence with the Indians, which he was to enjoy until his death in 1869. The Southern Cheyenne and their friends the Arapaho were the major tribes doing business with the fort, and relations seem to have been excellent throughout the Bent Period (1833-49). Two reasons stand out, one being that the fort was in Cheyenne territory and the other that William Bent took a Cheyenne wife soon after the completion of the structure. (When she died, he married her sister.)

Almost as important to prosperous trade as the relationships between the Indians and the white men were the feelings among the red men themselves. Throughout the 1830s Bent found that the enmity between his Cheyenne friends and the tribes south of the Arkansas—the Kiowa and Comanche—put the fort in the center of a potential battlefield. If one faction was reluctant to trade because of the presence in force of the other, business naturally suffered. It is said by some that the peace conference of 1840, which forever abolished the Cheyenne-Comanche differences, was Indian initiated, and this may well be true. However, the peace was consummated three miles below the fort; the erstwhile enemies exchanged gifts purchased from Bent; and, from that time on, the two tribes could mix at the fort in an atmosphere of peace. The very nature of the tribal system dictated that there should be

occasional flare-ups, but the 1840 peace provided the wedge Bent needed. After that complaints were often discussed in council at the fort and settled without resort to violence. Lieutenant J. W. Abert in 1845 and George F. Ruxton in 1847 both mentioned attending such councils at the fort.

The federal government took advantage of the fort's location to foster relations with the Indians. In 1835 Colonel Henry Dodge's dragoon expedition from Fort Leavenworth met with contingents from the various tribes within a few miles of the post. In 1846 Thomas Fitzpatrick, a former Bent employee, was appointed agent for the Upper Platte and Arkansas Indian Agency. Fitzpatrick resided part-time at the fort and often met with the tribes in or near its vicinity.

As an outpost of American civilization, Bent's Fort was a natural stopping place for travelers. Among those known to have visited during the Bent Period were Matthew Field (New Orleans journalist), Thomas J. Farnham (English traveler), Frederick A. Wislizenus (German-American naturalist), Marcus Whitman (missionary), Francis Parkman (author-historian), and George F. Ruxton (English author). Many figures prominent in the history of the West were associated with the fort, the most famous of all being Kit Carson, who was employed by the firm intermittently.

A significant aspect of the history of Bent's Fort was the role which the structure played

in the territorial expansion of the United States. Relations between the company and the U.S. Army entered into a more than casual phase in the summer of 1843, when a contract was consummated calling for the storage of army provisions at the post. The following year John C. Frémont's second expedition disbanded at the fort, having completed its reconnaissance of 1843-44.

In 1845 the army sent out three expeditions, ostensibly to map the Southwest and gather scientific information but essentially in order to compile intelligence to be used in the event of war with Mexico. Each of the three paused for supplies at Bent's Fort. The first, led by Colonel Stephen Watts Kearny, was a dragoon column originating at Fort Leavenworth and making a circuit via the Oregon Trail, the eastern slope of the Colorado Rockies, and the Arkansas. The other two expeditions, both under the overall command of Frémont, spent several weeks in early August fitting out at the fort. Frémont then took the main body through the Rocky Mountains to California while Lieutenant J. W. Abert explored the Canadian River country and returned to Fort Leavenworth.

In the spring of 1846 the long-expected war with Mexico broke out. At Fort Leavenworth Kearny was given command of a force designated the Army of the West. His orders were to march his column to Bent's Fort and use that as a base for an invasion of Mexican territory. Kearny arrived in late July and re-

mained in and near the fort for several days. Before moving on he had in effect converted the fort into a depot and assigned an army quartermaster officer to see that stores were properly stockpiled and forwarded as needed. The fort continued to serve in this capacity until late 1847. Kearny marched into Mexico, raised the United States flag over Santa Fe on August 18, and pushed on to California. Charles Bent was installed as governor of the Territory of New Mexico.

The successful conclusion of the Mexican War resulted in a changed situation at Bent's Fort. The frequent coming and going of troops on the Santa Fe Trail, the wheeled armadas of supply wagons, and the increased flow of immigrants heralded the beginning of serious conflict with the Indians. In January of 1847 Charles Bent was killed in an insurrection at Taos, and St. Vrain spent more and more time attending to his interests in New Mexico. Having served as a base for territorial expansion, Bent's Fort was beginning to wither as a direct result of it.

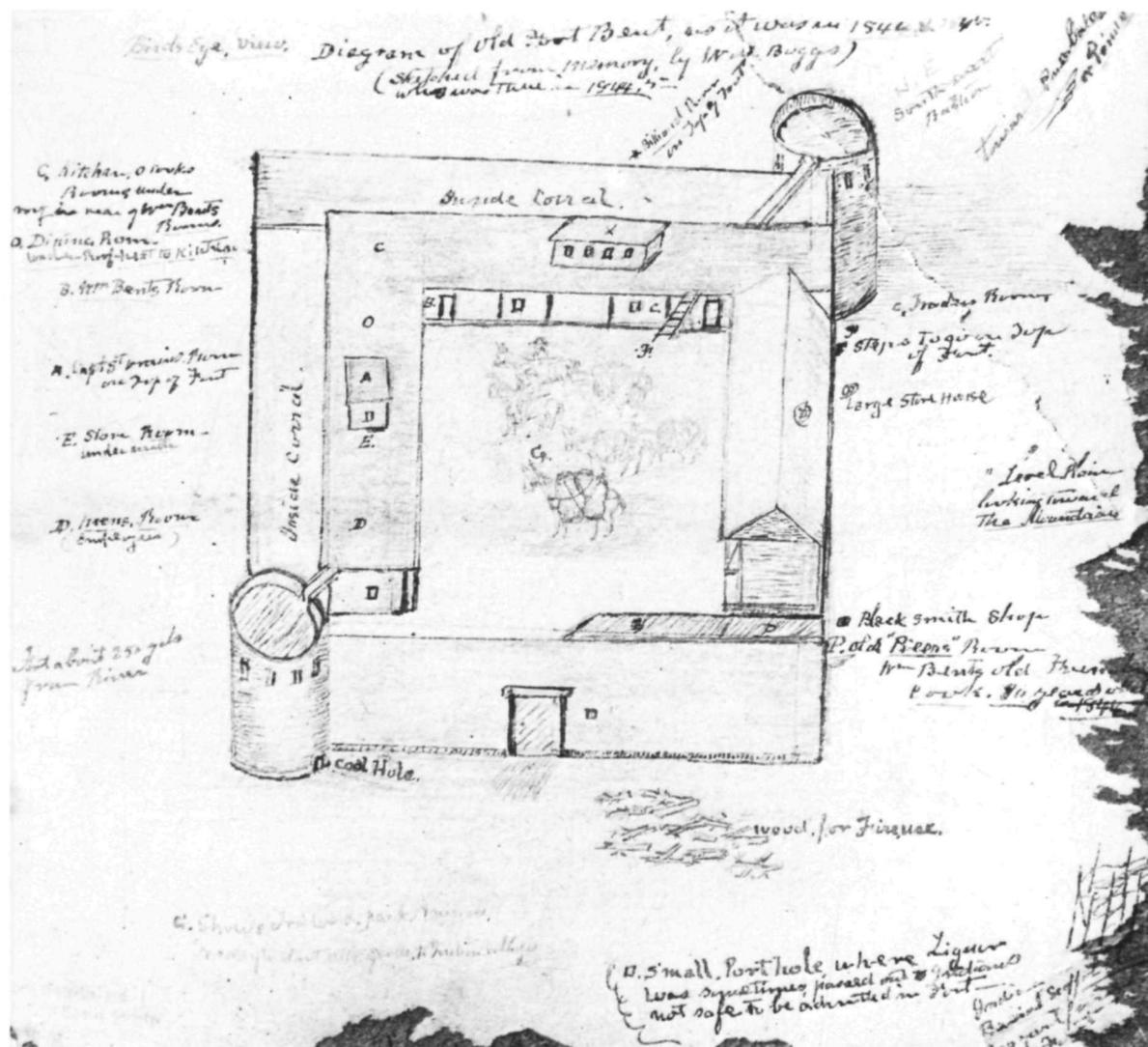
The discovery of gold in California, coupled with the desire to settle the newly conquered territory, provided the coup de grace. The tide of immigrants became a flood. The constant, seemingly endless, flow of wagons alarmed the Indians as they saw water holes ruined and buffalo frightened from their natural runs. With the immigrants came the dread cholera. Incidents occurred and soon more war parties than bands intent on trading were

in the fort's vicinity. Business fell off to an alarming degree as fear of cholera, combat, or both kept the tribes away from the fort. By the summer of 1849 William Bent decided the fort could never again attain its pre-war eminence. Taking his family, some employees, and what valuables he could carry, he set fire to his excess powder and abandoned the fort, moving down to the Big Timbers to begin again.

Outline of Historical Periods of Bent's Old Fort

Bent Period (1833-1849)

The fort was headquarters for Bent, St. Vrain and Company, a trading company with connections as wide as St. Louis and Santa Fe. From the fort's location on the Mountain Branch of the Santa Fe Trail, the firm dispersed American influence and trade goods over a vast area ranging from the northern part of present-day Colorado into the mountains of central New Mexico. Situated on the international boundary with Mexico, the fort played a prominent role in American expansion to the Southwest. Its location in the heart of the Southern Plains Indian country made it a natural contact point between the whites and several major tribes including the Southern Cheyenne, Arapaho, Kiowa, and Comanche.



Bent's Old Fort, drawn from memory by William Boggs, State Historical Society of Colorado Library.

First Interim Period

(1849-1861)

The structure was unoccupied and allowed to deteriorate.

Stagecoach Period

(1861-1881)

The structure was occupied by the Barlow-Sanderson Overland Mail and Express Company as a home station and general repair shop for the line which ran from Kansas City to Santa Fe. Several spur lines also radiated from the fort.

Cattle Period

(1881-1884)

Adobes were carried from the fort to be placed in the buildings of nearby settlers.

Second Interim Period

(1884-1920)

The remains of the fort deteriorated virtually unchecked. Midway through the period, the local chapter of the Daughters of the American Revolution began to take an active interest in perpetuating the memory of the old landmark. A monument was dedicated on the site in 1912, and in late 1920 the DAR was given the site itself.

Terminal Period

(1920-1963)

The DAR movement to protect the few remaining ruins of the fort got off to an inauspicious start. In June of 1921 the swollen Arkansas River swept over the fort site as the Great Pueblo Flood completed the work of destruction. The DAR efforts to maintain interest were retarded by scarcity of funds, and the organization was forced finally to transfer title to the state of Colorado in 1954. In the same year the state financed a limited archeological excavation of the fort and the erection of a low adobe wall which generally marked the outline of the foundation. It was soon realized that a true reconstruction of the old fort could only be accomplished through the funds and resources of the federal government. By an act of Congress approved June 3, 1960, the establishment of a National Historic Site at Bent's Old Fort was authorized; and on October 31, 1961, the United States acquired title to the fort site. The National Park Service, United States Department of the Interior, took over the administration of the National Historic Site on March 15, 1963.



FIGURE 1. *Modern adobe walls at Bent's Old Fort, looking southwest. Between 1955 and 1963 these walls interpreted the structure. The west tower, as shown here at the north corner of the wagon room, is actually under the far side of the road.*

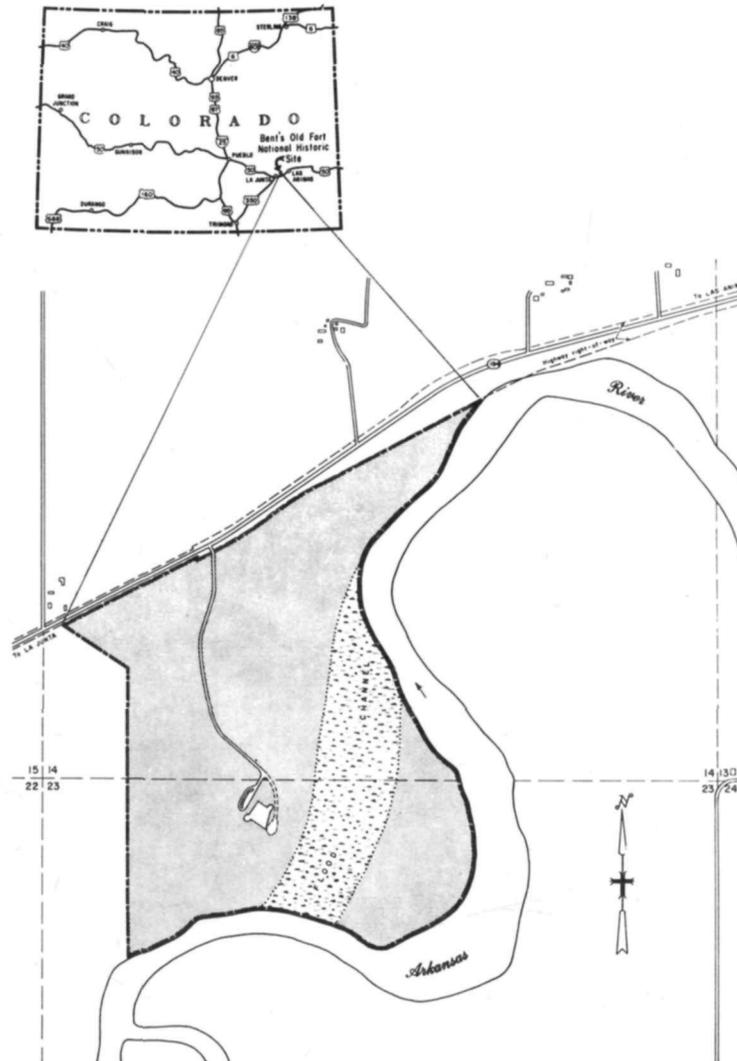


THE SETTING

The site chosen by Bent, St. Vrain and Company for its post was a compromise. The Cheyenne Chief Yellow Wolf urged the traders to move east from their post near present-day Pueblo, Colorado, and to relocate at the Big Timbers, near present-day Lamar. The trade with the Southern Cheyenne and Arapaho was important, but they did not wish to lose all of their trade with the Utes and the trappers along the Front Range. Their new post was, therefore, established on the Arkansas River, eight miles west of its confluence with the Purgatoire River (figure 2). Here there was a ford where the Mountain Branch of the Santa Fe Trail crossed into Mexico.

Cottonwoods lined the river, but the plains were otherwise a sea of grass broken by ridges. These latter, which occur on both sides

FIGURE 2. Location of Bent's Old Fort, Otero County, Colorado.



of the floodplain, are outcroppings of the Fort Hayes Limestone member of the Niobrara Formation (table and figure 3). The fort was very near the river, on its north bank. The terrace on which it stood was built up from 12 feet of sands and gravels deposited in Wisconsin times on the earlier Bridge Creek Limestone member (Greenhorn Limestone Formation). The soil is wind- and water-laid, buff-yellow clayey sand, also of Wisconsin age.

GEOLOGICAL PROFILE AT BENT'S OLD FORT	
Pierre Shale Formation	Does not occur near Bent's Old Fort.
Niobrara Formation	Smoky Hill Shale, member Fort Hayes Limestone, member Outcrops near Bent's Old Fort
Carlile Shale Formation	Juana Lopez Shale, member Outcrops at North La Junta & Colo. 109 Blue Hill Shale, member Fairport Chalky Shale, member
Greenhorn Limestone Formation	Bridge Creek Limestone, member Hartland Shale, member Lincoln Limestone, member
Graneros Shale	
Dakota Sandstone	
Purgatoire Formation	Glencairn Shale, member Lytle Sandstone, member
Morrison Formation	

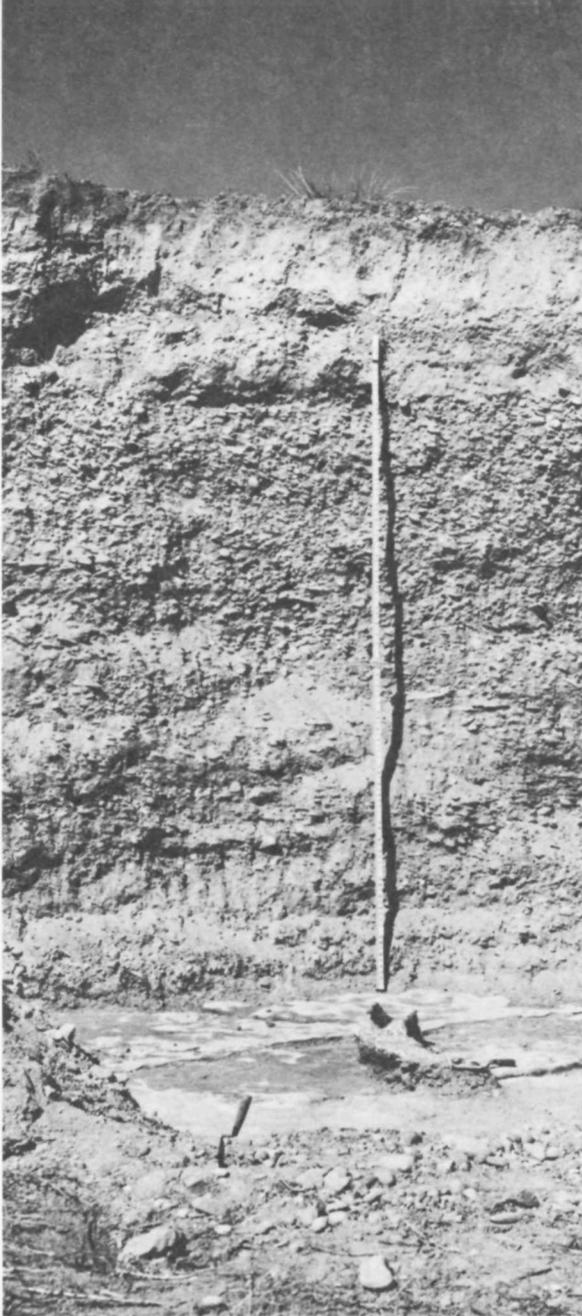
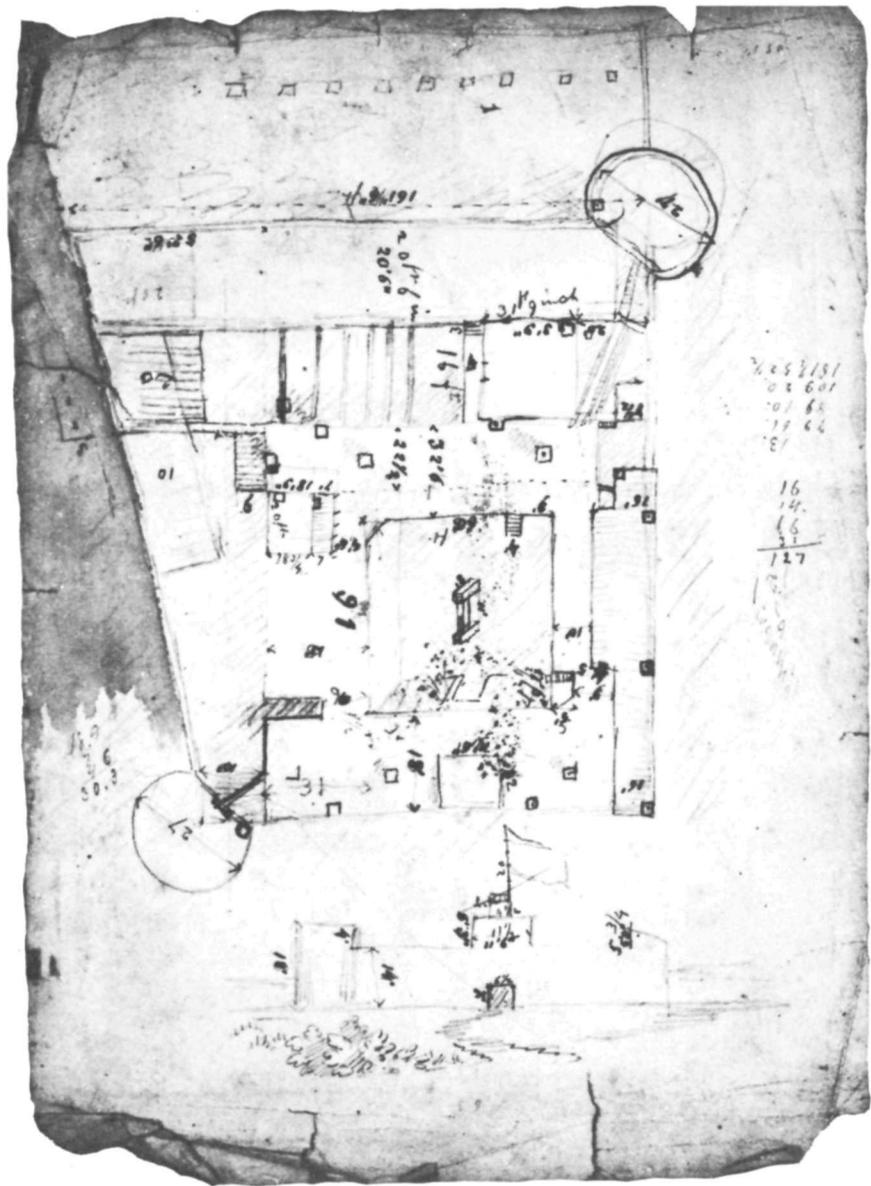


FIGURE 3. Geological profile at the site of Bent's Old Fort. The buff-yellow soil at top is a wind-and-water deposited clayey sand of Wisconsin age. The 12 feet of gravels and sands are also Wisconsin in time. The mammoth tusk was secondarily deposited 8,000-11,000 years ago and is a common phenomenon in the area. The bedrock is the Bridge Creek Limestone member (Greenhorn Limestone Formation).



A R C H I T E C T U R E

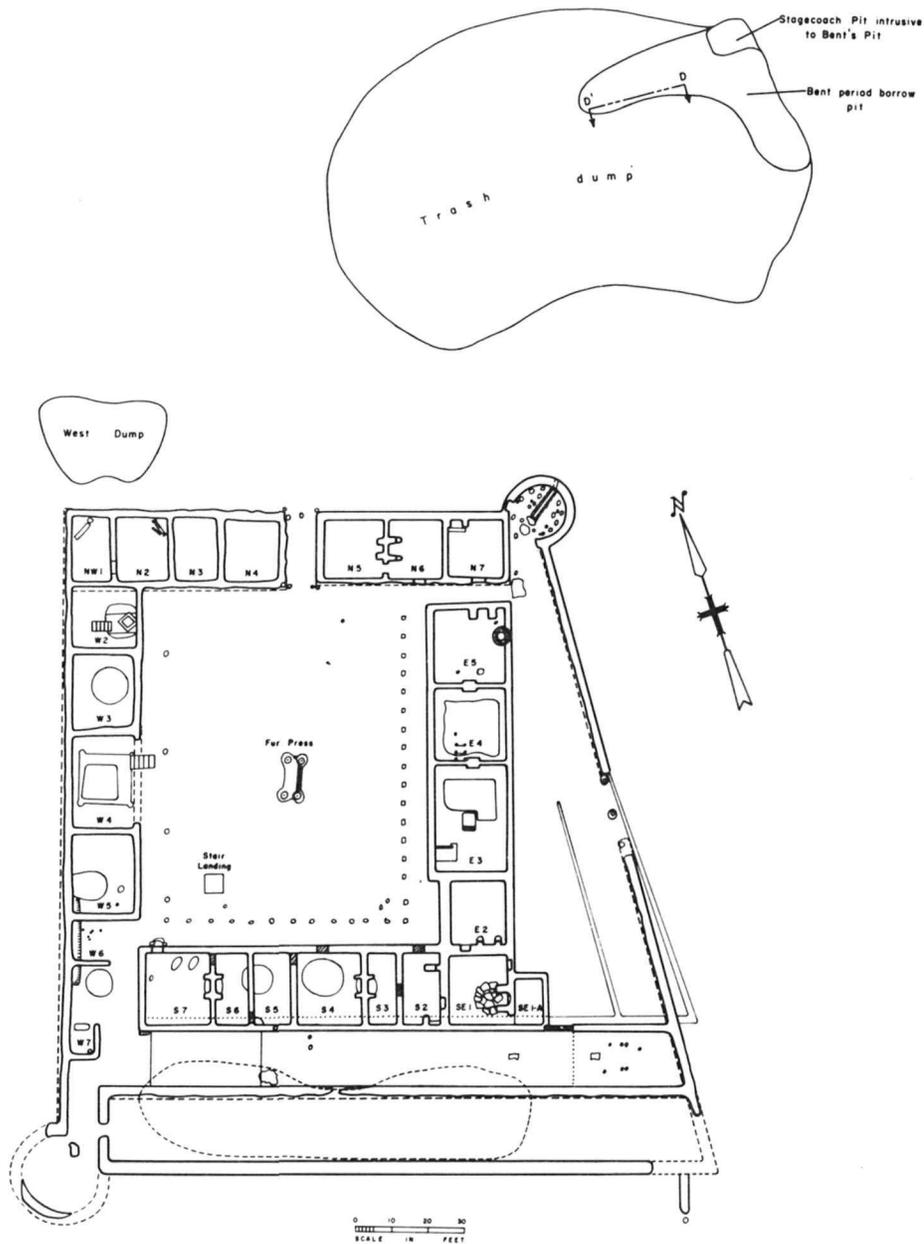
Bent's Old Fort was essentially a structure in the Mexican style. Both the materials and the basic design were very similar to many smaller structures in what was then the northern frontier of Mexico, particularly those in Taos. Like them, Bent's Fort was an inward-facing building, a hollow square. It had no sharp interior corners or edges, its walls curving gently into each other and into floors and ceilings as well. Unlike Mexican structures, which are usually single-storied, Bent's Fort was two-storied and had no windows except on the second story. Yet another glaring dissimilarity was its fireplaces.

The north Mexican fireplace was a series of arcs: a beehive-shaped quarter or half dome with an elliptical opening. The fireplaces at Bent's Old Fort, had they been made with red-fired bricks or of molded tabby, would have been duplicates of English colonial fireplaces in this country. Six of the Bent fireplaces were arranged in three pairs, back to back ("H" fireplaces), serving adjacent rooms. This plan

was typical of English architecture in this country and quite different from construction in Taos or Santa Fe. When placed in corners, both Mexican and English fireplaces were ordinarily offset 45 degrees, but the two at Bent's Old Fort were set in corners, parallel with the walls. Three fireplaces were single "U" fireplaces, but none was centered in the wall.

Evidence of early alterations in the fireplaces was found in the "H" fireplace in Room N6 and the "U" fireplace in Room E2, both of which were modified during the Bent Period by having their cheeks shortened. The modification in Room N6 was relatively crude, showing little concern for retention of symmetry. In Room E2, on the other hand, the work was very meticulous, the straight sides and curved corners being quite well matched.

The fireplaces at Bent's Fort were probably attributable to Ceran St. Vrain, who was familiar with the Mexican architecture of Taos



and held it in generally high esteem, as is reflected in the choice of materials and general plan for the post. But even the Mexicans made no boasts about their *folgon* fireplaces, which had to be repaired several times during the life of a building, and Bent partner St. Vrain apparently agreed, substituting a different style. In this, as in other details of architecture, the Bents and St. Vrain were eclectic in their trait borrowing.

In the Stagecoach Period, as the room descriptions show, the fireplaces were provided with higher hearth elevations as well as with limestone hearths. Limestone is not a superlative material for use in a fireplace because of its susceptibility to heat fracturing. These stones apparently served satisfactorily, however, especially since they could be replaced readily from numerous nearby outcrops of the Fort Hayes Limestone stratum.

Derivation of the two towers is difficult to assign to either St. Louis or Santa Fe; like the inner corral they were probably simply Bent-St. Vrain. Round towers have served as bastions throughout the Old World for centuries.

The structures in Mexican Taos, of the same period as Bent's Old Fort, apparently lacked glazed windows until the 1850s (Bunting, 1964), after which glass was brought in over the Santa Fe Trail. Vertical wooden bars with shutters or sheets of mica were used instead

FIGURE 4. Plan view of fort.

of glass, and windows were necessarily small in size. Bent's Fort, on the other hand, apparently had glazed windows from the outset, a fact attested by the presence of glass windowpane fragments around Room E5, a room not used during the Stagecoach Period.

In its final form, Bent's Old Fort consisted of four main areas: (a) the compound, (b) the inner corral, (c) the wagon room, and (d) the main corral (figures 4, 5, and 6). The compound was the essentially rectangular core made up of four rows of rooms. For purposes of this report it will also include the plaza, walkways, and fur press. The inner corral, was the unroofed area east of the compound, roughly the shape of a right triangle. In this report it will include the east outer wall, the stage gate, and Room Alpha. The wagon room was the largest room at the site, and was burin- or chisel-shaped because of the non-conforming orientation of the east outer wall. In this report it will be associated with the alley. The main corral was an area behind the wagon room and to the southwest. Four secondary areas outside the fort proper were the icehouse, the trash dump, the racetrack, and the burial grounds.

The Compound

The major units of the compound were the four rows of rooms. Without Rooms W7 and SE1-A these formed a rectangle 122.00' NW-SE x 142.00' NE-SW.

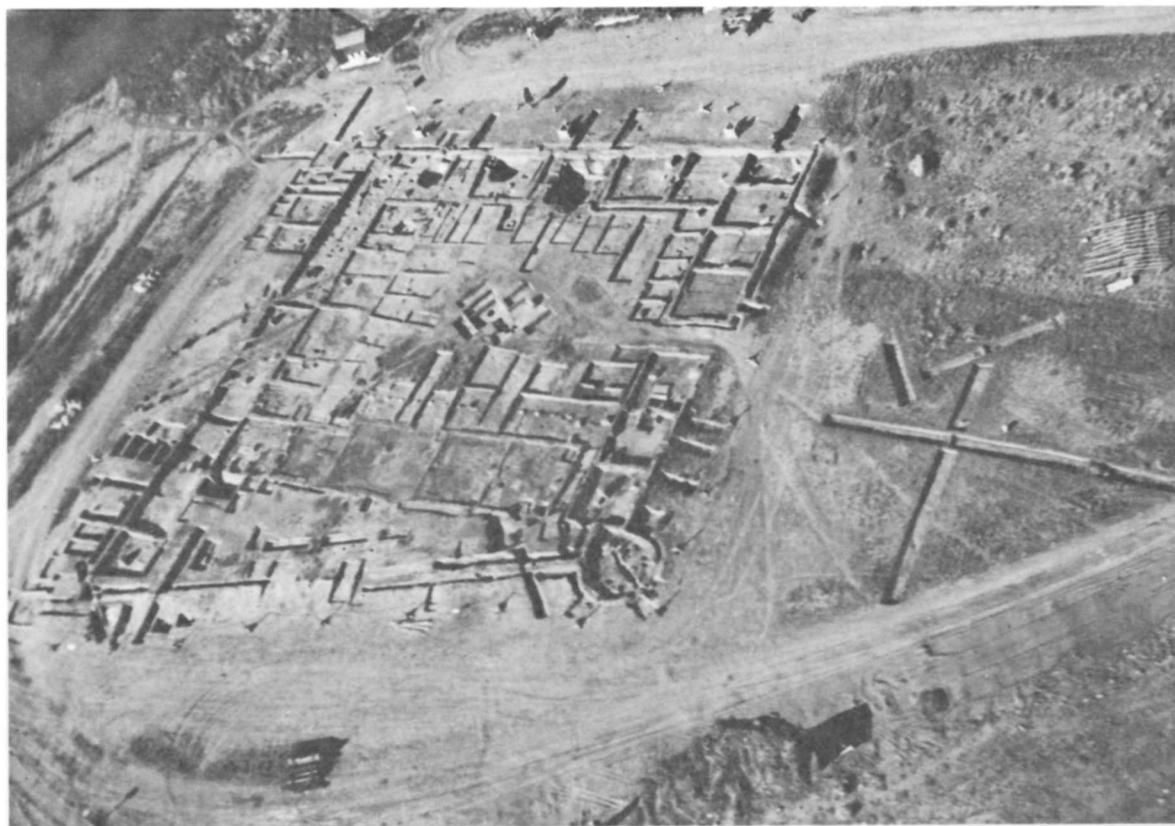


FIGURE 5. Air view of the excavations, looking northwest. Taken in November 1964, the floors of all rooms are exposed (except most of the long wagon room, at the left). Pits in Rooms E4, E3, S4, S5, S6, S7, W3, and W2 were not yet uncovered. The trash dump, which is shallow in front of the fort (the cross-shaped trench pattern), became much deeper across the road, where it extends to the right of and below the edges of the picture.



FIGURE 6. Air view of the excavations with the north row of rooms at left.

NORTH ROW OF ROOMS

The north row of rooms was divided into two sections by the main gate. Rooms NW1, N2, N3, and N4 were on the west side of the gate with Rooms N5, N6, and N7 on the east. The west section was 61.70' x 20.70', based on maximum measurements of the remnants. With the addition of 0.80 foot to the outer NW wall of Room NW1 to make it an even 3.0 feet, the total length would become 62.5 feet. Similar treatment of the NE-SW dimensions would result in a depth of 21.0 feet. The gateway itself was 8.3 feet wide at its maximum eroded surfaces. The east section of this wall, exclusive of the east tower, measured 52.6' x 19.5'.

Room NW1

Room NW1 occupied the extreme north corner of the fort (figure 7). The interior dimensions were 17.8' N-S x 11.0' E-W. A common door between NW1 and W2 was 2.8 feet wide. The dominant feature of this room was its corner fireplace. The limestone hearth was 8.0 feet across, 0.87 foot wide, and overlaid with fill. The maximum measurement at the vertex was 4.65 feet to the inside of the hearth. This was a modified fireplace, for its cheeks had been shortened an indeterminate amount and its limestone hearth had been added in Stagecoach times. The shortened cheeks would seem to indicate that it no longer served as a foundation for an upstairs fireplace.

The Bent Period level in this room, if it can be called that, was at an average elevation of 19.40, dipping to 18.76 in the south quarter. In this quarter of the room there was a circulo-oid depression 7.2 feet wide and 0.65 foot deep. It contained glass, animal bones, and numerous iron wagon parts; an iron meat hook lay on the edge of it. Although the best Stagecoach level was higher than this depression, some of the artifacts found in it were post-Bent, including a caliber .28 cup-fire cartridge case for the Plant revolver (patent 1864). The Stagecoach occupants apparently did not simply build their floor on top of Bent rubble. They disturbed it considerably and contributed fill of their own. They then built their floor at the average elevation of 19.9. The elevation of the top of their hearthstone was 20.26.

The depression in the south quarter is difficult to explain. It could have marked the location of heavy smithy operations (a stump supporting an anvil, perhaps). There is historical evidence for the use of this room as a smithy, but its isolated location makes such use unlikely. Neither door nor window admitted light or air directly from the outside during the Bent Period. It is possible that NW1 and N2 were once a single room, with NW1 later divided off as quarters for the smith. The wall which divided these two rooms was the mainly poorly-preserved wall along the north row. Other than this, however, it gave no indication of having been built at a later time. There was

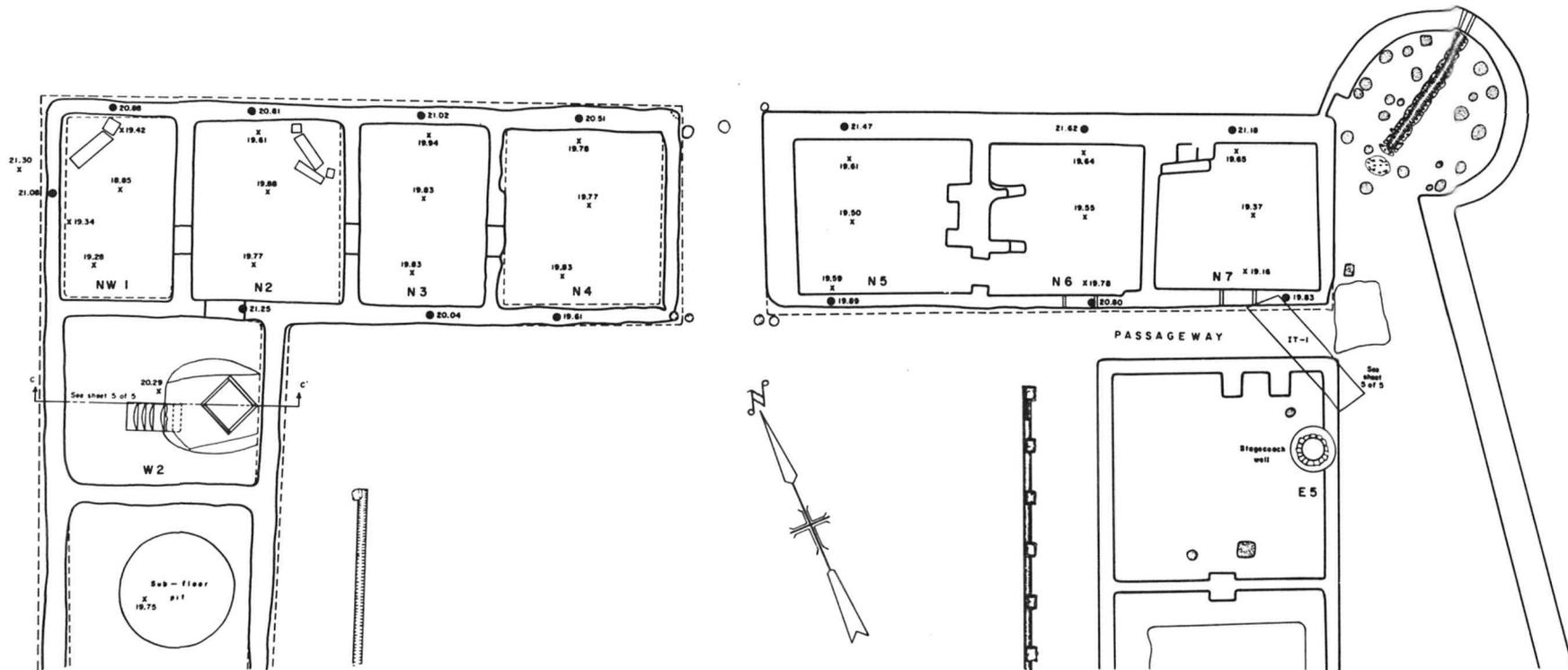


FIGURE 7.

North row of rooms, with adjacent features.

- x Elevations at ground level ● OS Original surface elevation
- Elevations at top of wall PGL Present ground-level elevation

sparse evidence of some whitewash. No prepared floors, including the usual wooden plank-and-joist floor of the Stagecoach Period, were found at any level.

The Stagecoach occupation level equated to level 6, which was a firm, compact soil zone where artifacts tended to occur in a flat plane. These included sections of tinned cans, eye-bolts, a copper button, and numerous iron wagon wheel parts.

Room N2

This room measured 19.0' x 14.5'. In addition to the 2.6-foot-wide door to NW1, and a door of similar size and location leading to N3, the room had a third door, 3.1 feet wide and sealed, which led into W2. This arrangement would have given N2 an access to the well in W2. A Stagecoach Period fireplace in the east corner was undoubtedly a shortened Bent Period fireplace. The cheeks continued well below the limestone hearth.

There were three noticeable floor surfaces, but this was not determined by any well-preserved remnants. Rather, the surfaces were recognizable by a relative firmness which caused the overlying soil to separate more or less evenly. Cultural material also tended to lie on a plane. There did not appear to be a true burned surface except against the outer northeast wall. The wall dividing this room from NW1 was the most eroded wall of the north row and at higher levels had a serpentine appearance. At its base remnants remained to attest to an

original width of 1.4 feet. There, too, much of the white plaster was still intact, and this should have marked the Bent Period floor. There was, however, no intact Bent floor, and Stagecoach Period materials were found at the very lowest level. Among these were two more forward-loading revolver cartridges, a .28 cup-fire Plant, and a .42 teat-fire National (figure 53). A corner fireplace was set in the east corner at 45 degrees, a mirror image of that in NW1 except for size. It was smaller (5.0'), never having had to support another fireplace above. It, too, was cut back and had a hearth in a very poor state of preservation.

The north wall in this room was exceptional in that it had indications of partial replacement. Near the north corner the bottom bricks had been slightly undercut; and cut nails, a spike, and some flat glass were found in this intrusive disturbance.

Room N3

This room measured 17.7' x 12.5'. When modern debris was removed, a fallen wall was encountered at an elevation of 22.21. Cattle bones were scattered rather profusely beneath this level. Amid small iron harness buckles, cut nails, and fragments of desiccated wood, etc., the bones lay above a compact level.

Dr. Dick had made a test in the south corner of this room and had located a circular pit containing slag. There was some discrepancy between the stratigraphic sequence of this test

as reported by Dr. Dick and that observed in the room by myself. The Bent level underlay two higher levels according to our 1964 findings, but only one according to the findings of Dr. Dick a decade earlier. He placed the Stagecoach floor somewhat higher than I did, as he based his depths on edge-of-wall contact.

Between the two higher floors identified in the last dig, a later level was found. This occupation zone corresponded to the top of Dr. Dick's small forge, which he believed was used after Bent but before Stagecoach times. Numerous small pieces of iron occurred at this level, but nothing which definitely identified it as Bent or post-Bent. Beneath the Bent (bottom) floor level was the Wisconsin age, buff-orange, clayey sand which forms the ground soil of the area.

This room communicated by door with both N2 and N4. These doors were 3.0 feet wide and were in line with each other and with that of NW1. Both doors to N3 had been raised in elevation once and then sealed, a sequence which was followed in all of the other north rooms. I interpreted the raised sills as resulting from a change in floor levels during the Bent Period, and the sealing off as having occurred in Stagecoach times. Several other rooms reflected changes in floor levels.

Room N4

This room measured 17.25' x 15.5'. The northeast wall was an outer protective wall 2.3 feet

thick. The southeast wall was also 2.3 feet thick and made the northwest wall of the gateway. The southwest wall was 1.8 feet and faced the plaza. In 1954 Dr. Dick found good evidence of a door to the plaza in this wall, but the evidence was less distinct in 1964. The remaining wall was a 1.35-foot-thick room divider with N3.

Vigas, untouched by flame but very desiccated, were found underneath the adobe remnants of a fallen wall. Associated items included bones, brown and green bottle glass which lacked bubbling or rippling, clear and unbubbled window glass, and cut nails. In the north quarter the remnants of parallel planks, also desiccated, appeared somewhat higher than elsewhere. Since a heavy ridge of wall had flattened the floorboards in the south and west quarters of the room and some heavy, iron wagon parts lay on the floor in the north quarter, only the east quarter joists had been permitted to decay intact. Placing this floor in the Stagecoach Period was confirmed by a basal sherd of English majolica with a coded registry lozenge, which identified it as ceramic for shipment November 15, 1878. Since that date of shipment would scarcely have allowed time for marketing, use, breakage, and inclusion within the space of the remaining month, it suggested that this home depot did not fold in 1878 as is traditionally held.

Other items associated with this floor were part of a brass trigger guard, pin-retained; a five-inch eye-bolt of iron; a chain link; a sherd

of red, transfer-printed ironstone; a light blue, transfer-printed, white earthenware sherd; part of a cast-iron pedal attachment for a wagon brake; and a blue crinkle-edged sherd; etc. Some items definitely post-dated the Stagecoach Period, like the hand-marved bottle neck with cappable lip which dated from circa 1890-1905. Beverage bottles, tinned cans, etc., more than ceramics or any other item, reflected the known fact that itinerant cowboys and other travelers stopped for part of the day or overnight at the ruins of the station long after its demise. This fact further indicated that deterioration of the structure was a gradual one over many years.

North Gate

Bounded by Rooms N4 and N5, this feature is a typical *zaguán*. It consisted of two sets of double doors, each with a center post of just sufficient height to brace them when closed. *Zaguanes* normally incorporated a single door on one side (the left) to admit an individual. These gates at Taos, New Mexico (Bunting, 1964), were generally 9.33' x 7.5' wide, with the smaller door measuring 6' x 3'. They were hinged to wooden jambs incorporated into the adobe brick walls, and none had a heavy second-story structure above them.

The *zaguán*, or north gate, at Bent's Old Fort showed evidence of considerable disturbance and alteration. There were a number of post holes and molds in the gate area, and the walls themselves had been altered at the corners.

This would support the accuracy of the Farnham description of 1839 and the Boggs sketch of 1844, both of which indicate no rooms east of the gate and no belfry above it. The addition of the belfry must have necessitated reinforcement of the walls of the gate. In any event, the jambs were changed at least once. The most convincing alignment suggested a portal width of 7.5 feet.

Neither wall had an original edge, both having been subjected not only to remodeling and destruction by fire but also to excavation by two archeologists. Even so, the thickness of both walls appears to have been 2.2 feet. The character of the west wall was less integral than that of the east. The third course of bricks was not parallel with the bottom two, and the north corner had been dismantled and re-assembled. This construction would indicate that the jamb had been removed and the slot filled.

While removal of the jambs was probably necessary to effect reinforcement of the gate walls, I do not believe that it would have served any purpose to fill these cavities while the fort was in operation. I do believe that the Stagecoach people would have done it, for it is known that they blocked this gate off completely, relying entirely on the east gate.

Before the alteration (1845 or later) Bent's Old Fort's northeast wall probably looked like a windowless version of the Horace Long House of Taos, except for the east tower. No

evidence of wall height could be derived from the foundations; but it would, I believe, have been at least seven feet high, as Lieutenant Abert says. The width of its gate was probably 7.5 feet after being reinforced to accommodate the belfry. At an original width of about eight feet the gate could have admitted wagon traffic prior to the construction of the robe press. This latter feature (figure 28) was a late addition (Stinson, 1965) and would have made the plaza a very cramped place for wagons. After gate alterations a cart might still have come through—the *zaguanes* of similar width at Taos are supposed to have admitted wagons—but it would have been tight. In excavating the floor of the gateway there was a total absence of wheel ruts. Such ruts were found on the near (30') edge of the trash dump. The floor of the gateway was covered originally with gravel, as was the plaza. This gravel was found disturbed and overlaid with adobe wash, heterogeneous burned gravel and wash, and fallen wall.

Belfry

No genuine descriptive evidence of this feature was obtained through archeology, nor could it have been expected that there would be. The confused area around the corners of the gate indicated some modification and relocation of post jambs and added supports.

An artifact suggesting this feature, however, was recovered: the oft-documented telescope (figure 62). This item was retrieved in two

phases: the back two-thirds were found amid charred *vigas* and *latias* on the floor of the west quarter of Room E4. The forward third was donated by an elderly woman who had unearthed it at the site when she was twelve years old.

The objective mount was three inches across and seemed to have more threaded brass mounts than the situation really should have required. The brass was very brittle and largely fragmented; the back (ocular) and interior lenses were frosted translucent-to-opaque, whereas the objective element was clear but completely melted. The ocular or eye piece could be covered by pushing a small brass knob, which drew a protective disc across the small orifice. A separate brass mount screwed onto the objective end, and this could be exposed by opening a sliding brass gate which slid laterally on a tongue-and-groove principle.

Room N5

This room measured 17.75' NE-SW x 15.33' at the bottom level (figure 7). Just beneath the surface (0.25') and above the Stagecoach Period floor, there was a remnant fire site. It was not a basin, nor was it lined with anything; rather, it was a scorched zone covered with charcoal and small clinkers.

The Stagecoach floor was of the usual plank and joist type with the planks running NW-SE. The fireplace was modified to take a limestone

hearth of about 30 percent more than the usual breadth; this was effected by providing a row of smaller stones between the main hearth-stone and the ends of the cheeks. Materials associated with this floor were a broken iron bit, a circular harness buckle, pieces of leather, and a heavy iron bar with knuckle hinges.

The Bent Period floors were undulating but were usually 0.4 inch apart in depth. Among materials associated with both earthen floors were inch-square plates of iron and fragments of flat glass. Limited to floor 2 were burlap impressions in a white matrix, numerous spherical lead bullets, and goose shot. Floor 3 also had goose shot associated with it, as well as the blade of a hunting knife. The lowest floor was in a poor state of preservation but did not show any sign of severe burning. The artifacts of floors 2 and 3 reflected no time difference but did antedate those associated with floor 1. Evidence of white plaster was found at both Bent levels in 1954 and in 1963.

Room N6

This room measured 15.65' x 14.95' E-W. The walls of this room contained the greatest amount of white plaster found at the site, with the possible exception of Room E3.

The fireplace showed evidence of much erosion or possible abuse with the firewall indented beyond the line of the room wall. The area of the hearth may have held a stone at

one time, but it was a circular pit filled with burned refuse when excavated.

The highest of three floor levels was, as usual, a plank-and-joist floor associated with artifacts from the third quarter of the 19th century. Rows of cut nails still secured the desiccated planks, which were overlaid by remnants of the roof *vigas*. These were oriented NE-SW and were at right angles to the planks. None of the wood at this level was burned.

The second floor was of rammed earth and likewise showed little sign of burning. A short length of charred beam was found near the north corner, together with small amounts of scattered charcoal. Many iron wagon parts were found at this level. It should be noted that all rooms yielded such material to a greater or lesser extent.

Room N7

Nowhere at the site was the sequence of occupation more clearly demonstrated than in this room (figure 8). The first of three floors occurred at the bottom of level 2. This was one foot below the 1963 surface. Fallen wall comprised the bulk of the debris which overlaid floor 1. In this layer of dirt, 0.15'-0.20' deep, a deer skeleton was found lying on its right side. This total depth of 1.2 feet represented the Cattle Period in this room.

The Stagecoach floor was of plank-and-joist construction and was oriented the same as all



FIGURE 8. Control pillar in Room N7. Note the fallen wall in the top stratum. Narrow dark second stratum is the Stagecoach floor. Debris above terminal Bent floor contains charcoal, ashes, and other burned material on the prepared clay floor at tip of arrow. More ashes, charcoal, charred vigas, etc., fill space above early Bent floor, also of prepared clay, at base of arrow.

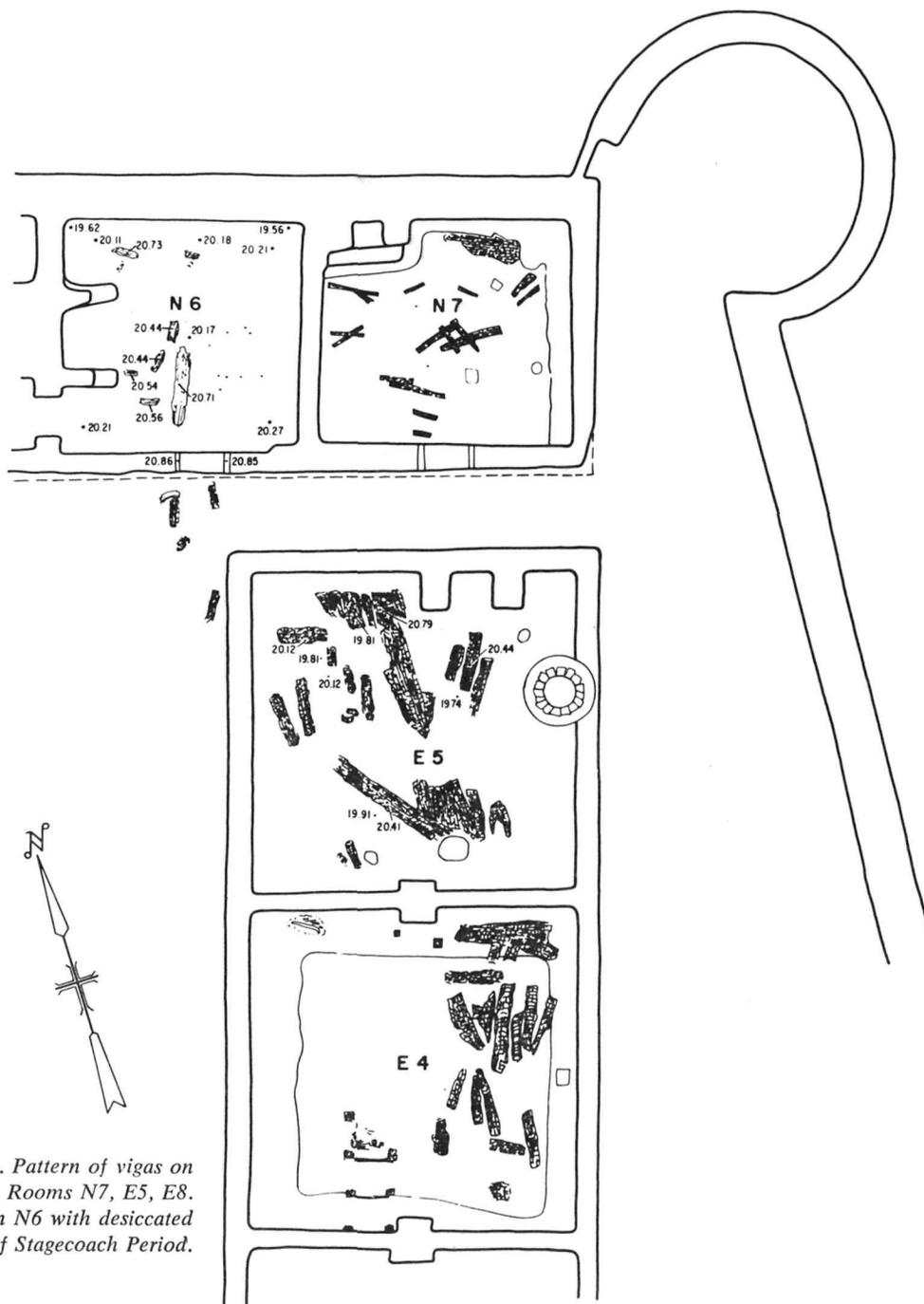


FIGURE 9. Pattern of vigas on floors in Rooms N7, E5, E8. Room N6 with desiccated floor boards of Stagecoach Period.

of the contemporary floors of the north rooms. Its remnants were not as well preserved as in N4 or N6, but the cut nails and associated planks could be traced.

At this level the fireplace cheeks had been shortened and a limestone hearthstone placed against them. Located in the north corner, this fireplace was parallel with the north wall.

Floor 2 was an average of 0.45 foot below floor 1. Made of prepared earth 0.20 foot thick, it survived in better condition than any floor at the site. Charred timbers lay on it with a vague E-W orientation. This suggested that the ends of the *vigas* protruded into the inner corral; and, indeed, available sketches showed no *vigas* in the northeast wall east of the gate. Between the fireplace and the east corner was a 1.6' x 2.4' area of a white matrix like that in N5, again containing burlap impressions and charred burlap. Artifacts found were of the second quarter of the 19th century and included a quantity of rattan or willow which once might have been office baskets.

Floor 3 was 0.7 foot below floor 2. It, too, was covered with burned and charred materials. The *viga*-type beams were fewer and more completely consumed but were similarly oriented NW-SE (figure 9). This floor was far inferior to floor 2 but was definitely a prepared floor. White ash in the east quarter of the room lay to a depth of 0.25 foot. In the west quarter was a circular depression which closely resembled that in the south quarter of NW1,

complete to the iron meat hook at the edge. The pit was formed by the floor itself, but it was overlaid with ashes and some charred timbers. At this level some copper lustreware and black transfer-printed earthenwares were recovered. Both the shape and decorative motif on these wares placed them in the Bent Period. They are discussed further in the section on ceramics.

The room measured 15.25' x 14.4'.

EAST ROW OF ROOMS

Room E5

This room was 20.1' x 20.1' and was bounded on the NW by the plaza, on the NE by the passageway, on the SE by the inner corral,

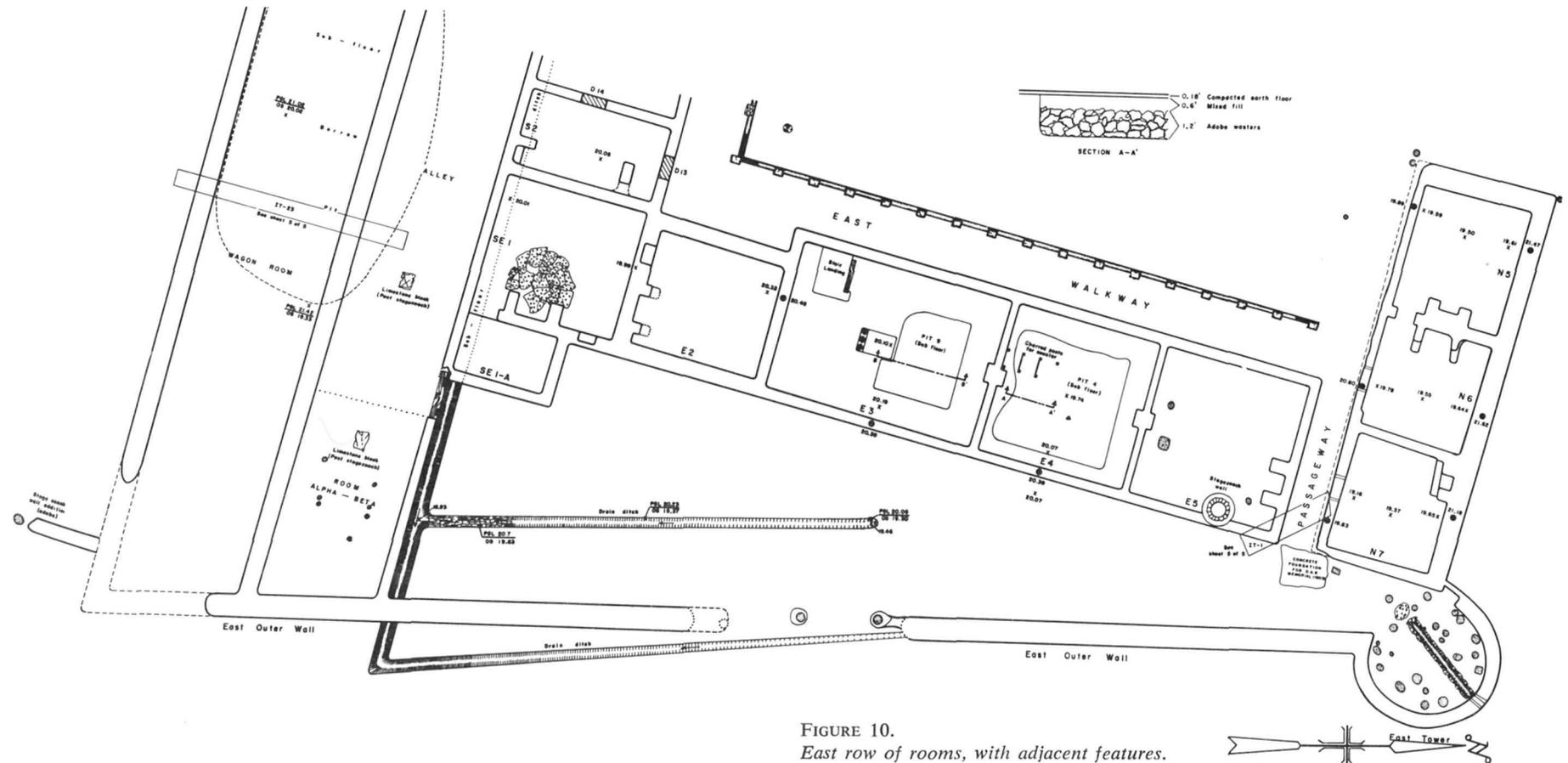


FIGURE 10.
East row of rooms, with adjacent features.



FIGURE 11. Rooms E4 (foreground) and E5, Rooms N6 and N7, and east tower bastion. Light area in E4 at bottom left is a pothole. In Room E5 note the Stagecoach well to right of the fireplace. The floors of Rooms N6 and N7 (with the deer skeleton) are at the Stagecoach floor levels. Note the modern wall at left, above the old wall of Room N6. Looking northeast.

and on the south by Room E4. Only one floor was encountered in the east rooms, probably because of heavy use since 1885. It is known that vehicles long entered the fort by the old Stagecoach Period gate. Some leveling was done in this area by a blade in 1955 and possibly earlier as well. The shallowest fill was adjacent to E4, and the deepest in the east quarter.

The fireplace (F6) is 6.3 feet wide by 2.3 feet deep, and is located 3.2 feet from the east corner. Walls, floor, and fireplace had been coated with white plaster at least three times.

There was a well in the east quarter of this room. The builders' excavation was 6.1 feet wide and cut into the SE wall. The shaft itself is 2.2 feet in diameter and is lined with unshaped limestone slabs. This well was excavated by Dr. Dick in 1954 and was determined at that time to have had a depth of 13 feet. This depth was confirmed by fill excavation in 1963. Dr. Dick assigned the well to the Stagecoach Period, but the top of the well was flush with the Bent Period floor, and it might, therefore, date from the earlier time. However, Dr. Dick asserted in correspondence that no *vigas* were encountered in 1954 and that the well had to be post-Bent.

The floor of E5 was completely covered with charred timbers, some of which were large enough to have been upright supports. Most of the charred beams were oriented N-S. Charred materials were found over and in the

well, a fact which would seem certainly to place this feature in the Bent Period.

E5 must have been one of the more comfortable rooms at Bent's Fort, although it was probably not one of the living quarters. Its fireplace was one of the larger ones of the Bent Period, and only Room E3 had more floor space.

In areas selected for deeper tests, two sub-floor postholes were found. These were not in use after the floor was made.

Room E4

This room measured 20.1' N-S x 20.2' E-W (figures 11 and 12). The divider wall which this room shared with E5 was 0.8 foot thick, while a wall 1.08 feet separated it from E3. This difference in wall thickness was apparently the result of different wall heights, the former wall having been higher. Centered in both walls was a sill, or portal remnant, measuring 1.2' x 2.55'. These may have been open doorways, for if there had been jambs, they would probably have occurred at a higher level.

As in E5, the floor of this room was covered with burned beams, largely confined to the east and south quarters here. They were oriented NE-SW, just as in Room E5.

A broad but shallow pothole was found in the north quarter of the floor; and a double row of



FIGURE 12. *Early Bent pit in Room E4, looking south. Bottom of pit is shown at left, and adobe brick wasters used to fill the pit are shown at right. The west quarter, at right, contained the counter foundations and was not excavated below the terminal Bent floor.*

rectangular posts, 2.55 feet apart and 0.30' x 0.25' on the average, extended across the west quarter of the room, NE-SW. Thin wooden runners between the posts outlined smooth panels of floor 2.85' x 2.8'. This feature occurred 6.0 feet from the inside of the NW wall and was interrupted on its NE corner by a late pothole. These posts were most likely the foundation of a counter used as in a store.

Charred cloth was found beneath the burned beams in the east corner of this room. In the west quarter the brass hardware and charred, crosshatched fragments of the stock from an unidentified shoulder arm were found. Nearby were several heart-shaped iron padlocks (figure 61) and 90 percent of a brass telescope (figure 62), lacking only the objective lens and its housing. Numerous variegated glass trade beads also were found here.

The floor itself was scorched red but well surfaced and preserved. After exposure, however, weathering accentuated an outline of "settling." Testing revealed a pit 15.0' x 16.2' and three feet deep (figure 12), containing 0.6 foot of loose fill, and the remaining depth packed with broken adobe bricks.

Very little was recovered in the adobe rubble, but the loose fill at the top was found to be rich in trade beads which were predominantly black. Whatever the original purpose of this pit, it was earlier than the floor by which it was completely covered.

Room E3

This was the largest room at the site within the compound and measured 29.55' x 20.09'. Associated features, at the floor level, were an adobe landing for an enclosed stairway located in the west corner (figure 13), and a rectangular adobe brick feature in the center of the floor (figure 14). The stair landing was 6.0 feet wide and 3.5 feet long, being 7.0 feet out from the SW wall. The front (NE) of the landing was formed by two shaped, adobe, corner bricks and a trench 1.1' x 3.1' x 0.8' deep.

The initial interpretation that this landing was probably a wind trap entered from the plaza walk in front of Room E3 was dispelled, largely by the fact that 2.5 feet separated the stairwell from the SW wall, which would have been illogical in the design of a straight staircase. The arrangement would be quite satisfactory for a circular staircase leading to an upper room, however. This explanation of the feature was buttressed by the diary of Captain Benjamin Davis Moore of the regular army. Moore recorded that he and some companions entered an upstairs apartment (St. Vrain's) by means of a circular stairway within an east room in order to have a few nips of rye in private (Stinson, 1966). This is the only stairwell of which evidence remained to which Captain Moore could have been referring.

Almost centered in the floor was a rectangular, adobe brick base, four courses deep. This fea-



FIGURE 13. *Adobe landing for an enclosed remnant of stairway in west corner of Room E3. The stairway was razed prior to the fort's abandonment.*

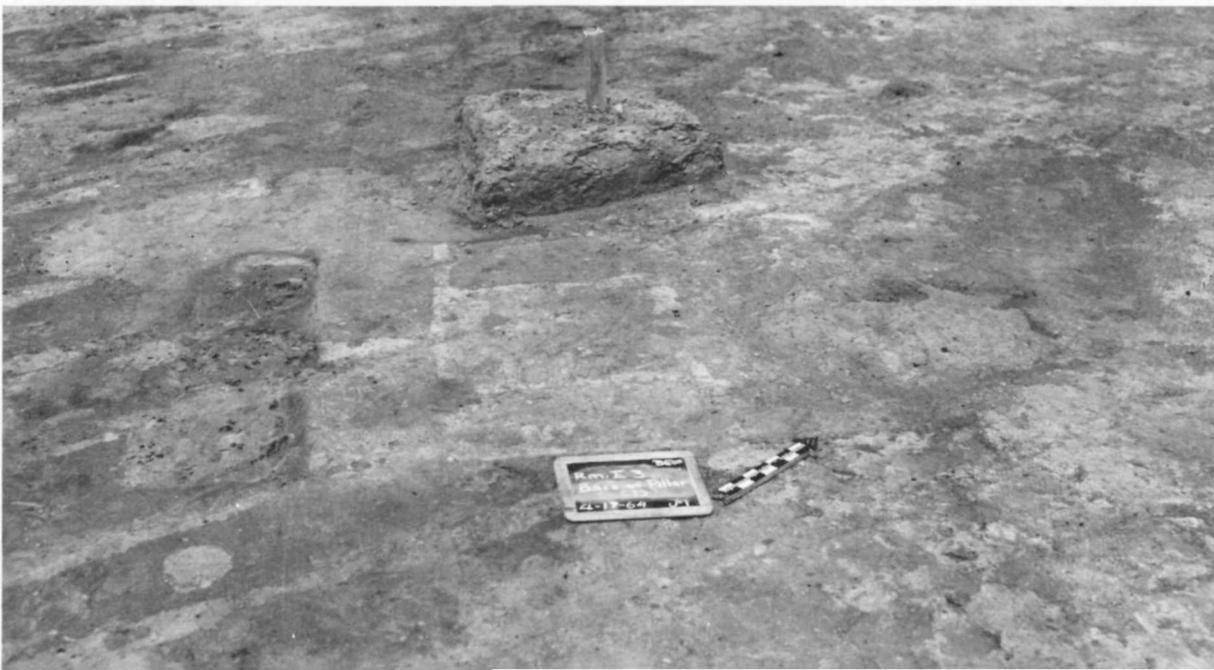


FIGURE 14. *Rectangular adobe brick feature, with three posts at one end in Room E3. Like the stairway, this feature was no longer in use when the fort was burned.*

ture was difficult to interpret with any finality. Its depth suggests that it was a footing meant to support considerable weight. It could have been the remnants of a fireplace or a stair, but most likely it was the base of a support column. The 29-foot-plus length of this room would seem to have made such a column desirable. The three posts at the feature's SW end may have been reinforcements, and there may have been matching posts at the other end.

In the northeast half of the room a light-colored zone of the floor was noticed early and became increasingly evident as it bleached out from weathering. A burned outline appeared half a foot below the floor level forming an asymmetrical pit, 10.2' NE-SW x 13.8' NW-SE. The pit included about half of the rectangular adobe feature, and its walls were very straight and regular with quite rounded corners. The pit was narrower on the NW than on the SE side. It was actually deeper than the buff-yellow soil in this one area, extending up to a foot or more into the gravels of the flood plain. The pit in Room E4, adjacent, was completely contained in the native soil at a similar depth. Everything from 0.5 foot below the floor level to a foot below the gravel was scorched red and black.

Inside the pit there was evidence of two-inch planking (charred) at the NW and SE walls which had the appearance of having been joists or purlins. The bottom foot of debris contained numerous charred barrel ends and

staves. Centered against the edge of the NE wall was a charred barrel which held five bottles. Four were green wine bottles blown in a one-piece mold. Two of these had glass seals welded to their shoulders identifying their contents as Médoc, a red wine from southwestern France. The fifth bottle was a light blue and was blown in a three-piece mold with a lip which suggested ancestry to later whiskey and beer bottles. A four-gallon, salt-glazed stoneware olla, a wooden churn with wooden dasher, another green wine bottle, and ceramics representative of the second quarter of the 19th century were recovered from the western half of the pit. Fragments of clay pipes and hundreds of white trade beads were found throughout but heaviest on the east side.

The floor in E3 was covered with burned material, which tended to occur in "clumps" rather than in alignment. There were semi-melted pots and pans, charred cloth (both fine textured and burlap), and short, heavy lengths of beams. One reason for the "clumpiness" became evident as the floor surface was cleared. Scores of not quite parallel striations had been made by a toothed instrument. These striations occurred on both divider walls, the stair landing, the central rectangular feature, and the SE wall. Similar striations were noticeable on the divider walls between Rooms E4 and E5, but they were shallower and never reached the floor of either room.

The central adobe support base was originally at least 0.25 foot higher than found in 1963,

as was the stair landing. The standard adobe brick of Bent's Fort had an average height of 0.35 foot, whereas the top course of this central feature and the only course of the landing were less than 0.1 foot, in addition to being unnaturally smoothed. This suggested that prior to the ultimate destruction of the room all of these features were deliberately razed to floor level due to a change in room use. The presence of burned debris above the features meant that they had been razed prior to the burning. The striations noted above were not in any way responsible for the reduction, as an instrument leveling them would have cleaned off the burned debris rather than furrowing it.

The pit, having been severely burned, was not analogous to the pit in Room E4. While a prepared floor, including a built-in counter, covered the latter, almost no "clumped" debris covered the pit in Room E3. The striations referred to above extended well across this pit, but they were more vague because of the looser texture of the soil here. The slumped edges of the burned strata within the pit suggested that it was open during, not before, the fire. The unscorched half foot of soil which covered the bulk of the pit accumulated later, and was compacted by the heavy traffic to which these central east rooms were all subjected from then on.

Room E2

The heaviest walls of the east half of the compound occurred here. The room measured

17.7' x 15.6'. Its wall shared with E3 was 1.6 feet thick, while the NW wall was 2.05 feet, the SW 2.0 feet, and the SE 1.95 feet. The NW wall was set back 5.4 feet from the alignment of the NW wall of the other east rooms.

The fireplace on the SW wall was 6.5 feet wide by 0.8 foot deep, and the edges of its cheeks were meticulously symmetrical. There were "ghosts" in the floor before each cheek which showed that their lengths had been reduced 1.2 feet. The walls of the room and the fireplace were first plastered yellow and later brick red.

The wall dividing E2 and SE1 was high enough so that a doorsill remnant 2.6 feet wide was extant. The sill was "stepped" and the wood occupied only half of the total thickness of the wall.

Of architectural interest in this room was a charred shutter or door, found on the floor in the northeast section. The element had been secured by a large iron hook, still engaged in an iron eye on its frame. The remnant, measuring 4.3' x 1.5', was not complete, but even this would seem to have been too large for a shutter.

A sizable quantity of charred paper was found, including a spineless book of some sort. This was too brittle to permit opening or much handling, but the inside pages appeared to be unburned. It was not possible at the time to determine this without sacrificing the outer

pages. Later the Park staff determined that it was written in French.

Several pieces of slate were found, some of which bore drawings. One group of pieces portrayed portions of a foot and leg clad in a tight, fringed buckskin trouser and a moccasin. A red slate scribe also was found. The slate had been scorched red and tended to be friable.

The prepared earth floor in this room contained small and medium-size glass beads as inclusions. Tests revealed that there was no prepared floor surface remnant beneath this one.

Room SE1

The dimensions recorded for this room were 20.1' NE-SW x 18.09' NW-SE. There was access to this room through doors from the inner corral, Room E2, and Room SE1-A.

The fireplace (F8) is the largest at the site and has the largest hearth as well. The hearth is made up of uncut tabular slabs of limestone which bore no resemblance to the cut and finished limestone hearths of the Stagecoach Period. It measured 9.0 feet wide and 6.5 feet long (NW-SE).

Most of the wall surfaces had no plaster remaining on them, but a small area of the NW wall still had some red plaster. The floor was no longer even and sloped from the center downward to the southwest. There might well

have been an abandoned drainage ditch beneath the floor here to connect with the one known to extend from S2 to S7 and probably also with one on the other side from SE1-A, across the inner corral, and outside the east outer wall.

Dr. Dick felt that this room was used by William Bent as his quarters. This was probably based on a combination of observations: it had the largest fireplace and hearth and contained a relatively large amount of ceramic material. This same combination of traits might also suggest that it was a kitchen.

Room SE1-A

This room measured 13.0' x 8.4'. From the bottom of the coursed adobe bricks down, this room was filled in with adobe wasters. Sherds of copper-lustered, white earthenware were recovered amid the lower levels of wasters. There was evidence of burning below the top of the wasters, and whitewash had been applied to adobe plaster on walls made of both brick and earth. At the bottom the floor was the usual prepared earth and had some flat glass and an iron adz-head lying on it. No remains of any stairs were found. Later it was found that the ditch referred to above once entered this room next to the south corner but had been at some time filled in and plastered over.

There is little doubt that this room was originally a pantry or root cellar. As such it

would have serviced the adjacent kitchen in Room SE1. Later, but in pre-fire times, the floor level was raised four feet to bring it to the level of the adjacent rooms. It may be that only the walls were raised to full room height at this time, although this seems doubtful. Whether this alteration was accompanied by a change in use for Room SE1 was not indicated by the excavations.

SOUTH ROW OF ROOMS

The south row of rooms was about 113 feet from the south corner of Room SE1-A to the west corner of Room S7; it measured 27.89 feet less on the plaza side (figure 15). The south rooms were even more eroded than the east rooms, with blade scars along the walls and floors (figure 16). Dr. Dick noted wagon

FIGURE 15.
South row of rooms, with adjacent features.

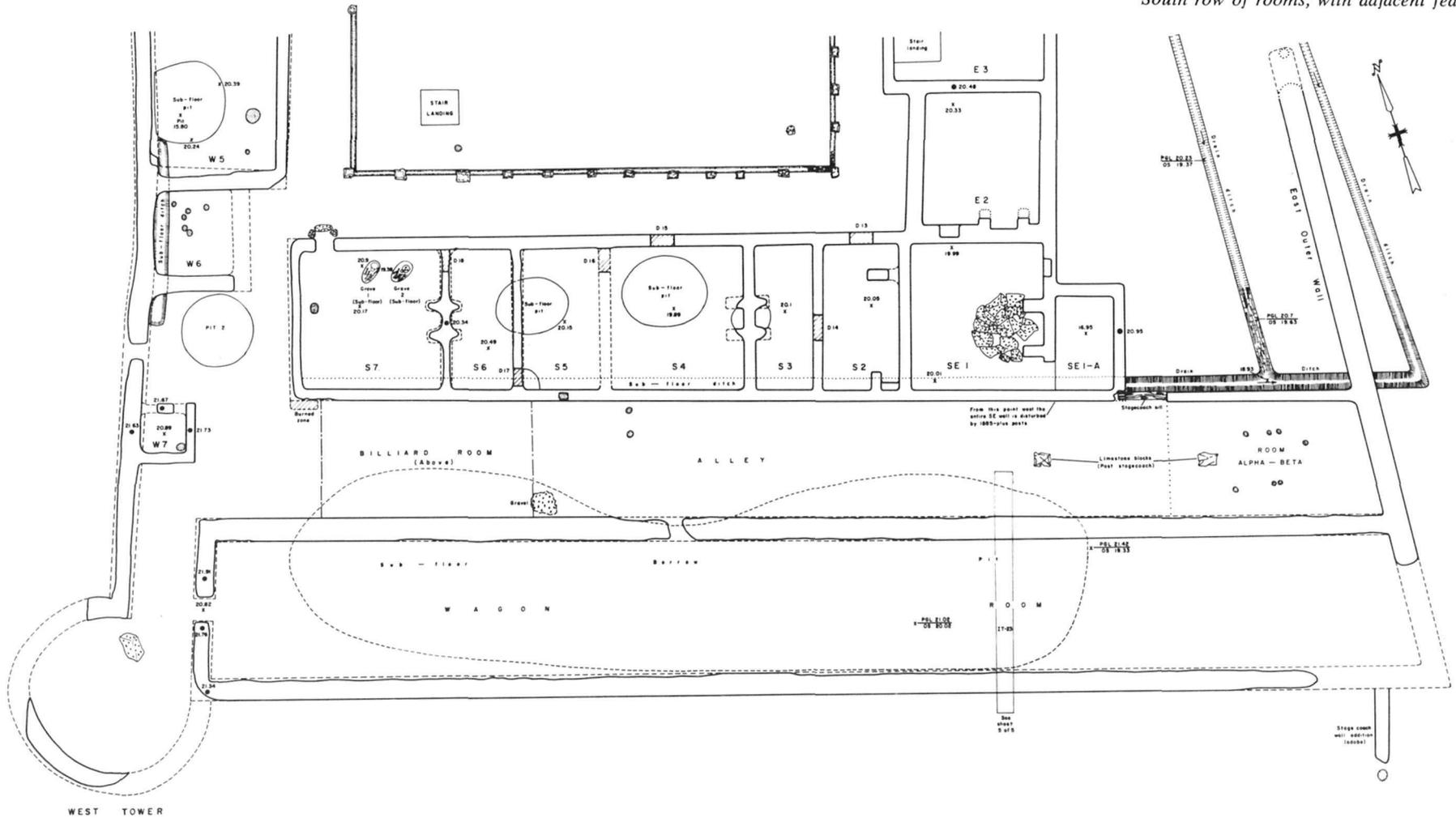




FIGURE 16. *South corner of the compound looking south-southeast. Men at left are in Room SE1; those at right are starting work in Room S4.*

wheel scars on the walls of Room S7. The absence of fallen wall in these rooms, a characteristic shared with the east rooms, was in contrast to findings in the north and west rows of rooms.

Room S2

This room measured 19.8' N-S x 10.3' E-W. Like all of the south rooms other than SE1 and SE1-A, the wall adjacent to the alley in this room had been disturbed by late cedar posts. It had a congruent corner fireplace located parallel to the SW wall, which measured 4.15

feet in width. This fireplace had only one cheek, 1.5 feet long and 0.9 foot wide. The hearth merged with the SE wall which served as the second cheek.

Another feature of this room was a short wall forming an alcove 4.2' x 1.5' in the east corner. Dr. Dick suggested that this was a closet or a commode, and no evidence was found which either verifies or negates this thought.

S2 is another room which showed a continuous series of plasterings that included the floor as well as the walls. Both floor and walls were

alternately coated with adobe—red, yellow, and white. This room hardly was drab!

Material recovered from the bottom level included several large fragments of flat glass near the fireplace. There was probably more, but a Cattle Period row of posts was set in a trench which entered the room from the alley near the west corner for a distance of 8.7 feet and had disturbed this sector. This glass probably came from a glazed window opening on the alley.

There was considerable evidence of fire on the floor itself, although it apparently did not extend to the walls, where the 1954 exploratory trenches failed to yield any striking evidence of scorching. Other than the burned floor plaster, most of the evidence of fire was in the form of charred beams.

Little was found in the cultural remains to suggest room use. In view of the physical traits of the room, it would seem to have been best suited for use as living quarters for one or two persons. I cannot but suspect that this room was originally a part of Room S3.

Room S3

This room measured 19.7' NE-SW x 7.1' NW-SE. It was, therefore, the narrowest room of the south row. There was evidence of white plaster on adobe in this room.

S3 had a fireplace of the "H" type, back to

back with that of Room S4. The hearth was 2.4 feet wide, with cheeks adding an additional 1.5 feet and 1.7 feet of width, and 1.7 feet of length.

As in S2 and S4 there was very little depth of overburden; hence, little cultural material was recovered. As in Room S2 the small size together with the fireplace would have limited its use to either a sleeping room or an office. It would seem that almost any sort of shop would have required more width than 7.5 feet.

It is worth considering that this room might once have been integral with Room S2. A study of the ground plan reveals that the south row probably consisted of four rooms more or less equal in size, each heated by an "H" fireplace located in the center of the partition wall. The partition walls which separated these rooms (S2 and S3, S5 and S6) were found to be as sturdy as those presumed to be older (those between S3 and S4, S4 and S5, and S6 and S7); and none of them was bonded at the corners in the manner of conventional brick masonry, all abutting the exterior walls.

Room S4

This was the largest of the south rooms, and one of the more poorly preserved. The dimensions were 19.4' x 18.0'. The shallow fill in this room again provided relatively sparse cultural material.

The fireplace was incomplete as found. Since



FIGURE 17. *Bent floor being uncovered in Room S5. More iron wagon parts were found here than on any other Bent floor. The arrow points north.*

the hearth was the same width as the one in S3, the rest was probably a mirror image of it inasmuch as both formed an "H" feature. White and, later, red plaster had been applied to both walls and floor.

The size of S4 would have permitted a variety of uses, but none was clearly evident during the excavation.

Room S5

This room, most nearly in line with the fur press and the main gate, must be the area where George Bent recalled that there had been a gate. When excavated, the 19.7' x 10.3' room had no actual wall remnant at the original level to separate it from the alley. Instead, the remnant of a single square post was found at the Bent level, centered on the room where a wall would have been. Over this a remnant wall was found. The wall had been built over the post and across the desiccated remains of a wood paving 7.0 feet wide which extended 5.0 feet into the alley.

Room S5 was the only room in this row which had no fireplace, but there was in the west corner a feature shaped like a slice of pie and showing red from severe burning. Its small size (2.1' x 2.15') made its use as a fireplace or door equally unlikely, although it could have been the locus of a small forge.

The largest quantity of iron hardware at a single level was found on the floor of this

room, and its walls retained at least two white-plastered surfaces (figure 17).

On the basis of archeology alone, this room would seem to be the strongest single candidate for a smithy. The lack of a substantial wall and the provision of a plank floor on the alley side are both strongly suggestive of an opening designed to bring in vehicles or animals for outfitting or repair.

Room S6

Measuring 19.65' x 9.48', Room S6 was the second smallest in the south row. It had a fireplace with a 3.1-foot-wide hearth plus two cheeks each 0.6 foot thick by 1.6 feet long. It formed an "H" fireplace together with that in Room S7. Very little height remained of walls or fireplace, but the features could be fairly well outlined with floor and whisk brooms used in conjunction with a sharp hoe.

With such a shallow overburden there was a correspondingly slight recovery of artifactual material. The floor yielded fragments of plaster, and some extant plaster was found in the rounded corners. All indicated the room had had at least three white coats.

Little was found in the room to suggest use. Its narrow width put it in a category similar to S2 and S3. It did communicate by door with S7, and together they may have constituted, if only for a time, an apartment.

Here again was a case where one room prob-

ably was made into two. The fireplace in Room S6 would have been more than adequate for a room the width of S5 and S6 together, if only because its "H" mate in Room S7 apparently sufficed.

A phenomenon of these two rooms which did not occur in S2 or S3 was its sub-floor pit. This pit definitely antedated the partition wall which it underlay. Removal of the partition wall produced a duplicate room to S4, complete with similar pit.

Room S7

The topography was higher in this room; and, as a result, a greater variety of fill and features was encountered as well as a greater quantity of material. The room's dimensions were 19.8' x 18.5'.

As in most of the adjacent rooms, the walls here had been scarred by a blade. A decade earlier Dr. Dick had noted the tracks of wagon wheels across these walls. To be sure that we were not applying different interpretations to the same phenomena, photographs and descriptions of the scars were sent to Dr. Dick. He affirmed that they were not the characteristics to which he had referred.

The fireplace, which had a 3.6 foot-wide hearth and cheeks 1.5 feet thick by 1.8 feet long, was poorly preserved, although in better condition than those in S4 and S6. A particularly interesting feature of this room was a door in its north corner facing the plaza. The

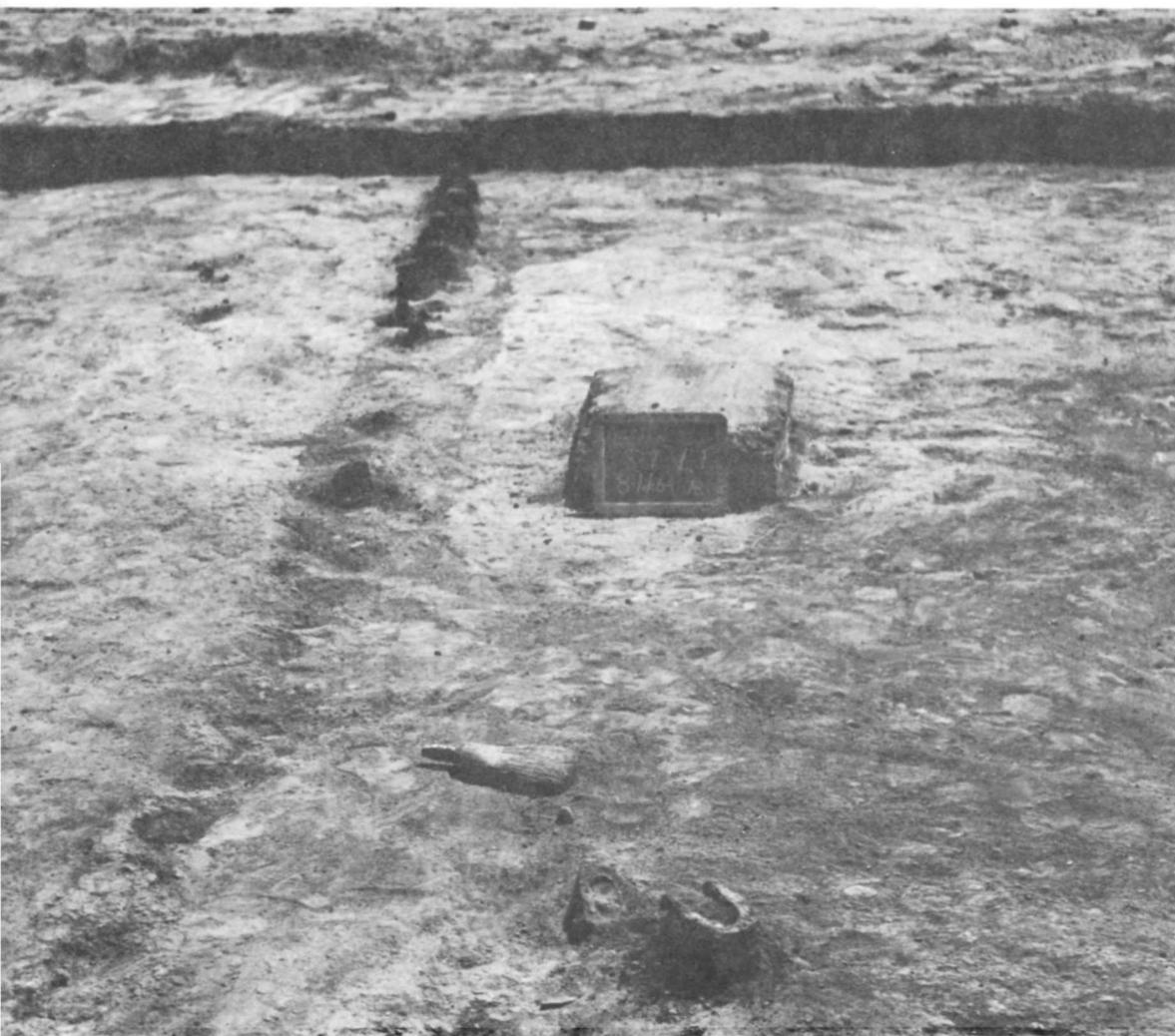


FIGURE 18. *Bottom of level in Room S7. Note remnants of cedar posts of Cattle Period pen, which intrude from the alley at top center. These posts penetrated the Bent floor and disturbed a pre-Bent aboriginal burial.*

sill portion of this door was severely burned, and there were the remains of a stone stoop outside. Iron wheel-hub parts and bones were lying on the sill.

At the first level a trench was found which entered the room from the alley. This trench was one of several located at both levels in various sections of the room. This one contained small juniper posts, averaging one-half foot in diameter (figure 18), while a deep trench along the inside edge of the back (SW) wall had several postholes. This latter trench did not show until the floor surface at level 2 had been removed. All, however, were probably part of a branding pen dating from the Cattle Period. Level 1 also contained cultural material dating from the early 19th to the early 20th centuries.

The second level revealed a prepared earth floor covered with charred timbers, horse-shoes, wheel-hub parts, and an intrusive garbage hole. The floor here had been whitewashed but was scorched red in places.

Two burials were found when sub-floor areas were tested (figure 19). Both were tightly flexed inhumations unaccompanied by grave offerings of any kind. Burial 1 was oriented with head to the north, face down, arms akimbo, and legs folded behind. This burial had every appearance of haste and of minimal concern. Burial 2, on the other hand, was a "normal"-appearing, flexed burial in the tradition of the aboriginal Southeast. This burial



was face up, arms folded across the chest, and knees drawn up tightly. Burial 2 had been disturbed by the row of Cattle Period posts, referred to above, which ran across its long axis, the damage having been done mainly to the feet and one hand. The bones from both burials were sent to Dr. William Bass, physical anthropologist at the University of Kansas, for analysis (see appendix III).

FIGURE 19. Two pre-Bent aboriginal burials. Both interments were found accidentally. The woman at left (Burial 1) was found during the search for a possible tunnel exit, while Burial 2 was found during removal of the late cedar posts.

It was the usual plank and joist type, with the joists running NE-SW. These joists had been seated in shallow, sand-filled trenches. There was no direct evidence of a Bent Period floor in this room other than the deeply scorched earth beneath the later, unburned floor.

An elaborate well complex of the Bent Period was found, however (figure 21). This consisted of a rectangular, plank-lined shaft, a non-congruent rectangular well room, and a stairway leading into the feature (figure 22).

Analysis of the stairway yielded interesting conclusions. The shallow height of the top-most riser (0.35'), even assuming it was originally the highest, was so much less than the average of 0.75 foot that it must be regarded as a remnant. This clearly indicated that the Stagecoach people built their floor some 0.3 foot below the original Bent floor. The stairs found measured 2.6 feet in width and 3.75 feet in length. The five treads averaged 1.1 feet in width. Originally the stairs had one more tread at the bottom, within the well room. It was represented by scorched remnants which indicated a total staircase length of 4.5 feet.

The well room itself was rectangular and plank-lined with four square uprights, one in each corner. The dimensions of the well room were 6.0' x 6.2' x 5.5' deep.

The well shaft itself was constructed by first making an excavation roughly the shape of the



FIGURE 21. Bent Period well in Room W2 with stairwell at upper left.



FIGURE 22. Stairs to well.

room but narrowed to 3.3' x 4.0' x 9.75' deep. A vertical shaft lined with planks was built, and the excavation around it was filled back as the shaft rose in height. At the top the shaft was bordered with flat boards 0.3 foot wide by 3.5 feet long. The completed shaft was 2.8' x 3.45' x 9.75'. It was offset 45 degrees from the room so that the northeast edge of the stairs was in line with the west and south corners of the shaft.

Among the numerous artifacts recovered from the shaft was a pump, a wooden device with iron straps made in a hollow square. The piston was also of wood, although it undoubtedly had a leather gasket.

The fire here was severe. Articles recovered from the higher levels of the shaft were scorched or charred, while ones at the lower level were preserved by being waterlogged. The well room itself indicated a partial collapse at the top which gave it the profile of an inverted bell. From a depth of 2.65 feet up the fill was a "cap" with associated materials that confirmed its Stagecoach Period origin. The well complex itself was unquestionably of the Bent Period.

Since the Bent floor of W2 proper had been removed, there was nothing to suggest the room's use at that level. It had doors communicating with both Room NW1 and Room N2, which arrangement could mean that the three shared some use pattern. If any one of these rooms could be identified as having been

a smithy, the proximity of the well would become quite logical.

Room W3

The dimensions recorded for this room were 17.1' x 19.2'. Sections of fallen wall were immediately underlaid by many bovine skeletons and two deer. Associated with these animal bones were broken plate glass and such agricultural hardware as pieces of mower feet, blade holders, etc. The ubiquitous manure here was more heterogeneous than usual, some of it being deer and some rabbit. The Stagecoach floor here was found to be much like that of Room W2. The Bent floor was scorched and discolored but, except for a circular depression in the center, intact. It was of prepared earth and contained a line of postholes, two of which were covered with support stones. At least two and possibly three of these posts must have been used as roof supports. Just beneath the bottom of the SE (plaza side, or front) wall was a posthole which had to be earlier than the wall. In the center of the floor was a slot-like impression made by a half log, laid flat side up.

A portion of the wall dividing Room W3 from W2 was missing. Both wall and floor were scorched a bright red and yielded a bovine humerus and an iron pan. Despite the depth at which found, the pan, at least, must be considered intrusive from the Cattle Period.

In order to find the cause of the floor's

“settling in the center, the northeast half of it was removed. A very regular and straight-walled circular pit was found, measuring 11.89 feet in diameter and 4.5 feet in depth. One-half of the pit was excavated, but very little was recovered except small animal bones. It is possible that it was used as a storage, or cache, pit during the early phase of Bent occupation.

The absence of a fireplace in this room would have made it very uncomfortable in the winter for anything but in-and-out work. This is the sort of activity that might be associated with a warehouse or storage room, and there is some documentary reference to these west rooms having been just that.

Room W4

This room was enigmatic to Dr. Dick after his limited tests and remained so during the second investigation until well along in 1964 (figure 23 and 24). Its 1954 dimensions of 14.0' x 16.0' were responsible for its interpretation as a pit. Only a complete excavation could have shown that this was a full room measuring 17.1' x 25.45', with a stair which led from the walkway down into a basement, 14.0' x 16.0', which in turn had a split-level pit, 8.5' x 9.5' x 2.0' deep. The ground level floor would have been of little use unless the basement had been roofed over, and it apparently was. Front and back posts were located in the center of the NW and SE basement walls. All four corners of the basement had



FIGURE 23. *Room W4, with 1954 excavation reopened. The deeper pit at top left is the deepest made in the south corner; it reached the bottom of the Stagecoach floor in the basement.*



FIGURE 24. *Room W4, showing stairs, basement, and pit. The stairs appear to be a Stagecoach addition, associated with a plank floor laid across the bottom of the pit. Note the circular impressions from barrels which burned in the pit.*

heavy posts measuring up to a foot in diameter. In addition to two intermediate posts on each of the remaining walls, a dark-keyed beam ghost was found between two of the posts, indicating support for a floor above. All ten upright posts were half recessed and on a horizontal plane. The same was true of the keyed beam. Unless there was also a trapdoor and ladder, the basement necessarily would have been entered by the stairs from the west walkway outside.

The stairs were 4.0' x 4.66' wide with treads 1.1 feet and risers 0.8 foot. Both treads and risers were plank-covered.

Dr. Dick's single deep test was in the south corner of the basement, where at a depth of five feet he felt he had found the Bent floor. In a sense he had, since the scorched surface was veneered with an adobe wash left from the "grout" in which the Stagecoach Period floor joists were set. The Stagecoach floor was missing from the south and east corners, except for some crumbled rubble in the east. On the basis of his test, Dr. Dick concluded that the room had been a pit, and this was accurate in that the folk of the Stagecoach and Cattle periods did dump their debris into this "pit." The Stagecoach floor was covered with iron implements, most of which were from agricultural machinery and coach wheels. A leather shoe with a square toe also was found among debris.

The third level pit came to view only after the

"basement" floor had been scraped. It first showed as a black corner, rounded as usual. Removal of the "basement" floor revealed a pit 8.5' x 9.5' with walls not quite parallel to those of the basement. The pit's primary function was the storage of wooden barrels. The charred remains of 14 such barrels, 1.65 feet in diameter, were found together with two brass bibcocks. The pit also contained hundreds of variegated glass trade beads, a spade, a fireplace tile with pre-1829 glaze, a cartouche case, and seven flintlocks. Everything was severely burned or charred, including fabric-lined bungs. When the adobe coating on the floor was removed, it was seen that scorching extended over the entire floor surface but was not present on the walls.

Room W4 was obviously the largest of several storage rooms. It is doubtful that some of the items listed above belonged to the pit, but the barrels unquestionably did. There must have been much more in the basement than wine, vinegar, or spirits barrels in this subterranean supply room, however. The ground-level floor must have been shelf-lined. There was probably a wooden floor in the basement, and its corner supports probably extended to the ceiling of the main floor room, since the latter was a long room beneath a second story.

There was direct evidence that the roof of the basement had been plastered white. Numerous large pieces of gray adobe plaster with white coatings were recovered from the pit, all of which contained impressions of *latias* and

larger beams as well. The white ceiling of the basement was probably made necessary by the need for light in the area.

Room W5

Dimensions of this room were 21.33' x 17.0'.

There was no remnant of the Cattle Period in this room. Stagecoach Period materials were revealed at the very first level. The plank-and-joint floor here was easily traced out with the joists laid from NW to SE. An extraordinarily thick west corner can only be explained as the remnant of a chimney foundation for a fireplace, and the Abert sketch does indicate a chimney for the second-story room at this location.

After removing the Stagecoach Period floor, the usual ashes, scorched clay, and debris were encountered. Charred wood as such was relatively light, however. A slumped, circular area was immediately apparent, even before the entire Bent floor was cleaned off. This later proved to be a sub-floor pit. The floor itself held what had probably been two roof-support posts, but these were not symmetrically located. One was next to the edge of the southwest wall, and the other was on a stone base, in line with the other but well in from the NE wall. Like W3, the floor here had a long thin slot in the center, closer to the SE wall in this instance. The slot was ash-filled and oriented NE-SW, at right angles to the similar wood-filled slot in W3.

The floor pit was shaped like a rounded capital "D," with the straight edge against the north-west wall. It was 9.4' x 10.6' x 4.44' deep. A small amount of bone was recovered from the fill; and there were several irregular blocks of limestone, some burned, on the floor. Like the pit in Room W3, this one suggested a temporary cache pit, made perhaps very early in the Bent Period and later filled in and floored over. The pit was earlier than the Bent floor but younger than the sub-wall trench into which it intruded. This trench contained ashes and ran under the floor of Room W6 and into the open area beyond it (figure 25).



FIGURE 25. Subwall and subfloor trench at back of Rooms W5 and W6. A similar trench runs the length of the south rooms.

Except for size, Room W5 would seem to offer the same storage warehouse alternatives for historic use as Room W3. It is fairly certain that there was a chimney foundation in the west corner of W5, but if ever a fireplace was there, the Stagecoach Period removed most of what remained. In my opinion, there never was a fireplace at the ground floor in this room.

Room W6

This is a confusing little room, if room it really was. Its dimensions were 12.0' x 9.0' in 1954. A decade later it measured 10.66' x 10.15', but we were uncertain about what to regard as the front (SE) wall. The front wall at 12.0 feet would be the 1954 exploratory trench.

The floor at the highest level was paved with flat-laid adobe bricks. Sizes varied somewhat but averaged 9" x 16" x 4". Most of the bricks were broken, those fronting on the plaza being the best preserved. A disturbing aspect here was that the brick floor seemed identical on each side of the 1954 exploratory trench, except for height.

The original area could have been an extensive paved stoop, or patio. If so, it might have served as a washhouse, with little or no emphasis on the "house." Its immediate proximity to pit 2 would make this use association plausible. The floor was younger than the ditch in back, but since *all* floors at the site were apparently so, this factor was not deemed especially significant.

There were two earlier levels of occupation, the higher of which could possibly have qualified as a poorly preserved Bent floor. The front (SE) wall was the front portion of what first appeared to be "paving." I do not believe that W6 was a room during Stagecoach times, but it probably was during the Bent Period. This interpretation was based solely on the fact that the bricks at the "wall" location were well integrated although damaged along what would have been the interior wall edge. In width this area would have been thick enough to support the second story shown in the Abert drawings. The room's dimensions would still have been 10.66' NW-SE x 10.15' NE-SW—a reasonable size for a powder magazine. The room's location was a hazardous one for this use, however. Only a strong wall separated Room W6 from the storeroom W5, and the latter had a guest room above it.

Pit 2

This pit was found as a result of excavating Stagecoach Period postholes. When it became evident that several posts showed disturbance in their sides and bottoms, the area was hoed down gradually and swept. After a few such shavings a circular feature appeared. Excavation showed that it was a straight-sided pit, 9.85 feet in diameter and 7.5 feet deep. A partial cave-in was evident from level 4 to level 10. The natural gravel at the bottom of the pit had been covered with an exotic clay, a treatment that could only have been done to enable the pit to hold water either in or out.

If the latter was the purpose, the pit probably served as another cache pit. However, if the gravel at the base ever served as an aquifer, it would seem that the walls of the pit would have been clay-coated also. My feeling is that the feature was a cistern associated with the washroom in W6.

Other elements in this area, particularly a door leading through the outer northwest wall and the remains of a stoop outside it, were enigmatic.

Room W7

This room was regarded as an offset corner of "Room SW8" in 1954. Since I found no convincing evidence that Room SW8 had ever existed, I can only offer the observation that the NE wall of W7 was clearly in evidence although cut through at the north and east corners. We determined the dimensions to be 6.12' x 6.12'.

The floor showed evidence of discoloration from fire, as did the inner edges of the walls. Artifacts were meager since the floor space was so small. Beyond this, there was little that could be said with any confidence in the way of interpretation. If there was a smokehouse at Bent's Fort, this room would have served admirably. Its relative isolation, however, would have made it a logical place for a powder magazine, and its small size does not preclude such a possibility.

WALKWAYS

There was a subtle but noticeable difference between the walkways in front of each row of rooms. On the east a line of limestone blocks, set five feet apart on center, extended from a point opposite the north corner of Room E5 to a junction with the south walkway where it made a right-angle turn. The stones were 6.0 feet inside to 7.0 feet outside from the edge of the front walls of the east rooms and provided a 6-foot width of walking space. A layer of gravel overlaid with sand constituted the walkway itself. Protection from the sun and from direct rain was provided by an overhang supported by posts seated on the limestone blocks. A single stone post-support, offset at 45 degrees, indicated that the overhang was beveled at the junction with the south wall, as shown in the Abert sketch.

A drain ditch 1.3' wide x 0.21' deep was dug at the edge of the line of stones to prevent water from seeping under the walkway. This was filled with loose sand and covered with planks. It also probably served to resist erosion from the water which dripped from the edge of the overhang.

The south row walkway differed in two respects from that of the east: the stone post supports were not uniformly spaced, and the drain ditch was covered in places with adobe bricks as well as boards (figure 26).

In front of Room S6 the walkway area would

FIGURE 26. South walkway. Limestone blocks, which served as post supports, are visible in the center. They were by frost and were further shattered by the fire and damaged by a metal blade (note the parallel scars). The true nature of the blade is not known.

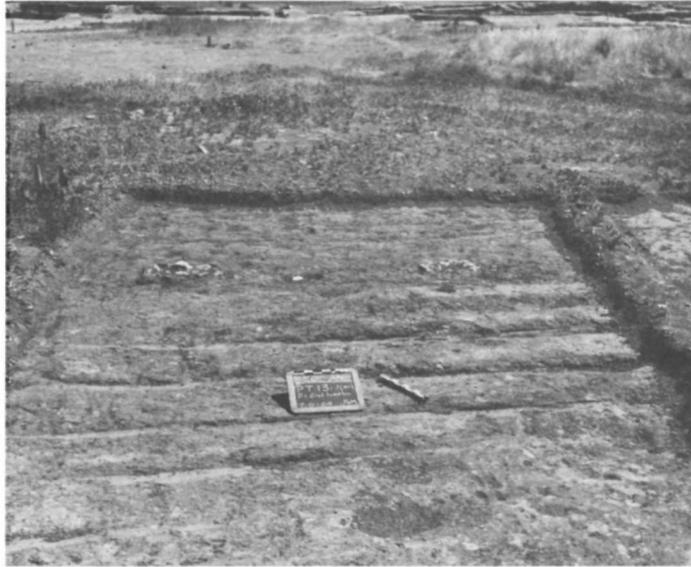
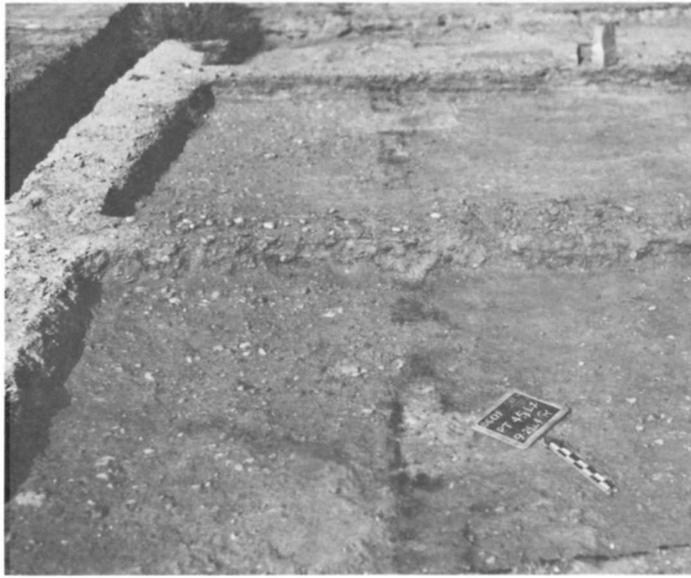


FIGURE 27. West walkway. A shallow ditch filled with sand and covered by a charred board marks the edge of this walk. Arrow points to magnetic north.



have had to incorporate the stairway to the billiard room. The stair landing was 4.5' x 3.8' and extended from 15.8 feet to 19.7 feet out from the wall of the south rooms. There was a narrow (0.5'), shallow (0.3') trench running from the east edge of the stair landing to the west corner of Room E3, which was not interpreted. The drain ditch did not simply join that of the west row but intersected it and continued to the south corner of Room W5.

The west walkway would have looked very much like those on the east and south during Bent's time—several of his limestone block, post supports were still in evidence. During the Stagecoach Period, however, deeply set posts were used as supports in place of posts resting on exposed stone blocks. The width of this walk was also 7.0 feet from room wall to its outer edge with a functional 6.0 feet of space. There was more burned wood here than elsewhere due to the single planks placed, perhaps as edging or runners, between the limestone blocks and the vertical posts which supported the overhang (figure 27).

There was no prepared walkway along the north row of rooms during Bent's occupancy. The gravel was highest here and on the west, which could mean that it was kept so by raking; it could also be due to the way the rubble was cleaned up and graded level in Stagecoach times.

While Bent, St. Vrain and Company was not motivated to provide an overhang at this

location (and none is shown on any of Lieutenant Abert's drawings), the Stagecoach occupants felt otherwise. They constructed an overhang supported on five posts resting on unfinished limestone slabs which were set 0.8 foot into the ground. The distance from the room walls left six feet of passage space, in keeping with the earlier construction of walkways.

No evidence was found of the stairway which Abert shows leading to the roof above Room W2. The landing should have been adjacent to the walk in front of Room N3.

FUR PRESS

There are three documentary references to the fur press. One does not give its location, but the other two specify that it rested in the center of the plaza.

Found during the 1964 excavations, the press was indeed located approximately in the center of the plaza. In point of fact, it was 38.6 feet from the west row of rooms, 34.4 feet from the east, 39.2 feet from the south, and 44.0 feet from the north.

Three rather massive posts for the press were discovered (figure 28). Two were aligned NE-SW, 9.5 feet apart edge to edge and 11.9 feet apart on center. They were joined 0.15 foot below ground by a horizontal beam. The southwest post mold was 1.4 feet in diameter and 2.4 feet deep. The opposite post mold was



FIGURE 28. The fur press is represented by two circular postholes, one to the right of the slate and one just beneath the shovel. The hole at the lower left is the original location of the near end of the press. The other abandoned posthole, not yet excavated in this view, was to the left of the hole in the upper portion of the photograph.

1.4 feet in diameter and 1.4 feet deep. The third post was set at a right angle to the southwest one, 11.2 feet northwest of it. It was 1.54 feet in diameter and 1.44 feet deep.

Attempts to locate a fourth post were frustrated by a huge gourd root which completely filled a hole where a fourth post might have been located. Abert's diary shows that the press had but two posts. Since three holes are verifiable, it may be that the press was set up twice. The two holes connected by a charred beam were plainly the remnants of the fur press at the time of abandonment.

In constructing the press a builders' trench was made first (0.8' x 15.0'). This was done partly to ease the heavy timbers into position as well as to arrange some sort of fitting between the northeast and southwest upright posts which were at the ends of the horizontal timber.

The fur press was probably a late addition at the fort. The excavation for it cut across a disturbed area and was "stepped" down in two tiers to form a circular pit 3.3 feet wide, from which little material of significance was retrieved.

Efforts to find indications of fulcrum posts were unsuccessful, and no features were noted which would have obscured such evidence had it existed. It must be concluded, therefore, that the press was not of the fulcrum-and-lever type but more likely a "rotary screw" press.

PASSAGEWAY

At the east corner of the plaza a passage to the inner corral was formed by the northeast wall of Room E5 and the southwest walls of Rooms E6 and N7. The passageway was 4.5 feet wide and 23.0 feet long, the length having been determined by including the width of the east walkway. There were two good Bent levels in this passage, both of which contained ashes.

During the Stagecoach Period it apparently became desirable to raise the level of the passageway floor. Adobe bricks were laid flat on top of the scorched conglomerate and ashes. By this time the levels of the plaza and inner corral had also become elevated by the accumulation of debris. It may have been the relative softness of the fill that inspired the limited use of paving. A similar phenomenon, at a higher level, was apparently a Cattle Period effort to make some use of fallen wall.

It was assumed that the purpose of the passageway was to bring cargo wagons, pack animals, etc., from the plaza to the inner corral. Upon analysis and measurement of the area, however, it became evident that few if any wagons could have negotiated the passage. Even a pack horse probably would have had to be unloaded in order to get through without abrading the packs. Thus, this corridor must have been designed to provide convenient access between the plaza and the east tower or inner corral for persons on foot, and might

also have been planned as a means of bringing stock animals singly from a vulnerable location to one of relative safety.

TOWER BASTIONS

The towers were not rooms which could be assigned properly to a row of the compound. Although they were designed to function as citadels, in actuality they were used as arsenals.

The east tower was completely excavated in 1954, and artifacts found at that time were deposited with the State Historical Society of Colorado in Denver. Dr. Dick found that the structure had an inside diameter of 16.0 feet with walls 2.2 feet thick. He also found a trench 0.8 foot wide and deep and 15.7 feet long. He did not find that it extended to the SW wall nor that it existed through the east arc, and, therefore, he did not interpret it as a drain.

Dr. Dick placed the entrance to the tower high in the wall shared with Room N7. He found Stagecoach Period fill above adobe rubble, then sterile fill, and finally 0.6 foot of charred fill over an adobe floor. His notes in Denver also revealed that he found six large post-holes averaging 1.0 foot in diameter. The tower, after excavation and recordation, was back-filled by machine.

In 1963 the tower was re-excavated by area and level to insure a cautious outlook. The

dimensions were found still to be 16.0 feet in diameter with walls 2.2 feet thick. On full investigation the trench proved clearly to be a drain which made an exit through the east arc of the wall. The orifice had been a box of cut limestone turned northward at an angle. Its top stone had collapsed and blocked the square orifice, a fact which may have obscured its presence in 1954. There was a total of 22 postholes in the floor of the tower. In view of the fact that a cannon (albeit a small one) was mounted in this tower from which were fired salutes to visiting dignitaries, Indian chiefs, etc. (in lieu of any bona fide excitement), these posts were probably necessary floor supports. Entry to the tower was not gained from Room N7, in my opinion, but from the inner corral, most of the southwest "wall" being simply compact adobe with excavations on either side. The doorway would have been 6.22 feet wide, completely adequate for two-way traffic under duress. It should be noted, however, that no sill or jamb remnants were found.

This doorway, if doorway it really was, may have been a modification. The plan of the towers drawn by Lieutenant Abert provided disturbing evidence. He represented both towers as having a back wall which was straight and diagonal to the orientation of the compound. Dr. Dick's plan of the northeast tower bastion showed the back wall straight but parallel to the orientation of the compound. Since evidence for this wall was revealed as an illusion, we were left with the probability

that Lieutenant Abert was correct, an assumption that became still more likely when we considered that the west tower bastion had no such illusory back wall, and doubtless appeared as Lieutenant Abert depicted it. Abert's most glaring inaccuracy regarding the towers was to depict them as having been of equal size.

A sealed opening beyond the outer NE protective wall was shown on the Boggs sketch and identified as a "coal hole." This term has long been used by many people to refer to any dark, black opening. Such a folk tradition does not preclude the possibility that coal might have been passed through here; but, in the absence of other evidence of coal, the probability does not seem strong.

In examining the tower artifacts stored with the State Historical Society of Colorado, I was impressed by the number of whetstones which were found. These were of a very fine-grained, compact sandstone, usually in the size and shape of a brick. All showed signs of extensive use. There were also a fair number of ox-yoke pins and meat hooks, and a small "nozzle" from a powder flask. Unfortunately, no record of depth or association was provided for these artifacts. If of Bent provenience, the whetstones would indicate that cutlasses and pikes were kept sharp even when there was no opportunity to use them.

The west tower tests conducted in 1954 failed to find any more than the beginning of the arc

where it joined the outer northwest wall. It was not until the southwest quarter of the loop road was blocked off that test trenches could be cut across it. There, under and past the crown of the road, an arc of wall with a chord of 12.9 feet was found. The outer edge of the wall was crumbled and the thickness varied considerably, but the inner edge was well marked by scorched discoloration. The tower's diameter, measured from the inside north corner to the inside edge of wall, was 20.85 feet (figure 29).



FIGURE 29. West tower bastion, looking north. This area is mostly west of, and partly underneath, the former loop road. The charred remains of an old wagon bed can be seen on the floor of the tower.

No floor features were found other than the fire-blackened adobe floor itself. The bulk of the associated material was comprised of the charred remains of a wagon bed.

Although the physical remains are much less than those of the east tower, they are sufficient to indicate that this was a larger version of that structure. There was no evidence of a rear wall, but a large stone lies in the same relative position in both towers. These stones may have supported heavy, lintel-bearing posts, or they may have been associated with the drain tubes (figure 30). No evidence of such a drain was found in the west tower, but this may be due to the lower elevation of its wall remnants.

In the absence of physical evidence or other documentary description we must rely on the Abert drawings for the back wall and above-ground appearance of both towers.

The Inner Corral

This feature suggests a right triangle in plan. At the northeast, however, the "apex" was a straight wall 8.4 feet long, of which 6.22 feet may have served as a door to the east tower. The height and westerly leg were formed by the 128.7 foot-long back (SE) wall of the east row of rooms. The hypotenuse was the outer east wall, which was 132.55 feet from the east tower to Room Alpha. This trianguloid plan was interrupted by the intrusions of Room SE1-A and the "shed," sketched by Abert in



FIGURE 30. *Drain tube of east tower bastion, looking east.*

the south corner from Room Alpha to the gate. No firm archeological evidence was found of the shed, which would indicate that it was less substantial than the rooms of the compound.

Four trenches were found in this enclosure, three of which were attributable to the Bent Period. One of these had a length of 63.0 feet, was 1.3 feet to 1.5 feet wide, and sloped from an elevation of 19.46 feet at the north to 18.93 feet at the south. At one time it was, in places, wood-covered. At the south it joined another trench which was of similar width and depth and extended from the west inside corner of Room S7 to an "L" 6.2 feet to 9.1 feet outside the outer east wall. The former trench was used and lengthened in Stagecoach times, but it was not as deep, nor did it join the other trench during that period. The latter trench paralleled the inside of the back walls of the south rooms, the outside of the front wall of Room Alpha, and ran underneath and beyond the east outer wall. This trench was abandoned during Bent's Period; for all but the lowest laminae of floor plaster were undisturbed by it, and in Room SE1-A it was sealed over with plaster. Another old trench, a small one at the base of the outer east wall, extended from the south edge of the gate to the trench in front of Room Alpha. It was below a 1954 exploratory trench and was 53.3' x 1.2' x 0.35' deep. The remaining trench was obviously intrusive, and profiles showed it to be later than the features it contacted. It was a narrow trench which extended from the NE wall of Room SE1-A diagonally past the first-mentioned trench, un-

der the outer wall, and joined a parallel trench outside. It contained small vertical posts and was probably Cattle Period in time.)

The Bent level in the inner corral was marked by a compacted clay, ashy gray in color, with elevations which averaged 19.65 feet. Numerous postholes were found, mostly in the higher levels. Above this level was a layer of ash, inconsistent in thickness and distribution, which was in turn overlaid by mottled, burned fill. Adobe fragments were scattered above this. A short half-wall of adobe bricks, one brick in width, was built in Stagecoach times 6.5 feet south of the tower. This wall was only 3.8 feet long (5.5 feet from the present wall surface) and may have supported a gate to a small pen.

STAGE GATE

This feature measured 22.0 feet wide in 1954. Dr. Dick conjectured that the east rooms were razed to facilitate vehicular traffic through this gate during the Stagecoach Period. He further stated that the gate was, even in 1954, difficult to trace (Dick, 1956).

The stage gate was still less distinct in 1964. This was not surprising since around 1917, by the account of an eyewitness still living in North La Junta, a minor cattle stampede removed the entire gate and sections of wall on each side at that time. This event was some four years before the rest of the walls were washed away by the Pueblo flood.

Nothing in the profiles across the open gateway indicated that there was ever a wall here, either removed or broken through. Rather, there was sterile native soil at the bottom, an occupation zone with a scorched surface, light soil and eolian overburden which had become compacted, and, at the very top, the 1955 adobe bricks. Below the Stagecoach level was only a center-type posthole and the outer ditch. No other feature was found that could be associated definitely with this post. A post matching that of the north jamb was found 9.3 feet south, edge to edge, or 10.5 feet south on center. The south jamb was never found, but on the basis of the seemingly half gate found, a total width of 21.0 feet is indicated for the gate. If the dimension given by Dr. Dick in 1954 was based on direct observation, then his figure of 22.0 feet must be acceded to. On the basis of excavation during this project, it seems appropriate to suggest that the Stagecoach Period gate represents the remodeling of an earlier feature rather than the construction of a new one. The gate would appear to have existed in Bent times.

ALLEY, BILLIARD ROOM, AND ROOM ALPHA

The term "alley" is somewhat misleading for the area under discussion, insofar as it connotes an uninterrupted, open-ended corridor. This space was a corridor 15.0 feet wide between the wagon room and the south row of rooms, but neither end of it was entirely free from obstruction (figure 31). At its easterly end was Room Alpha. It was not possible to



FIGURE 31. *The alley, looking southeast. South rooms are at the left, and the wagon room is at the right. The circular depression is an old pothole. The area of the alley between the two control columns is the billiard room.*

distinguish a definite wall separating this room from the alley because of a packed clay floor which appeared to be continuous for both features and which, indeed, was present throughout the entire length of the alley. Communication between the alley and the inner courtyard was by means of a gate, with heavy wood sill, 8.65 feet wide. This gate was placed between the south corner of Room SE1-A and the north corner of Room Alpha.

Somewhat obstructing the alley at its other end, behind Room S4, was a wall the width of one adobe brick. This wall was 3.3 feet southeast of a line even with the *inside* west corner of Room S4. The wall did not completely block the alley at this point, however, for there was a doorway in it 2.8 feet wide with posts for jambs.

The west end of the alley, like the west end of the wagon room, contained numerous postholes at various levels. These were most plentiful behind Room S7, as might have been expected since this is where the billiard room was located on the second story.

The billiard room might have extended at least partly over the west end of the wagon room, although the Abert sketches indicate this was not so. A gravel-covered area, possibly a stair landing, was located in the alley, but the evidence was not definitive. It was in a site plausible for such a feature, but the presence of a stair there would have narrowed the alley further. On the other hand, only individuals

and pack animals would have used this end in any event, as access to it was extremely limited by the width of passages from the west tower and adjacent to Rooms W5 and S7 to the north.

If Abert, a topographical engineer, can be credited with accurate observations anywhere, it should be here, where all four sides were exposed and where he himself must have spent some time. Thus, because his drawings remain the firmest evidence available regarding the billiard room, both his location and his dimensions must be accepted. Finding a graveled landing just beyond the south corner of the plaza confirms the stairway shown in the Abert plan. The fact that the alley landing was above a borrow pit and its fill indicated further that the back wall of the alley, and therefore the billiard room also, were constructed later. Several postholes, including a limestone post support, were also found above the borrow pit fill, although only the limestone block appeared to lack a soil ghost connecting it to a Stagecoach or later surface.

Thus, the matter of support for the billiard room at its location in the Abert sketches remains to a degree unresolved. Abert shows the room resting on appendages which resemble carrying handles and which spanned the alley. They were supported by the near walls of Room S7 and the wagon room. It may be that this was all the support the room had.

Room Alpha was not located in 1954, and its

discovery in the southeast portion of the alley a decade later came as a surprise. It remains at least partially enigmatic for two reasons: (1) it cannot be given strict dimensions because of the absence of firm wall evidence in the northwest; and (2) a room in such a location was part of the structure sketched by Abert, extending from the site of the east gate to the wagon room, but archeological evidence indicated the space Abert pictured was separated from the wagon room by a wall, and, in addition, was divided within itself by a substantial wall.

There was a wooden Stagecoach floor in this room, but it was at a higher level and almost certainly a late enlargement of the floor in the older Alpha. Two main roof supports for a possibly post-Stagecoach roof were found in this area. Shaped limestone blocks, 1.6' x 2.4' x 0.5', suggested two large posts deeply set.

Beneath the wood floor of the Stagecoach Period was a burned earthen floor. The scorch marks on this floor merged with those on the northeast wall. There was a pattern of perhaps six light posts of juniper. If these posts can be assumed to have been centrally located, their position in relation to the east outer wall would imply a room which measured 60.15' (NE wall) x 16.0' x 63.0' (SW wall).

A second prepared earth floor was found directly below the scorched floor. This showed no evidence of burning at all. The support post pattern was only slightly different, and there

was no difference in post type. The room size indicated was identical.

The best-preserved portion of the late floor was in the "beta" or westerly section some twelve to seventeen feet northwest of the east outer wall. Horseshoes, a "late" mule shoe, harness, etc., were associated with the floor, above which level were several layers of manure.

The Wagon Room

This feature was chisel- or burin-shaped with average inside dimensions of 18.0' x 160.0' and a doorway 2.9 feet wide in the NW wall. There may have been a door in the opposite end as well, but the loop road has destroyed the foundations there. It would seem unlikely that there was a door in the SE wall since none was indicated in any historic sketch. That wagons could have been brought in from the alley was doubtful, for here the surviving walls were highest, and no openings were found. It is possible, of course, that entrances here were sealed off; but if this was done, it was done skillfully, for no patchwork was evident and the character of the adobe bricks was consistent. On the southwest the wall was very low and access for wagons could easily have been provided by the use of wooden ramps. Whether these low walls were original or not is speculative, however. The south corner was missing altogether, and the west corner was equally low.

The pre-excavation surface in this room indicated a sharp slope downward, indicating that man and nature had sculpted it so. This would have provided a difficult surface for wheeled vehicles. In addition, the west quarter of the room had many posts at the same floor level which would have inhibited use by wagons. The eastern two-thirds, however, had a sparser post pattern and could have accommodated large vehicles.

If wagons were parked in the wagon room at all, access would have been from the main corral at the rear simply because it was impossible from the alley.

The wagon room was not among the earliest features at the site. A defile covered an area from almost the northeast edge of the alley to within a yard of the southwest wall of the wagon room and from the west tower to a point behind Room SE1-A. Before use could be made of this area, it had to be filled in and leveled. This, of course, was done. The NE wall of the wagon room once may have been the back wall of the fort, for it was built to conform with the contours of the defile rather than across the top of the rubble fill.

The fill itself consisted of adobe wasters, which would indicate that considerable construction had already taken place. The bottom of the rubble area undulated, but the top was leveled off and compacted. These wasters were broken bricks made chiefly of the gray adobe, to which a blue cast is given by com-

paction. The west third of the rubble fill showed a progressively shallower profile as well as a heavier amount of charcoal and scorched over-burden.

The Main Corral

Except for the icehouse, no other phase of the project caused more high hopes, disappointment, resignation, bewilderment, and general frustration. Hope was initially high because Dr. Dick was believed to have picked up in several places a wall in line with the outer east wall of the fort. Several lines-of-sight based on the alignment of this wall failed to reveal anything convincing, either in plan or profile. Correspondence with Dr. Dick revealed that he actually found two or three discolored areas in small tests. Several other tests in the same line, however, showed nothing.

During the 1964 project, however, tests were made beneath the crown of the loop road at the south corner of the fort. These revealed a substantial wall which crossed into the field beyond, turned, and behaved otherwise like a corral wall. It was not at all in accord with the Abert sketch, however. Instead of continuing the line of the outer east wall, this wall was set back some eight feet from the south corner of the wagon room and was then generally parallel with the compound instead of the outer wall of the inner corral.

The width of this corral wall varied from 1.2

feet near the wagon room to 0.95 foot where it marked a south corner. The back, or SW wall, was not really parallel to the back wall of the wagon room. It measured 129.95 feet from that wall on the southeast and 123.2 feet near the center.

Since all wall remnants were shallow, very little cultural material was recovered. The provenience of all was necessarily tenuous.

In short, the identification of this feature is vulnerable to challenge. The land beyond the loop road has enjoyed no such sanctuary as that afforded the fort proper. It had been under cultivation for decades, and a considerable amount of disturbance had obliterated almost all of its historic grade. For example, from the corral side of the wagon room wall, the grade could be traced for only 2.4 feet. It was easily recognized, however, since it too was scorched by the 1849 fire. In addition, excavations cut curb-like banks into the area during the course of at least two separate work operations. These followed the plan of the road, and both probably were associated with early phases of its construction.

Dr. Dick expressed faith in the Abert sketch, especially as it delineated the main corral. It is my feeling that the sketches could be interpreted either way because of the angle of view and differential wall heights. The plan drawings based on Abert's sketches are quite definite in showing that the corral was an extension of the outer east wall of the inner

corral. Nevertheless, the corral-like walls discovered in this excavation must be considered.

The Main Dump

To date no documentary reference to this feature has been found. Early trenching (TD1, 2, and 3) in front and just east of the main gate was fruitless. Later tests showed that lower levels existed farther to the north and east, and these extended well beyond the loop road.

From the remnants the dump was at least 133 feet long by 70 to 80 feet wide (figures 32 and 33). It probably was always at least 40 feet from the fort walls. This was not as offensive a situation as it might appear, for even at the bottom-most levels the profiles show lenses of ashes and charred material. Nothing, it seems, was simply dumped and left, but all was probably incinerated immediately. The odor of trash fires must have been fairly constant.

James Baldrige, a former owner of the adjacent land, recalls that when a bulldozer leveled the dump area large quantities of leather harness, glass, and general hardware were pushed out into the fields. The greatest dam-



FIGURE 32. ABOVE. *Trash dump, looking southeast. Originally this was an adobe borrow pit.*

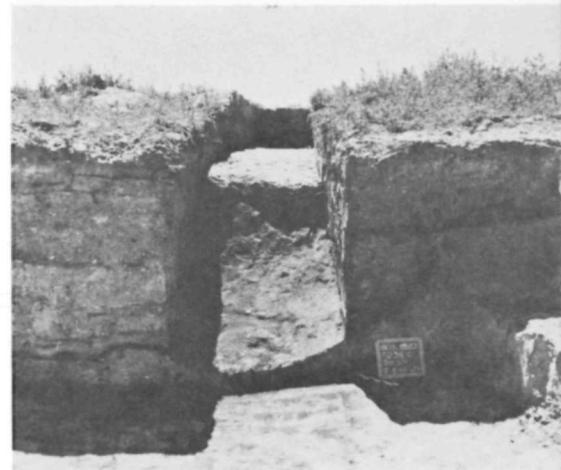


FIGURE 33. BELOW. *Trash dump, looking southwest. The edge of the original borrow pit is well defined here. The stagecoach surface can be seen above the lighter strata. During this period refuse continued to be burned here, building up additional lenses of charred material.*

age done by this operation was the removal of all material which had accumulated during the Cattle, Stagecoach, and later Bent periods. Even so, the amount of artifacts found was considerable, and we must conclude that most of them date from the early Bent Period. Trade beads, clay pipe fragments, parts of the hardware of guns, etc., were as numerous here as anywhere; and unique items, such as a lead plug for a one-half or one-pound cannister of E. I. DuPont black powder, dating 1806-26, and clay pipes of unfamiliar design (type V; figure 42), were found as well.

At the eastern edge of the dump there was a comma-shaped pit, 45' x 50', which had been dug using hand tools. It lay some 104 feet from the east corner of the fort and was probably the main source of material for making adobe bricks and mortar. This pit was gradually filled in with trash and garbage, which apparently were incinerated immediately.

Among the materials recovered from the lower levels of this pit were white clay pipe fragments, bones of cattle and probably buffalo (some showing signs of butchering), whetstones, polishing stones, glass trade beads, etc. A full-grooved maul and sherds of a Tewa polychrome bowl were aboriginal contributions to these lower levels. At the intermediate levels (just below Stagecoach intrusions) numerous pieces of slag were found. These were plano-convex and obviously forge-molded.

A deep Stagecoach pit intruded at the mid-

point of the comma. Its outline, level at the bottom but rising on the edges, was formed by charred sheep manure. Only here was the Stagecoach level marked by intrusive excavation instead of by overlay and expansion of the Bent levels.

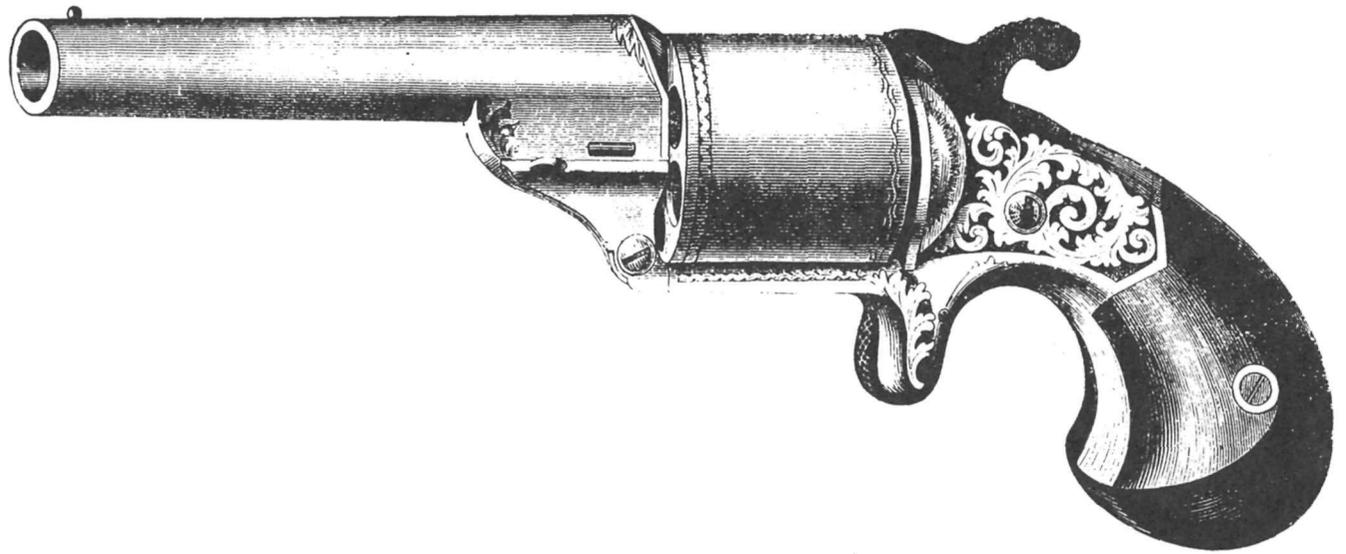
The West Dump

This feature does not compare in extent or depth with the borrow pits of either the wagon room or the main dump. It was oval with an axis 35' E-W x 24' N-S. It was as close as 7.2 feet to the NE outer wall of Room NW1 and extended 6.8 feet beyond the extreme north corner of the fort.

Stratigraphy indicated that the pit originated just below the sterile soil which underlay the humus. The general area had been bladed down, and, therefore, its relationship to the other dumps was never clearly ascertained.

The west dump held many early items as well as many later objects probably. At its lower levels it also contained burned organic matter, bones, and slag. Therefore, its proximity to the fort is even more demanding of our credulity than the other two dump sites. Its presence there must have been truly trying to the occupants of the fort, were they of the Stagecoach or Bent Period.

Only a close examination of materials by provenience could really place this dump area in its proper context.



ARTIFACTS

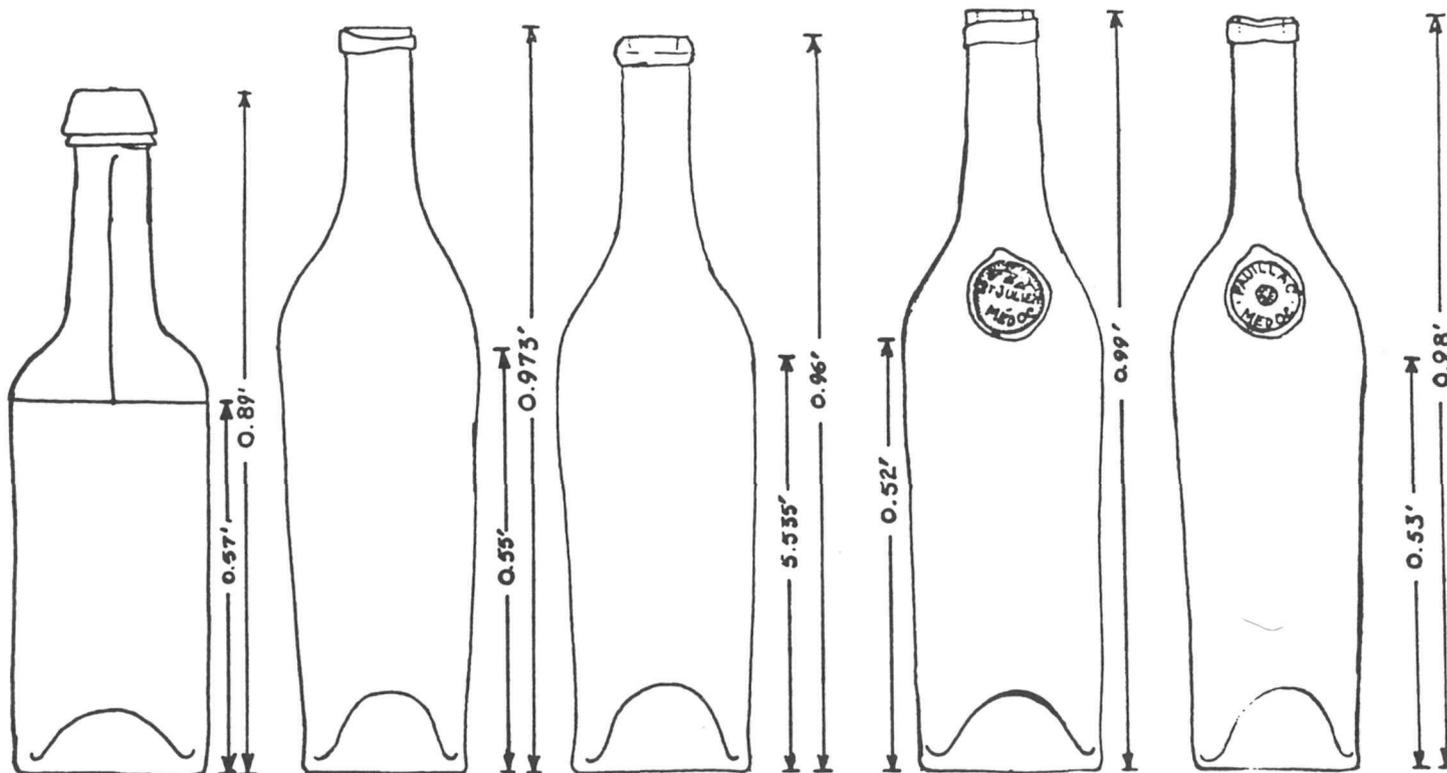
Bottles

Numerous styles of bottle necks and bases from all periods were found at Bent's Old Fort. Few were of a type which would be limited to the period of Bent-St. Vrain occupancy, however. Among the bottles which may be attributed to the Bent Period with certainty were six recovered from the floor of Pit 9 in the north end of Room E3. Five of these were found inside a single keg (figures 34 and 35).

Two of these bottles had glass seals applied to their shoulders which indicated that they had originally contained wine and were imported from France. One seal read "Pauillac/Medoc" and the other "St. Julien/Medoc" to identify the vineyard and type of Bordeaux wine contained respectively. With the exception of the seals, these two bottles were virtually identical to three others in the group found; all were free blown and olive-green in color, and all had pontil marks on the kickup in their base, though this characteristic had



FIGURE 34.



Total Height	0.89'	0.973'	0.96'	0.99'	0.98'
Height, Base-to-Shoulder	0.57'	0.55'	0.535'	0.52'	0.53'
Neck Length	0.315'	0.31'	0.29'	0.28'	0.30'
Base Width	0.255'	0.234'	0.237'	0.236'	0.222'
Shoulder Width	0.26'	0.262'	0.26'	0.26'	0.258'
Neck Width (at center)	0.106'	0.099'	0.094'	0.092'	0.092'
Rim Diameter	0.08'	0.09'	0.092'	0.09'	0.086'
Rim Diameter with Ring	0.108'	0.10'	0.105'	0.098'	0.098'
Orifice Diameter	0.051'	0.061'	0.062'	0.045' deep 0.06'	0.04' deep 0.06'

FIGURE 35. Outlines and descriptions of the five bottles from the charred keg on the floor of Pit 9 in Room E3, presumably of the Bent Period. Bottles 1, 4, and 5, left to right, are shown in figure 34 also.

CHARACTERISTICS OF BOTTLES

(left to right)

BOTTLE 1. *Light greenish blue, white patina. Three-piece mold, pontil scar on base. Nick slightly flat along both seams. Handmade rim is double ringed, with the lower one narrow. Surface of the body has "orange peel" texture in oblique light.*

BOTTLE 2. *Olive green with brownish cast. The glass has more of a clear brilliance than the others. The "draw" lines are not in a "twist" at the neck, and other "flow" marks are noticeable on the body as well. The football-shaped bubbles are vertical and are somewhat longer than on the others. No seal. Kick-up height is 0.12'.*

BOTTLE 3. *Olive green. Mixture of tiny round bubbles (which dimple surface) and football-shaped bubbles, half of which are tilted from vertical. Neck also shows twist marks. Applied ring around rim has crown at center giving an inward slope at top and bottom. No seal. Height of kick-up is 0.115'.*

BOTTLE 4. *Olive green. A seal on the shoulder has a milled edge around the periphery; across the top is a grapevine; "ST JULIEN" in the center, and "MÉDOC" at bottom. Height of kick-up is .12'.*

BOTTLE 5. *Olive green. Applied ring below rim; no mold seams, neck shows twist marks, including a long, thin bubble. Bubbles of body are small, football-shaped, with axes vertical; lengths vary from 0.005'-0.012'. A seal on the shoulder has a rounded, tri-lobed motif 0.01' across in the center of a sunburst of 40 flutes, with a diameter of 0.04'. Height of kick-up is 0.13'. Pontil scar ground off. Lip crudely cut.*

been ground down on the bottom of one bottle. Because of their basic similarities, all five bottles probably contained imported French wine.

Despite inquiry to the purveyors and vintners of Bordeaux, nothing has been learned about the history of the Pauillac vineyard. It was learned that St. Julien has apparently ceased exporting Médoc to this country. St. Julien Médoc seals with a different, oval form have been recovered both at Bent's Fort and elsewhere. Those reported from Fort Pierre II (G. H. Smith, 1960b) were from a provenience which would equate with the early Stagecoach Period at Bent's Fort. Fragments of the oval seal from Bent's Old Fort also occurred with Stagecoach provenience.

The sixth bottle in this group with certain Bent provenience was blown into a three-piece mold and had a pontil mark. It was made of clear, blue-tinged glass with a sloping collar and ring forming the neck finish. This finish was characteristic of a wired-on cork closure used frequently in the United States, a factor which seemed to indicate that this bottle may not have been French nor have contained a French product. Its shape was in the tradition of bottles made to contain wine or brandy, however.

Small, thin-walled bottles with pontil-scarred, flat bases were found with Bent associations but in small numbers and frequently melted. No gin bottles were found in Bent zones. In



FIGURE 36. *Bottles from deep Stagecoach levels in the inner corral, near Room E5. The bottles, left to right, probably contained whiskey (possibly beer, if post-1878), bitters, and wine or champagne.*

general, bottles and their fragments which could be assigned good Bent provenience were not numerous. This scarcity was understandable when the isolation of the site was considered. Fragile bottles were, in fact, a commodity in their own right at Bent's Fort. Contemporary accounts indicate that empty bottles brought more money than was originally paid for their contents (Magoffin, 1926).

During the Stagecoach Period bottles were more common, and numerous fragments were found in levels of this period (figure 36). The staff of this home office for the Barlow and Sanderson Overland Stage, Mail, and Express Company was smaller than that of Bent, St. Vrain and Company (especially when the latter was augmented by traders, trappers, Indians, and the Army of the West), but they had access to many more bottled items. Small- to medium-sized cathedral-shaped bottles for medicine, liniment, and flavorings were found shattered, if not whole, wherever Stagecoach Period debris occurred. Larger beer and whiskey bottles, completely molded except for the hand-tooled necks and lips, and heavy molded wine bottles were recovered in lesser quantities.

Ceramics

If the architecture of Bent's Old Fort is basically Mexican, the ceramics are decidedly English (figure 37). They are in the tradition of the late cream and pearl wares which had

flourished in Staffordshire, Yorkshire (especially Leeds), and Sunderland between 1790 and 1830 and which had quickly found acceptance among the yeomanry and small merchants on both sides of the Atlantic. Thus, to explain the derivation of ceramics at Bent's Old Fort, it is necessary only to go back to Josiah Wedgwood I.

In 1765 Wedgwood brought out a new creamware of a quality and price that put dinner plate on tables which had never held it. This was the ware which was named "Queen's Ware" in 1767 (in honor of Queen Charlotte, who ordered the first complete service). Further improvements in the ware were made between 1768 and 1775, involving, chiefly, the use of kaolin (china clay) and *petuntze* (china stone) to produce a hard, high-fired earthenware. The development of a perfected form of queen's ware in 1772 and the development of pearl ware between 1775 and 1780 brought European ceramics to the threshold of the Industrial Revolution.

The impact of queen's ware and pearl ware on the Euro-American market is difficult to imagine today. They were so reasonably priced that wooden trenchers and soft, porous earthenwares were largely displaced in public houses and most homes. They were so durable and esthetically acceptable that plate of silver and pewter met similar fates. So successful, in fact, were these wares made by Wedgwood that they received the supreme accolade, imitation. Not only in Britain but also on the

Continent both deep and pale creamwares were produced. By the first quarter of the 19th century a nearly universal preference had developed for the pale cream color, and queen's ware has been referred to as the staple ceramic from 1770 to 1830 (Godden, 1963). Pearl ware reached the apex of its popularity between 1790 and 1840.

The great virtue of pearl ware was, of course, the neutral white ground it offered for decoration. As further improvements were made in both paste and glaze, pearl ware became whiter, and decorative innovation and pattern variety increased. Just when the term pearl ware ceased to be used in reference to hard white earthenware is difficult to say. The "whitewares" of the period 1819-29 and later derive from pearl ware in any case. The range of their decoration included some lustred wares, the variously colored transfer-printed wares generally called "Staffordshire," the blue and green "crinkle-edged" or shell/feather-edged wares, the various sprig pattern styles (including what is sometimes called "cottage ware"), etc. By the time of their full development these wares had become so white and hard that considerable expertise is needed to distinguish them from low-fired ironstones.

The ironstone family is also a large and diverse one. Beginning in 1797 it was developed as a substitute for Continental porcelain. Essentially a pearl type earthenware achieved by the addition of ironstone slag, it was as

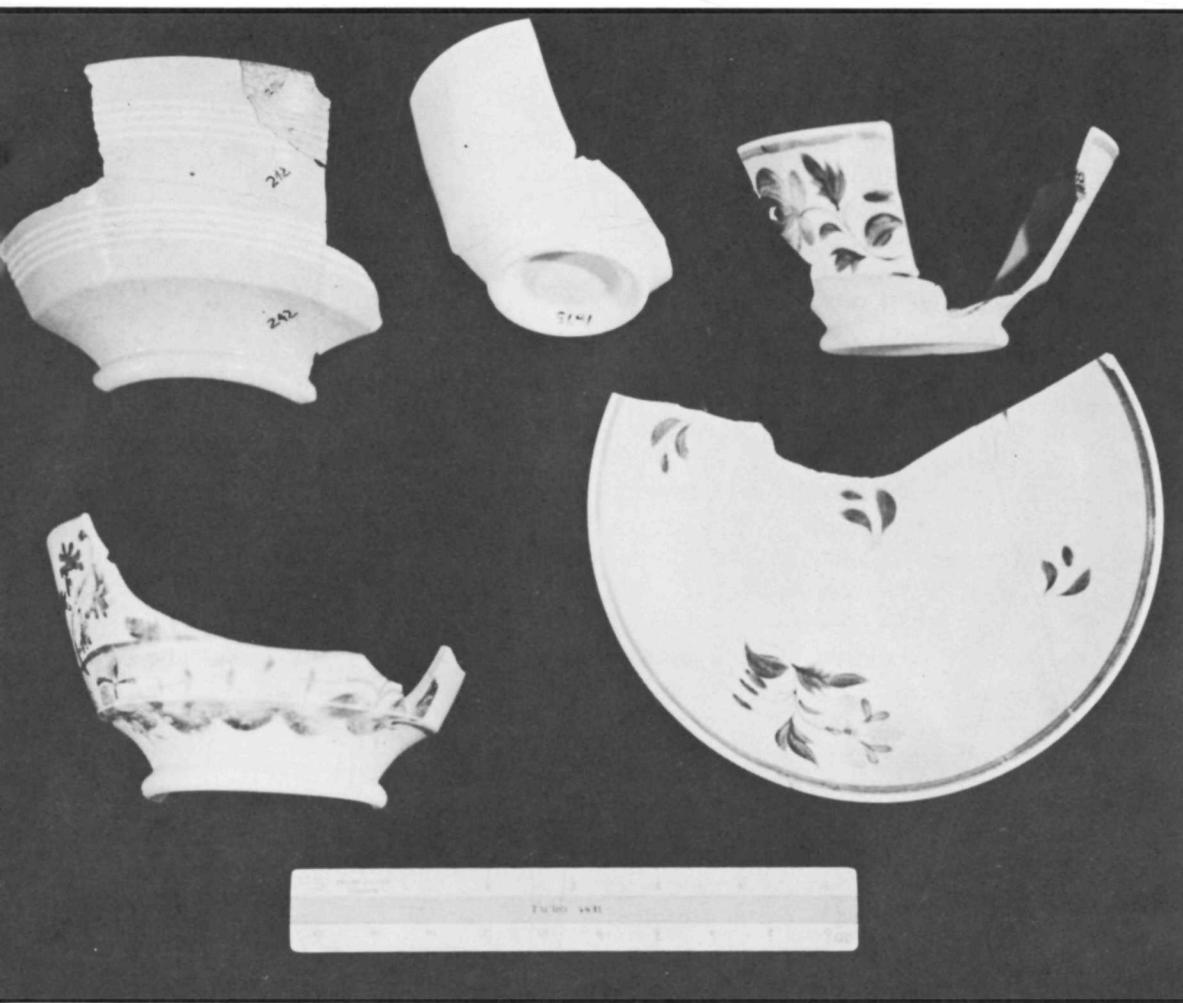


FIGURE 37. Bowl, cup, and saucer of most common occurrence at Bent's Old Fort.
 TOP ROW: (left to right): white-rilled cream ware, late queen's ware,
 sprig pattern white ware (red rim stripe).
 BOTTOM ROW: Copper lustre and sprig pattern (red rim stripe).

vitreous as stoneware yet white in color. Ironstone is a ware underrated by many, probably because of its weight and the relative crudeness of its early enameled decorations. It has survived to the present time, however, as hotel china and even as good quality dinner ware.

Queen's Ware

Queen's ware was represented at Bent's Old Fort by 126 sherds. Ninety-two of these were from bowls and cups of a shape which was available as early as 1810-15. This shape (figure 37) had straight, out-flaring sides with a concave band one-third the height above a foot ring. Good Bent provenience existed for 41 percent of these sherds. Still others had probable Bent provenience but were given "interim" status. A second cup shape consisted of 34 sherds which had a slightly cooler tone and a gently recurved shape. Only two percent of these sherds had good Bent provenience. This shape is commonly associated with sites having a mid-19th-century horizon, and I believe it belongs in "late" Bent here not only because of the two percent association but also because the shape was almost identical to cups of the Boston Mail series (to be discussed below) which had absolute provenience.

An apothecary jar base and a non-associated lid presented a more utilitarian shape in queen's ware. The base was from a level which represented a Stagecoach intrusion of a Bent

surface; hence, the object was archeologically consigned to "interim" status. The lid, however, had good Bent associations.

Only one sherd of queen's ware was found which could have come from a platter. It consisted of part of the side and base of an oblong "stew" dish. The scarcity of platter sherds was puzzling since they were a popular shape in the ware, and platters in other wares were not scarce at the site. It is interesting to note that at Fort Smith most of the queen's ware recovered was from plates, which were undecorated rectangular "stew" plates having angular corners. The single platter sherd at Bent's Old Fort was from a vessel very close in shape to these.

Saucers, while not numerous, were present and consistent in shape. The base of these pieces was simply the bottom of the curved sides.

The only decorative element associated with queen's ware at Bent's Fort was a small, printed line with a slight curve which occurred on the inside of only one basal sherd. The rest of the design was missing.

Copper Lustreware

This decorative style found its greatest success on pearl ware, especially that grade burned almost pure white, giving a unique brilliance to the metallic coating. The English

developed their lustreware as a commercial adaptation of the much older Hispano-Moresque tin enamel ware beginning in 1789. In 1807 gold lustre was successfully produced on a superior, hard white earthenware called "Opaque China," an early member of the ironstone family. Pink and silver lustres were soon added to the type.

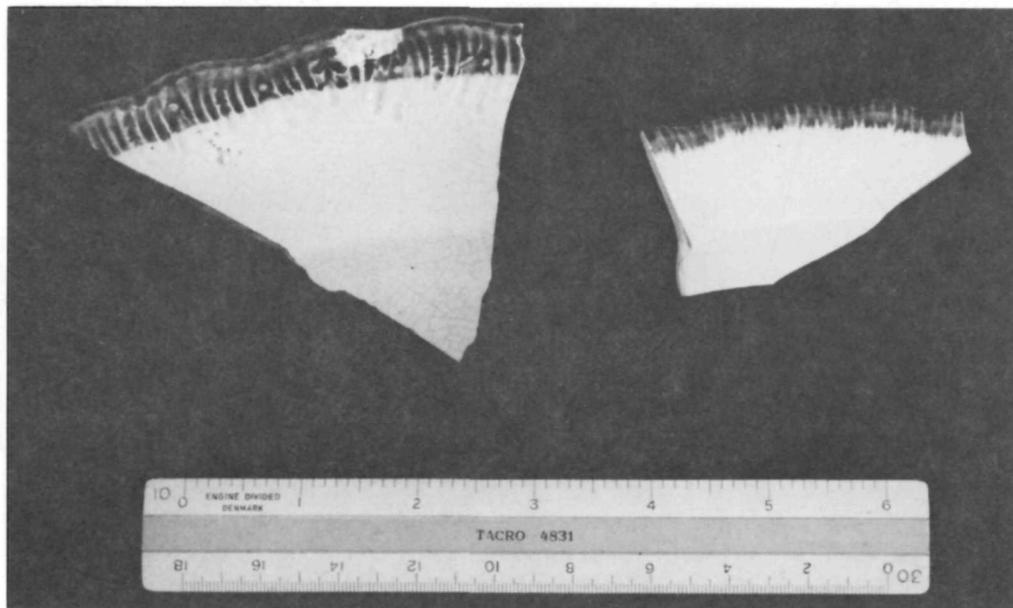
The most popular decorative technique for lustre was a resist process developed in 1810 which produced a negative design. In 1826 lustring on colored grounds became fashionable.

Lustreware at Bent's Old Fort was distinctive in that the decoration was painted on in lustre, with the greater portion of the vessel left white. Scenes generally were depicted consisting of two-storied square houses, trees, a rail fence, shrubs, and what might represent a brook. Most of the sherds formed bowls, cups, and saucers. The bowl and cup shapes were like those described for queen's ware. Age, wear, and the phenomenon of copper on a white ground has given most of these sherds a pink appearance, although in many cases the lustre has disappeared completely, leaving only a faded purple stain.

While only 14 percent of these sherds had good Bent provenience, many of them were from zones that were the least vulnerable to challenge. For example, lustre sherds were found on both of the burned, tamped earth floors of Room N7.

Crinkle-Edged Ware

Blue or green crinkle-edged ware has occurred on every site having a 19th-century horizon with which the author is acquainted. It appears to have been first marketed successfully on a creamware by the Leeds potteries in ca. 1790. Later the style was applied to pearl ware and then to white ware. Its manufacture apparently ceased by ca. 1840, by which time the body could have been ironstone. Crinkle-edged ware sherds from Fort Smith and Bent's Old Fort are thicker and had rims that were more deeply molded and fluted than pieces bearing marks of the 1819-29 period (figure 38).



At most sites, including Fort Smith, the color ratio of sherd rims was three blue to one green, or 75 percent. At Bent's Old Fort, however, the rims were 100 percent blue. Twenty-two percent of the 58 sherds had firm Bent provenience.

Transfer-Printed Ware

Transfer printing was initially developed to decorate English soft paste porcelain and earthenwares in the mid-18th century. Black was the most popular color for early transfer-printed cream and pearl ware vessels until 1820, after which blue quickly gained preference. Cobalt was used first and produced a very deep blue which tended to obscure half tones and details. Even so, it remained popular through 1829 and was imported into the United States past 1832.

Light-colored, "Staffordshire Transfer-Printed" ware was introduced in 1829. From 1829-59 light-colored printed ware was popularly decorated with American historical scenes in pink, light blue, green, mulberry, purple, gray, brown, and black (figure 39). Many well-known potters produced the light-toned ware. Among these were Adams, Clews, Wood and Sons, Ralph Stevenson, etc.; but most of the light blue was produced by J. and J. Jackson

FIGURE 38. Comparison of blue crinkle-edged ware from Bent's Old Fort (left) and 1819-29 version from Georgia (right). Each could have been made in either Leeds or Staffordshire.

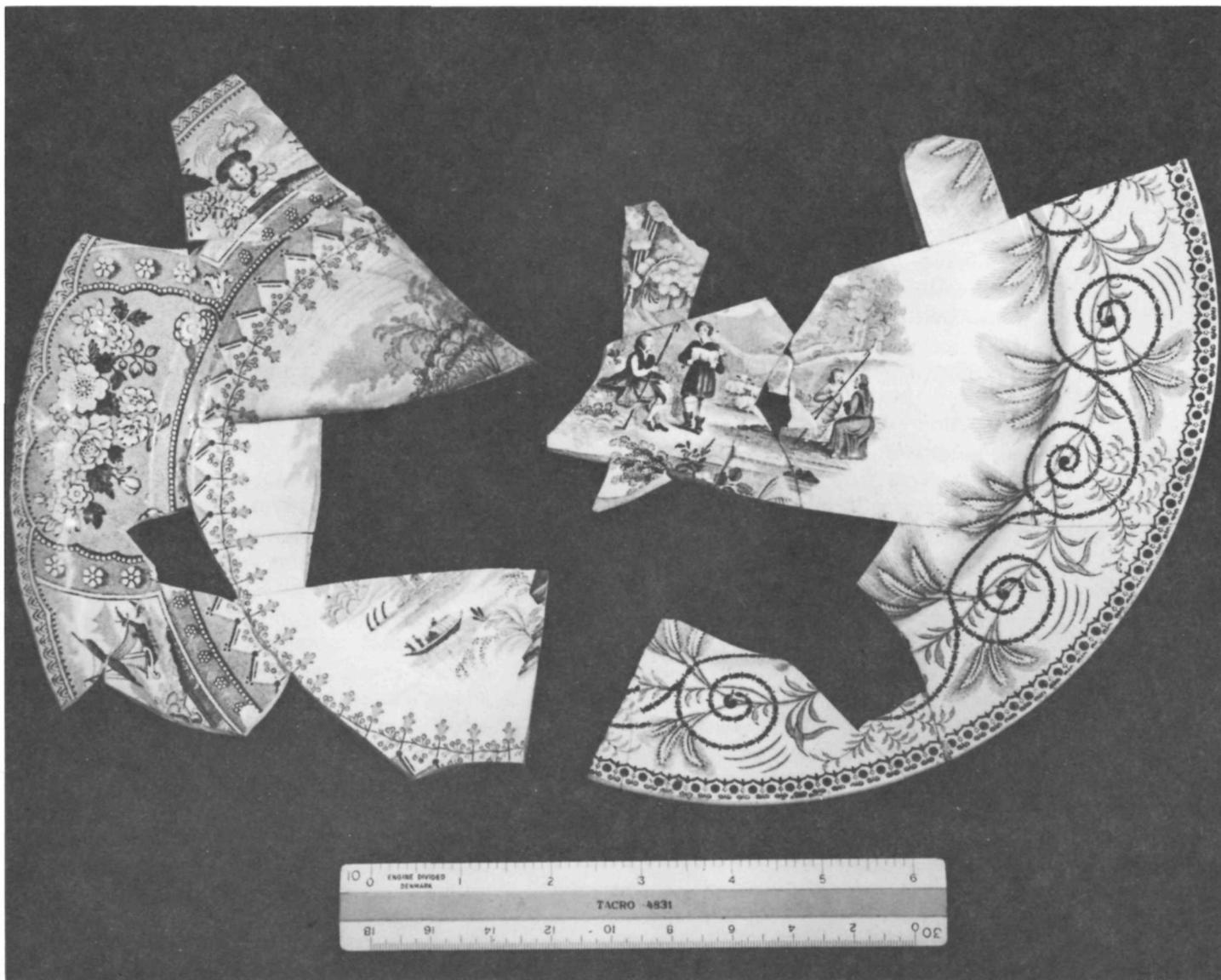


FIGURE 39. Fragmentary plates of transfer-printed ware. Specimen at left is a pale green. The one at the right is brown. Examples of the latter were also found in mulberry.

(McClinton, 1946). The heavier vessels in these light tones are often difficult to distinguish from non-vitreous ironstone.

Bent provenience existed for 35 percent of the light blue, transfer-printed sherds at this site. No "old blue" sherds were found.

Twenty-three sherds of "flow blue," an identifiable ironstone dating from 1825, were found. All, however, were recovered from Stagecoach zones.

Forty-three sherds of red transfer print were recovered, but only three percent had Bent association. There were 147 sherds of cool green, transfer print, of which three percent possibly were associated with the Bent level. Brown transfer print and mulberry transfer print had provisional Bent association of 7.5 and 7 percent respectively. Some of the latter mulberry transfer print also ran 7 percent unequivocal Bent association. Brown and green transfer patterns were similar or related to at least two patterns printed in mulberry.

Forty-nine sherds with green transfer-printed pattern had a warm, yellow tone. Some 12 percent of these definitely were associated with the Bent level.

Undecorated Sherds

White, undecorated earthenware sherds were separated from the other white sherds, particularly the numerous ironstone fragments.

Selection was made on the basis of relative lightness of weight and minimal resemblance to ironstone, in addition to recognizable, early shape characteristics. Of 125 sherds so selected, 7.6 percent had definite Bent association.

Where the glaze on these undecorated sherds is thick, it has a bluish cast, characteristic of Staffordshire printed ware, which suggested that most of the sherds were from vessels of lustre, transfer print, crinkle-edge, or sprig decoration.

Black Transfer-Printed Ware

J. & T. Edwards of Burslem, Staffordshire, brought out their "Boston Mail" series in 1842, but it is possible that other potters also made this or a similar series in commemoration of the opening of the Cunard Line. The pattern was available both in polychrome and in black and white (Moore, 1903), with decoration consisting of scroll-bordered, reserve panels containing illustrations of scenes aboard ship. The most frequently recurring scene was entitled "Gentlemen's Cabin." Another scene shows two men carrying a third who may be either tipsy or seasick, or both. Cup shapes were slightly recurved, without handles, a form which suggests a date after the mid-century. Both documentation and provenience testify conclusively to an earlier period at Bent's Fort.

Recovery levels indicated that 28 percent of this material had Bent provenience. The most

convincing provenience of all was that of nine sherds recovered from the lower of two Bent period floors in Room N7.

Sprig-Patterned Ware

Several varieties of sprig-patterned wares were found. All usually had floral patterns in garish green and red, with a startlingly soft blue. It was not as esthetically pleasing as the cottage ware, a hand-painted, floral-decorated pearl ware dating between 1810 and 1835, but it had a similar origin in Staffordshire and a similar time period.

At Bent's Old Fort the sprig pattern could be divided into three groups: those with a red, green, or black stripe beneath the rim. There were 147 sprig sherds recovered, of which 20, or 13 percent, had Bent association. Of 62 red-stripe sprig sherds, 19 percent had Bent provenience, while 15 percent of the 20 green and 7 percent of the black sprig had Bent provenience.

Cup and saucer shapes were usual for the period (figure 37). The cups had a ring foot, a concave lower-body third, and straight-sided walls with a slight flare. The saucers had only a token foot ring, a style the pattern shared with other white earthenwares of the early second quarter of the century.

Spatterware

There were 85 sherds of white earthenware

with a spatter decoration, all small. All had alternate zones of red and light green spatter, and some had a red stripe beneath the rim. This ware dates from the first and second quarters of the 19th century, and 14 percent of the 85 sherds had Bent associations.

Too few of these sherds fitted together to provide any indication of vessel forms. Very similar sherds at Fort Smith formed shapes of cups and bowls of the types represented at Bent's Fort by the sprig, queen's ware, lustre, and rilled creamware patterns. The Fort Smith spatter differed in that the red alternated with blue, rather than with green.

This spatterware should not be confused with the off-white stoneware having a blue spatter pattern. Some of this was found on the surface along the road in the general vicinity of the fort, but none was recovered from the site itself.

Rilled Creamware

This creamware had a yellow-tan glaze and white relief banding, or rills, below the rim. All sherds belonged to a bowl form identical with that of the white ware bowls.

Of 13 sherds seven, or 53 percent, had Bent associations. This was a fairly long-lived ware and the amount truly present in Bent's time was probably only somewhat greater than the percentages suggested.

Blue Mocha Ware

Two of eight sherds of this ware had Bent associations. It was unfamiliar but appeared to have a time span comparable to that of the rilled creamware. The pattern consisted of a blue on white, dendritic design on an otherwise cream-colored earthenware body. It bore no similarity to the brown mocha of English origin but was probably of American manufacture.

Trail-Slip Decorated Mocha Ware

Only six sherds of this ware were recovered—a small quantity for a site of this period. One-third of these had good Bent provenience, as they should since the time range for this style is limited to 1815-34. The group included one example of the “cat-eye” pattern, found just under the surface of the north end of the inner corral.

Banded Creamware

Two sherds of banded creamware were found, both of which had engine-turned decoration. This style usually indicates a date in the first quarter of the 19th century, as the technique was adopted in the late 18th century. It did continue past the mid-century mark on some wares, but not on these found at Bent’s Fort.

One sherd had a “soft” Bent provenience, while the other was less certainly Bent. It came from the west trash dump.

A single creamware sherd was found, thin-walled with a deep blue ground and a light cream-colored, beaded band in relief. It had definite Bent provenience.

Porcelain

No highly vitrified, table service porcelain was found at Bent’s Old Fort. The most vitrified ware encountered was a celadon-glazed stoneware that had a very Sinitic appearance but might have been an American Chinoiserie. Similar vessels can be found occasionally in antique shops of the Arkansas Valley. They usually have a woven fiber jacket over the lower half of the body with a carrying strap of blue canvas incorporated into the weave. The lidded jar was underglaze blue with a yellow-tan band around its neck that had parallel, diagonal molded lines in brown glaze. It probably was intended to hold leaf tea. Of 15 sherds recovered, two had firm Bent provenience, one from level 22 of Bent’s well.

Three sherds of engine-turned basalt ware were found. They are from a straight-sided oval vessel, which probably had a lid. None have demonstrable Bent provenience. Black basalt ware, or Egyptian Black, was developed by Wedgwood in the late 18th century and continued to be made long afterward.

English Majolica

Several sherds, mostly from in and around Room N4, were English majolica. Introduced

in 1850 at the Great Exhibition in London, it was an elaborate and costly hard earthenware by Minton. After the 1860s many firms produced less ornamental forms in various hard pastes.

Several sherds of this ware were found by Dr. Dick's project in 1954, but the orange, vegetable motif sherd found in 1964 bore the English register mark for November 15, 1878. This datable basal sherd was recovered from beneath the Stagecoach floor of Room N4.

Clay Smoking Pipes

The collection of clay pipes recovered from Bent's Fort consisted of 1,526 bowls, stems, and fragments of both, which have been placed in nine major type categories. The great bulk of this material consisted of white clays. Four white clay types (I, II, III, and IV) have been established, while the colored clays have been organized into an additional five. Types I, V, and VI have, for purposes of this report, been subdivided into "styles," and these have been given letter designation. Color and shape determined the roman numeral types. Criteria for style were not necessarily of equal weight, for to have given such would have led to a proliferation of styles and sub-types.

Type I

All of the white clays which could be styled "Dublin" (Wilson, 1961) were included in this type (figure 40). This was a pipe with a

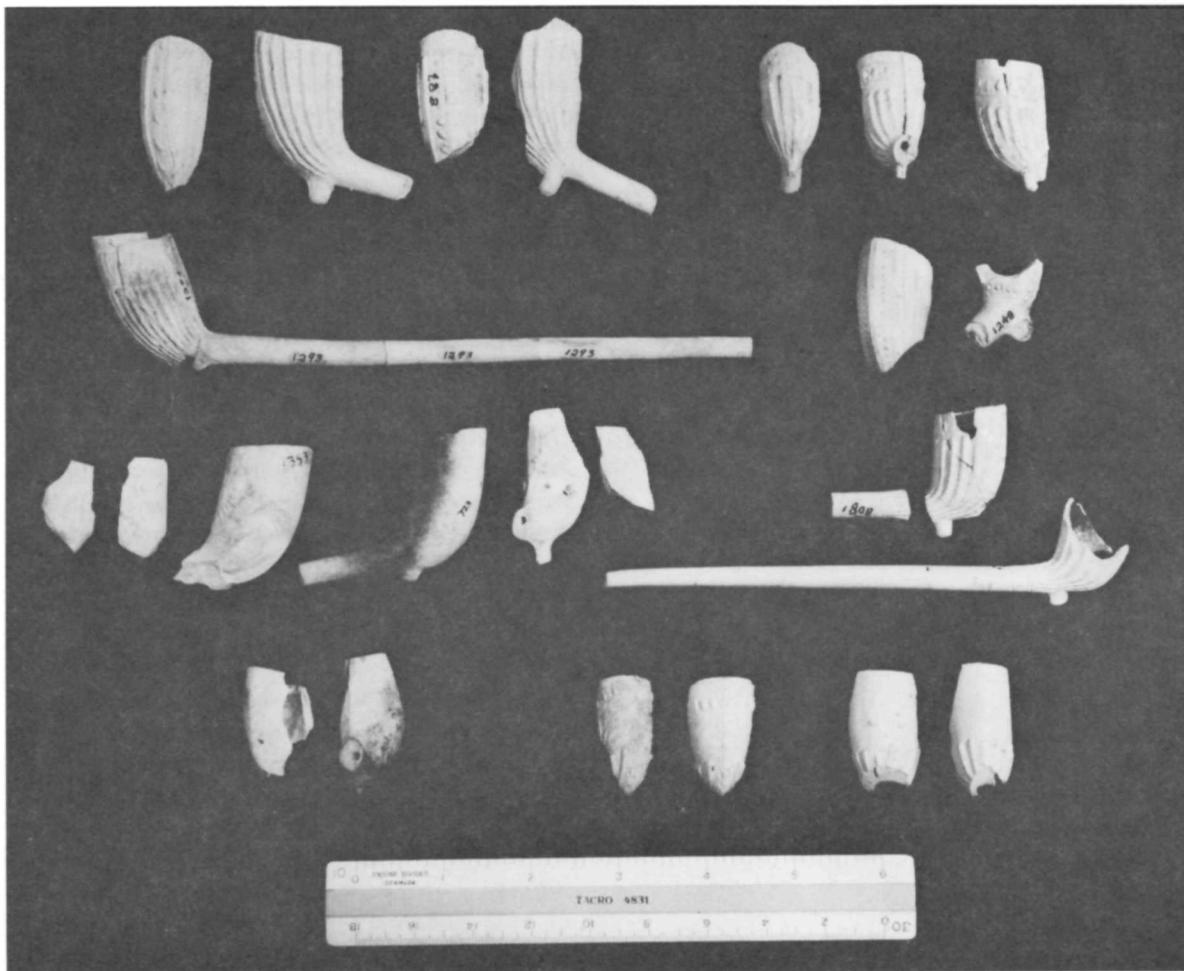


FIGURE 40. White clay pipes of Type I or "Dublin" style.
 TOP (left to right): I-a, bull fluted (2 examples); I-a, minus 1/4" fluted (2); I-b (3).
 SECOND ROW: I-c (1); I-d (2).
 THIRD ROW: I-e (6), note the "cross" on the fourth from the left; I-f (3).
 FOURTH ROW: I-g (2); I-h (2); I-i (2).

slightly curved stem of greatly varying length, with the bowl side nearest the smoker straight, or nearly so, the rim sloped upward toward the front, and the front side curved. The bowl itself was narrow and deep and often had a spur on the under side where the bowl and stem met.

The most common decorative element characteristic of this type consisted of paired leaves, usually seven but occasionally nine, which incorporated the mold seams in front and back and provided the ground for 14 vertical flutes. Carl Miller described this type as having been completely covered with a decoration of leaves and stems on the basis of a small sherd from the front of one specimen (Miller, 1960). The flutes sometimes extended from the rim well into the stem. They occurred mostly, however, from the base of the bowl to one-third, one-half, or two-thirds of the height of the bowl. The bowl usually had a "radical" element above the flutes. These latter two elements accounted for most of the styles in this type.

Type I also included pipes impressed with the letters "T.D." This motif would seem to occur at most historic sites. Specimens are seldom identical from one site to another, however.

I-a: These pipes all had the paired leaves and the 14 flutes. The flutes extended either to the rim or to within one-fourth inch of it. This second most numerous style was represented by 68 bowls or fragments thereof. Zones re-

garded as "hard" in Bent provenience produced 21 percent (16) of the specimens.

Variations within this style included bore diameter, full or minus $\frac{1}{4}$ -inch distance between flutes and rim, and broad or thin flutes. Only four specimens of $\frac{5}{64}$ -inch bores associated with this style were found, and three of these were full fluted. This number encompassed all of the full-fluted specimens found. One of seven thin-fluted specimens also had a $\frac{5}{64}$ -inch bore diameter. Thirteen specimens were associated with $\frac{6}{64}$ -inch bores. The remainder lacked stems. Some specimens of each variety occurred with Bent provenience.

I-b: This style was identified by the paired leaves and by flutes which ranged from one-half to two-thirds the height of the bowl. Two rings ($\frac{12}{64}$ " to $\frac{24}{64}$ ") occupied the space between the flutes and the rim and formed two zones for decoration. The upper zone held a design which resembled Arabic script, while the lower zone was composed of a row of alternating vertical "eggs" and "dots." Bent provenience was assigned to 18 percent of the 55 specimens. Nine specimens were associated with $\frac{5}{64}$ -inch bores, 11 with bores of $\frac{6}{64}$ inch, and 22 were minus stems. This style was also reported from Fort Laramie (Wilson, 1961).

Except for bore diameter, variation was limited to four specimens which had a shorter bowl. All of these had a $\frac{5}{64}$ -inch stem bore dia-

meter, and all were recovered from deep fill just above a Stagecoach level floor.

I-c: This style was based on a single pipe formed of five fragments. In addition to the paired leaves and two-thirds flutes, a radical of cross-hachures was contained between two rings below the rim. Four fragments were from a definite Bent level in the inner corral, but the fifth (a bowl fragment) was from "probable" Stagecoach fill outside the west outer wall of the fort.

I-d: A departure from the root and radical approach was presented by this style, which consisted of alternating vertical ridges and lines of raised dots. Only four fragments were found, and all four were of "hard" Bent provenience. Only one fragment was associated with a stem; it had a bore diameter of 5/64 inch.

Most of the dots had broken off, giving an appearance of impressed circles, but several remained intact. This tendency to break off nearly flush with the bowl suggested that the vertical ridges could have been flutes which also broke off. If so, the style would have been identical to a Dublin illustrated by Hume and dated 1780-1820 (Noël Hume, 1963). This type also was reported from Fort Laramie (Wilson, 1966).

I-e: The "T.D." pipe is an enigmatic style which has evoked considerable speculation in print (Omwake, 1964). From published arti-

cles and personal experience it seems that there is seldom any strong style resemblance from one site to another. Many early sites such as Fort Frederica and the Benjamin Franklin properties have yielded pipes with design elements neatly impressed with a concave stamp, while later sites have produced specimens showing raised elements and a variety of encircling motifs.

At Bent's Old Fort the T.D. style was crudely impressed either with a flat stamp or with one inadequately concave. The two letters usually were not equally legible and were frequently stamped separately. The initials were encircled by ray-like serifs which were shaped like crude, thin, inverted teardrops. A secondary element was a "Cross," perhaps a four-pointed star, located 8/64 inch below the rim and extending for 24/64 inch. This was 16/64 inch wide and occurred on the right side of the bowl only.

Four specimens were associated with stem bores of 5/64 inch, three with bores of 6/64 inch, and 14 had no stems attached. Of 25 specimens, 32 percent of this style had Bent provenience.

In addition to the above group, there were 54 plain white bowl fragments which were identical to style I-e in every way. They represented portions of bowls which, in this style, were not decorated, and for this reason they were not included in the numbers and percentages above. If they were included, style

l-e would be the most numerous, and good Bent provenience in it would drop to six percent. Four would be associated with stem bores of 5/64-inch diameter, 10 with 6/64 inch, leaving 60 with no stems attached.

A variant represented by two fragments was much like the pipes described from earlier sites. The design elements were somewhat more neatly impressed, and in place of serifs the initials were circumscribed by two concentric circles with short single hachures connecting the two circles. The initials were incomplete. The provenience of this fragment was uncertain as it came from a high trash-dump level which contained several Stage-coach Period artifacts. Nevertheless, it would seem to be an earlier style than the others because it resembled earlier specimens and because it was alone of its kind.

A second variant was represented by six fragments. It had an inner circle only at the base of the serifs. Serifs and initials alike tended to be more distinct than the majority of this style, but these, too, were impressed twice (i.e., one initial and half circle on each side of the mold line). Of the six fragments, only two had Bent provenience. The height of the initials was 13/64 inch, whereas that of the majority style was 15/64 inch.

l-f: The paired leaves and two-third flutes combined with a pattern of six four-pointed stars below the rim to form this style. The flutes extended onto the stem, where they

were terminated by three rings. This was a short-bowled style with a height of 1 15/64 inches. The minority variety of short specimens in style l-b was of similar height.

The spurs of this style were distinctive in their regularity, being untapered round rods with a flat foot. Stems were recognizable in the absence of bowl fragments both by the spur and by the rings and extensions of the flutes.

Twelve of the 38 specimens, or 31 percent, had Bent provenience. Of the 10 specimens (including six stem-only fragments) associated with stem bores of 5/64 inch, four had Bent provenience. Of nine with bore diameters of 6/64 inch, four were Bent.

l-g: This style had an almost plain bowl. Its sole decoration consisted of nine pairs of leaves at each mold seam. The leaves were small and not very distinct.

Three fragments had portions of attached stems, one with a bore 5/64 inch in diameter. Two had bore diameters of 6/64 inch. One fragment had definite Bent provenience, but it lacked a stem.

The style was represented by 15 specimens; the single Bent association therefore equaled 6½ percent of the total.

A single bowl fragment, once classified separately, has now been included as a variant. It differs from the majority of the style in two

respects: the seven pairs of leaves are 18/64 inch long and quite distinct, and the bore diameter is only 4/64 inch.

The provenience of this single fragment is "soft" Bent, being from a zone of contact between the Bent and Stagecoach occupations.

I-h: This style was the most ornate of the Dublin bowls. There were nine pairs of small leaves at the mold seams and 14 flutes, one-third the height of the bowl. Two rings below the rim formed a zone for a row of vertical "eggs." A thin spray of thistle was impressed on each side, which might point to Scotch manufacture.

There were three specimens of this style, one of which was recovered from the Bent zone of the west end of the wagon room.

I-i: A simple motif consisting of seven flutes on each side of the mold seams characterized this style. These were one-third flutes and there were no paired leaves.

Of eight specimens, two were recovered from beneath Bent's final floor in Room E4, and one came from a Bent stratum near the fur press.

Type II

This type was represented by a single specimen consisting of part of the stem and base of the bowl and the spur (figure 41). The

shape of the spur suggested a mushroom, while the bowl appeared to be transitional between the Dublin and apple shapes. An identical spur exists on a complete bowl from Fort Union (Wilson, 1966).

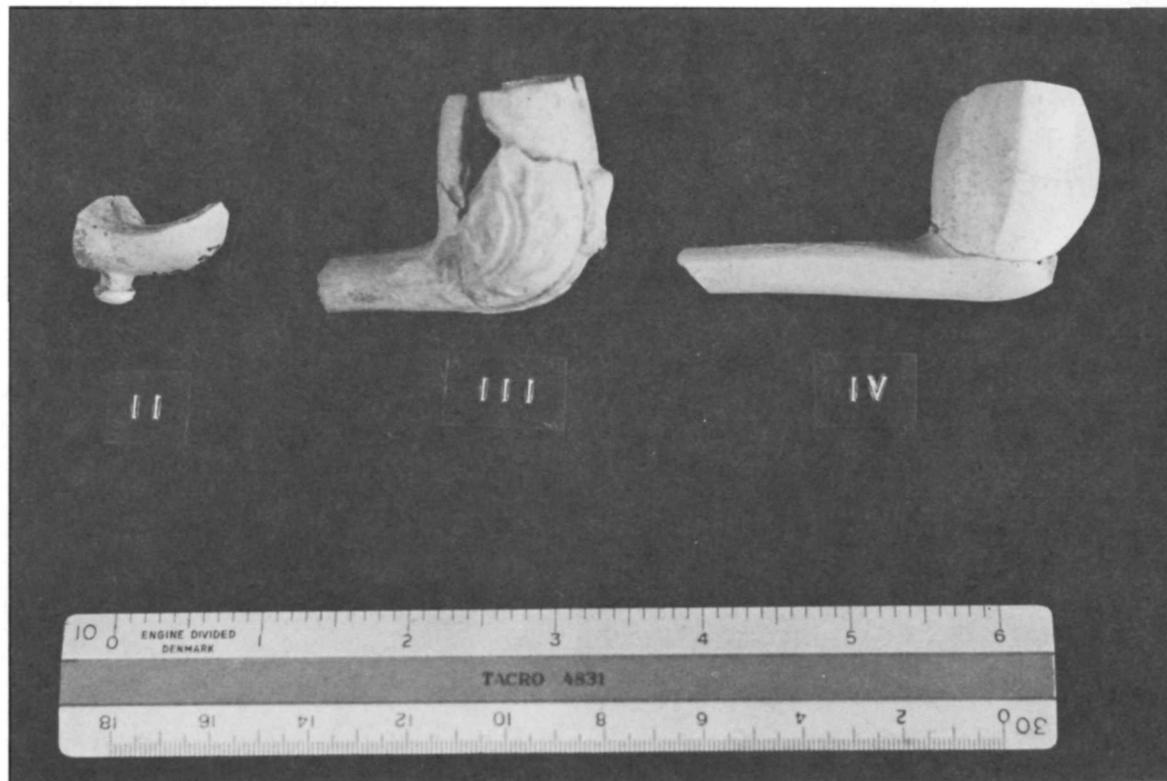


FIGURE 41. *White clay pipes of Types II, III, and IV style. The first two are neither true "Dublins" nor quite "apple" bowls. Type IV is a hexagonal variety of "apple" bowl; the stem has a slight curve and is rhomboidal cross section. All are post-Bent Period.*

Despite being made of white clay with a common stem bore diameter of 6/64 inch, the pipe had a late "look" to it. The full excavation of Room W4 confirmed its late provenience, although not necessarily its late manufacture.

Type III

This white clay pipe had an apple-shaped bowl, with a slightly convex rear side. A thistle formed the decorative motif and was cast in high relief. Spiny leaves curled about the sides of the bowl, while the bloom hung like a sporran in front (figure 41). The stem bore diameter was 5/64 inch.

The type is represented by six fragments which make up most of a single bowl. All six were recovered together from Stagecoach provenience in Room N4.

Type IV

This last of the white clay types had a hexagonal, apple-like bowl, with a slightly curved stem which was oval in cross section (figure 41). There was no further decoration.

Four specimens of this type were recovered. One was from back dirt, hence without provenience, and three came from Stagecoach levels of Room W3. Two had related stem-bore diameters of 6/64 inch.

This type was present at Fort Laramie, Wyoming.

Type V

These "colored" clay pipes ranged from warm brown to cool olive (figure 42). The singular feature, however, was that the stem holders extended *forward* of the bowls. They were also "stemless" in that the "stems" were designed to take a reed. All had bowls at right angles to stems.

Rather similar styles have been reported from Fort Union, New Mexico (Wilson, 1966).

V-a: Two fragments, probably from the same bowl, made up this style. The mold seams were pronounced and the decor simple. There was a shallow ridge just below the rim. A heavy ring, not quite parallel, encircled the bowl, extending below the rim 8/64 inch to 15/64 inch on one side and 12/64 inch to 20/64 inch on the other. On either side of the bowl was a circle with a dot in the center that extended from 21/64 inch to 36/64 inch below the rim. All elements were molded in sharp relief (figure 42).

Both fragments were from Stagecoach levels just above Bent and could have been Bent refuse. Since neither was found in actual Bent provenience and other information was lacking, this style had to be assigned to early Stagecoach times.

V-b: One complete bowl and a stem holder with a bowl base made up this style. The width of the bowl at the rim was 24/64 inch

inside and $55/64$ inch outside. The bowl height was $22/64$ inch, and $41/64$ inch to the underside of the stem holder.

Beneath the ridge of the rim were two rings, all somewhat offset at the mold seams. The lower ring was the top border of a zone formed with a third ring. The zone was cross-hachured, and the stem holder had a similarly cross-hachured zone at its terminus. The hachured zone on the bowl was uneven, ranging in depth below the rim from $9/64$ inch to $38/64$ inch at one point, to $11/64$ inch to $39/64$ inch at another. Thickness of the zone itself ranged from $25/64$ inch to $28/64$ inch. Total length of the stem holder was $1\ 22/64$ inches.

The provenience of this style was definitely post-Bent.

V-c: This single specimen was almost complete, lacking only a small fragment at the terminus of the stem holder. Bowl diameters were $30/64$ inch inside and $58/64$ inch outside. Bowl height was $1\ 3/64$ inches; with the thickness of the stem holder added it is $1\ 25/64$ inches.

There was no ridge at the rim to decorate this pipe, but there were three rings which, while parallel to each other, were $8/64$ inch to $22/64$ inch below the rim in back, and $6/64$ inch to $20/64$ inch below in front. There were also two rings at the terminus of the stem holder. These rings were in clear relief. No



FIGURE 42. Stemless pipes of style Types V to IX.
 TOP (left to right): V-a (2), V-b (2), V-c (2), V-d (1).
 BOTTOM (left to right): VI-a (2), VI-b (1), VII (1), VIII (1), IX (1).

other decoration was present. This specimen was exceptional in that the mold seams were smoothed off before firing. The length of the stem holder was 1 12/64 inches.

The specimen's provenience is late Bent. It was recovered from deep (level 5) in the trash dump.

V-d: This style was represented by a single, complete stem holder, minus the bowl. It was 1 17/64 inches long and the bowl began 37/64 inch from the terminus.

Mold seams were similar to others within this type, but the terminus was slightly flared, like the Type VI stems below. The terminus was modestly ornamented with two impressed grooves so faint as to appear accidental. Although the bowl was missing, the scar indicates that it was set at an acute angle to the stem holder.

The color of the exterior was a light tan with a warm tone, a factor which set it apart still further from the rest of this type. Despite the flared terminus and light color of the exterior, however, the cool gray paste and thin wall of the bowl base kept it within the type and excluded it from Type VI.

Recovery was from a Stagecoach level just above the Bent Period.

V-e: This type was also formed by a single stem terminus which had its forward portion

missing. The bottom one-fourth inch of the back side of the bowl remained attached, but the area was too small to show any decoration. There was a single ring 2/64 inch to 8/64 inch from the terminus. The distance from terminus to bowl is 32/64 inch.

The exterior color was, like most of this type, a brown-olive, while the paste was slate gray.

The specimen was recovered from high in a Stagecoach zone of the inner corral. Such a zone contained early material, of course, but early provenience cannot be ascribed.

Type VI

These were stemless pipes, like Type V above, but were generally more massive and had definite flaring at the termini of the stem holders (figure 42). The main difference between the two types was that the stem holder of this type merged with the bowl at the back and did not protrude in front of it.

Pipes of this type were more or less ubiquitous at historic sites which were occupied around the middle of the 19th century and later (Wilson, 1961).

VI-a: This style was usually red-orange, dull yellow, or buff in color, although individual items sometimes showed discolorations from firing. Most found at Bent's Fort and Fort Smith were round in cross section, but a var-

iant found at Bent's was octagonal. Like Type V above, the bore was cone-shaped, being wide at the terminus and contracting to 6/64 inch to 7/64 inch where it entered the bowl.

All four specimens were recovered from Stagecoach zones, although the reddish octagonal stem and another reddish specimen were from just above Bent levels.

VI-b: Two fragments constituted this style (figure 42). It was somewhat smaller than the unglazed stems of style VI-a but identical in silhouette. The paste was light buff in color, and a molded pattern of stylized thistle leaves stood out in relief from the stem holder and bowl remnant. The salient feature of the style, however, was a green glaze over the surface.

Although one fragment came from deep in the west trash dump, the provenience was determined to be Stagecoach.

Type VII

The single specimen had been badly burned (figure 42). It was easily the largest bowl recovered at Bent's Old Fort, being two inches high and 36/64 inch to 1 10/64 inches wide. The stem, or stem holder, had snapped cleanly from the bowl, leaving no clue of its angle. An almost identical bowl found at Fort Laramie had an acute-angled stem holder, as did another from Fort Union. The type VII bowl was quite tall and relatively thin-walled.

Due to the effect of the burning, the original color could not be distinguished. It could best be described as "frosted over" and gray.

The orifice indicated a minimal stem holder bore of 8/64 inch, but it could well have been eroded.

The provenience had to be designated early Stagecoach, but it could easily have been late Bent. The specimen was recovered from the very bottom of a "cap" laid over the crumbled fill of Bent's well in Room W2. The purpose of this "cap" was to stabilize and level the sub-floor well room so that a wooden floor could be laid over it. The severely burned condition suggested Bent's 1849 abandonment.

Type VIII

A single, off-white fragment, 49/64 inch long, comprised this type. It lacked any portion of a stem or stem holder and was the only "composite"-shaped bowl from this site (figure 42). It was small and thin and had two rings 1/64 inch to 12/64 inch beneath the rim. Except for these rings and the composite shape, offset at 36/64 inch below rim, no decorative elements appeared. This, however, may well be due to the small size of the specimen.

Recovery was from the first level of the westernmost part of the main trash dump. This area was bladed in 1955 and is, therefore, mixed in provenience.

Type IX

This type is representatively a single incomplete bowl (figure 42). The color was indeterminate due to severe scorching. The texture was almost identical to the bowl of Type VII, but the shape was different and it was of smaller size. Almost straight-sided, there was a barely perceptible flare above the top of the stem holder scar and a slight swelling below it.

The interior and exterior diameters of the bowl were 39/64 inch and 60/64 inch respectively. From the rim to the top of the stem holder was 40/64 inch. The present height of the fragment was 1 19/64 inches. On the basis of remnant contours, an original height of 1 30/64 inches was suggested. Remaining on the underside of the stem holder scar was 25/64 inch of the top arc of the bore. This small remnant of bore was almost at a 45 degree angle with the bowl, an indication that the stem holder was at this angle.

The specimen was recovered from a mixed level of the west end of the trash dump, disturbed in 1955 by a grader blade.

Discussion

Time periods for the sites of Bent's Old Fort; Fort Laramie, Wyoming; and Fort Union, New Mexico, overlap beautifully, providing excellent opportunities for comparative analysis. Unfortunately, provenience is not sufficiently

tight for the Forts Union and Laramie specimens to permit optimum analysis.

The Fort Laramie pipe collection included many Dublin shapes like the forward-sloping styles which occurred at Bent's Old Fort. Many, however, were terra cotta stemless elbows (including Turks' heads), apple-shaped bowls, and transitional Dublins (having a bowl somewhat wider in relation to its height, sometimes slightly convex at the back, and frequently at right angles to the stem). These, when compared to the Bent's Old Fort provenienced pipes, suggested a period of occupation for Fort Laramie ranging from at least the early second quarter of the 19th century to well past the third quarter. The known dates for Fort Laramie are 1834-90.

Fort Union pipes, on the other hand, began with the transitional Dublin and included specimens resembling Types V, VI, and VII. The forward-sloping Dublin was present but was very elaborately decorated and appeared late. The collection, then, suggests a mid-century to third-quarter-plus occupation, based on comparisons with Fort Laramie and Bent's Old Fort. Again, such is the case, for Fort Union's dates are 1851-90.

The Arkansas site of Fort Smith I (1817-34), with intrusions from Fort Smith II (1839-78) and modern settlement (until 1958), had few pipe fragments from undisturbed zones; but the site does overlap also, on both ends of the time period. The pipe collection there includes

variants of Type I, one of which has a "radical" of vertical lozenges with one on each side at 45 degrees, giving the effect of a "broad arrow," and *no* paired leaves at the mold seam. One Type I rim fragment has very crude and irregular flutes; another has such regular flutes, as well as being bordered on each side with "ridges," that a machine-carved mold is suggested. Unique at Fort Smith are the ivory bits with screw-thread specimens not found at the other three sites. A white clay stem with the impression "St. Omer, Repose" was found at both Fort Smith and Fort Laramie. The pipe company operated from 1764 to 1920. The Fort Laramie example has an apple-shaped bowl. Both have the same distinctive ridged bit, and both appear to date ca. 1860. Type V specimens at Fort Smith include the round, light orange variety and a dark glazed stem holder with seven alternating facets and grooves.

On the basis of archeological provenience and a casual comparison with the Fort Laramie and Fort Union pipes, certain conclusions can be drawn about the Bent's Old Fort pipes.

All styles of Type I were available during the Bent Period. I-d, I-e, I-b, and the full-fluted variant of I-a appear to represent most certainly the earlier phase of the Bent Period. Styles I-f, I-g, I-h, I-i, and the minus- $\frac{1}{4}$ -inch fluted variety of I-a were probably late Bent and overlap, if not the Stagecoach Period, at least the interim transients of 1849-59. Type I-b could have lasted from early Bent into the

interim. Types II, III, and IV are post-Bent and firmly pan-Stagecoach. Types V, VI, and VII were probably available late in the Bent Period, although none were found with that provenience at Bent's Old Fort. They were certainly available during the interim between the Bent and Stagecoach periods. Type VII appears to be no later than the interim, and, since it was badly scorched, it was probably late Bent. It could date from the late forties at Fort Laramie or the early fifties at Fort Union. By the same token, it could represent either at Bent's Old Fort. Type VIII remains an enigma.

There were 1,206 stems. Most were plain and white and could be given no more analytical treatment than measuring their stem bore diameters. Six stems of Type I-f were found, of which two had Bent provenience. This stem is discussed above. Twenty-one stems had a raised pattern of dots and rings. These were arranged inconsistently, with at least six (possibly more) rings forming bands in which seven, eight or 10 dots were arranged, either in pairs, or in alternating paired and single dots, on each side of the mold seams. There was a ring of single dots between the nearest solid ring and the flutes, which extended onto the bowl $\frac{24}{64}$ inch away. The flutes appeared thin on the stems, but began to expand and rise in height as they extended upward on the bowl. Unfortunately, there were no bowls which could be associated with these stems. One stem had the raised letters "HOLL . . ." on one side and ". . . ELLIAS" (the "S" is

reversed) on the other. Five of these stem fragments were from deep levels of the trash dump and appeared to be firmly Bent in period. All of these have bore diameters of 5/64 inch.

Two other fragments, having even more certain Bent provenience, came from the wagon room and Room E4. They represent a stem type found on many, if not most, historic sites and also have a 5/64-inch bore diameter. At Fort Frederica, Franklin Court, and Fort Smith, they were found and judged to be 1840-plus, placing them after the periods of historic significance at these sites. The same type has also been reported by Woolworth and Wood (1960) from Kipp's Post. The Bent provenience for the six stem fragments was acceptable since 1840-plus was easily covered by the Bent Period. The find from Room E4 was from beneath the Bent floor, a level considered "early" Bent.

An unusual stem, also of 5/64-inch bore diameter, had two crude raised initials which might be "CF," "JO," or "JD," but were most likely "CF." The provenience was Stagecoach.

Most of the spurs were oval in section with thin, clear mold seams. Many seem to have had initials cast on the side of the spurs, but few of these are legible. Only one was clearly marked "W" on one side and "D" on the other. Another spur had a raised circle with a dot in its center on each side. Miller reported this type from Fort Lookout II (Miller, 1960).

The spurs for Type I-f, as stated above, were the most regular. The two spurs associated with "ring and dot" stems were similar to I-f, but they were ovoid and the feet were more rounded.

It is generally conceded that stem-bore diameters are useless for dating clay pipes made after ca. 1780. Nevertheless, these measurements were taken. Of the 1,206 white clay stems, 970 had stem bores of 5/64-inch diameter, 236 of 6/64-inch diameter, and three of 7/64-inch diameter. Seven of the 6/64-inch stems could be identified as belonging to Type IV bowls and as such were known to be post-Bent. The percentage of 6/64-inch diameter bores with Bent provenience with and without these post-Bent stems were 21 percent and 20 percent, respectively.

There were 198 stems with Bent provenience from the 5/64-inch group, which was 20 percent of the total. None of the three stems of 7/64-inch bore diameter had other than early Stagecoach provenience. The single 4/64-inch bore measurement was counted with the bowls, but it was of questionable Bent provenience. Of the total number of stems, 18 percent had a 5/64-inch diameter, 19 percent were 6/64 inch, with a fraction of one percent for all others.

The figures indicate that the white clay pipes preferred at Bent's Old Fort were overwhelmingly of 5/64-inch bore diameter.

Firearms

Weapons must have existed in profusion at Bent's Fort, in a variety of situations. Most would have been for sale or trade by the company; some would have been personal arms carried in by the legion of men who visited or conducted business at the post; still others would have been the property of the men who lived and worked there.

Flintlocks of several sorts made up the bulk of the Bent's Old Fort side and shoulder arms. It was known from documented sources that the Cheyenne purchased flints, lead, powder, guns, and knives at Bent's Old Fort in the thirties (Grinnell, 1926). Without crediting a primary source McNitt specifically stated that a Cheyenne party purchased Hudson's Bay guns there (McNitt, 1962), three of which (guns 3, 4, and 6) were found in the pit in the basement of Room W4. Present also was the Indian Trade Rifle, as well as several unidentified flintlocks. Flintlock pistols were certainly here, but their presence and types must be inferred primarily from the projectiles. It would have been surprising had we not found evidence of the U.S. Rifle M1841, for the military visited here with regularity in the thirties and early forties and camped here by the thousands (outside, of course) in the mid-forties.

Three flintlocks, with an air of mystery about them when found, remained enigmatic after much correspondence. A brass-furnished rem-

nant found on the floor of Room E4 was apparently a personal "sport" arm, possibly carried by one of the several transient gentlemen (naturalists, writers, and adventurers) who stopped by. The barrel, escutcheon, ramrod thimbles, etc., were missing, but the butt plate, trigger guard, lozenge-shaped stock ornament, and hachured stock grip had a simple elegance.

Gun 1, recovered from the pit in Room W4, was furnished with rather massively proportioned brass furniture (figure 43). It most

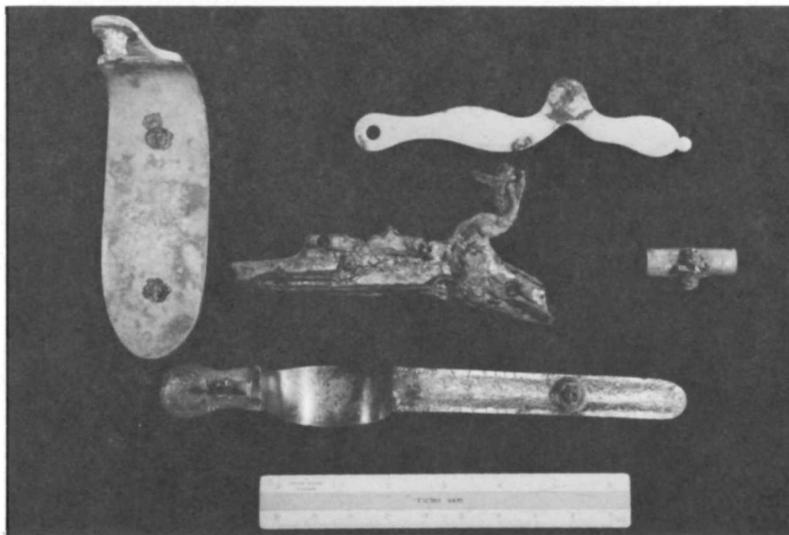


FIGURE 43. Brass furniture and iron lock of English military flintlock. The butt plate is stamped with the broad arrow of royal ordnance. The butt plate, side plate, and trigger guard are massive and very similar to the 1756 musketoon. The barrel was quite long, however, and these parts may have been reused on a frontier piece.

resembled the British 1756 musketoon and certain Black Sea Service muskets dating to 1780 (Blackmore, 1961; Peterson, 1956), and the butt plate did have the broad arrow, or folded compass and square, of British ordnance. In addition, it had the longest di-

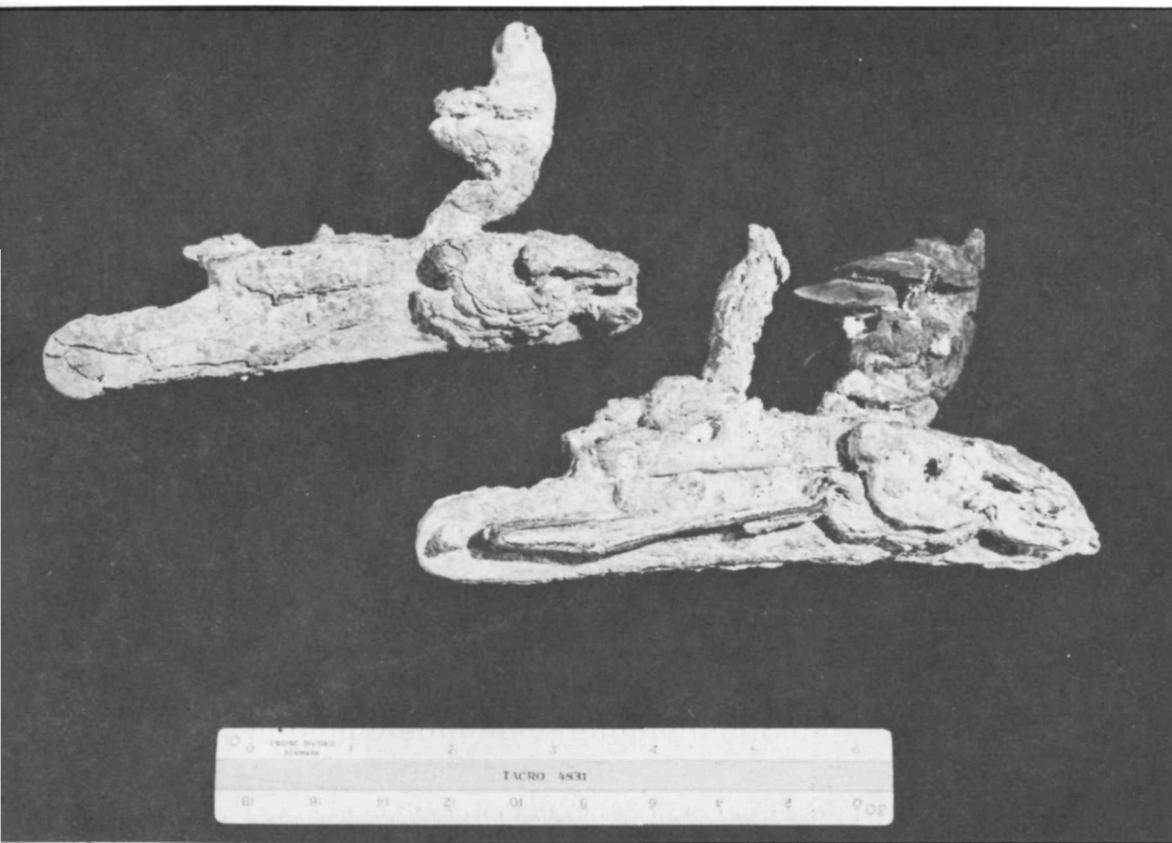


FIGURE 44. *Interiors of two gunlocks. Upper left, English style found at Bent level in plaza behind north gate; lower right, French style from Bent level in pit of Room W4.*

mension found at Bent's Old Fort, being 3.48 feet from muzzle to end of receiver. The bore was 0.06 foot. The two-hole lock plate measured 0.56 foot and was secured by a Brown Bess type sideplate with an ornamental tang (figure 44, upper left). The inner surface of the side plate was inscribed XIII, with a capital "F" stamped onto the tang; and the inner surface of the trigger guard which appeared to be sand-cast and only partly polished, was also inscribed with XIII. A ramrod thimble was inscribed III, IIII, and XIII. The length of the trigger guard was 0.80 foot, and the butt plate was 0.45 foot long and 0.165 foot wide, with a tang of 0.18 foot to 0.30 foot long. The thimbles, lock, and silhouettes of the trigger guard and side plate were typically 18th-century English. The butt plate was too straight, simple, and massive (0.015 foot to 0.018 foot thick) for the Brown Bess, however. The earlier musketoon was too early to have survived as a functional weapon, and it is doubtful if any trader or merchant could or would have held an unused weapon so long in stock. (T. M. Hamilton, Charles Hanson, and Carl Russell expressed this view in personal communications in 1964 and 1965.) It would appear most likely, then, that the brass furniture, and possibly the lock, were reused on a later American frontier rifle.

Gun 7 also was a problem. It was a carbine with iron furniture, 2.6 feet from muzzle to receiver, with a breech plug and tang 0.51 foot long. The single iron stock retaining band was 1.55 feet behind the muzzle. The bore,

0.05 foot, may have been too small for a U.S. military weapon. The lock was 0.58 foot long, with rear tang, and the cock was the French double-yoke style (figure 44, lower right). The pan was of brass, unfenced and inclined. This was the style inspired by the French Charleville M1777 and adopted by Eli Whitney for the U.S. Musket M1798. Other contractors revived it in their U.S. Common Musket M1816 and M1817. Several European countries also manufactured shoulder arms in this style. None of the weapons here alluded to, however, had a breech plug tang half a foot long. Again, it would appear that cannibalization had occurred. Perhaps a pistol breech plug was adapted for this gun by straightening out the tang, which had also formed the back-brace for the handle.

Guns 2 and 5 were found pretty much intact. The butt plates, side plates, ramrod thimbles, trigger guards, patch box lids, and front forestock guards were all of brass. Except for the last mentioned, all brass from Gun 2 was stamped "E," and that of Gun 5 was stamped "Z."

The stamped touche DERINGER*PHILA was first noticed on the underside of each patch box lid. This was not regarded as an identification at first; but when similar touches were found under the butt plates as well, the attribution was confirmed. Charles Hanson in personal communications stated that he felt from the first that they were Deringer Indian Rifles, on the basis of sketches showing the patch

boxes. These were indeed distinctive (figure 45) in that they were shaped like an eagle in

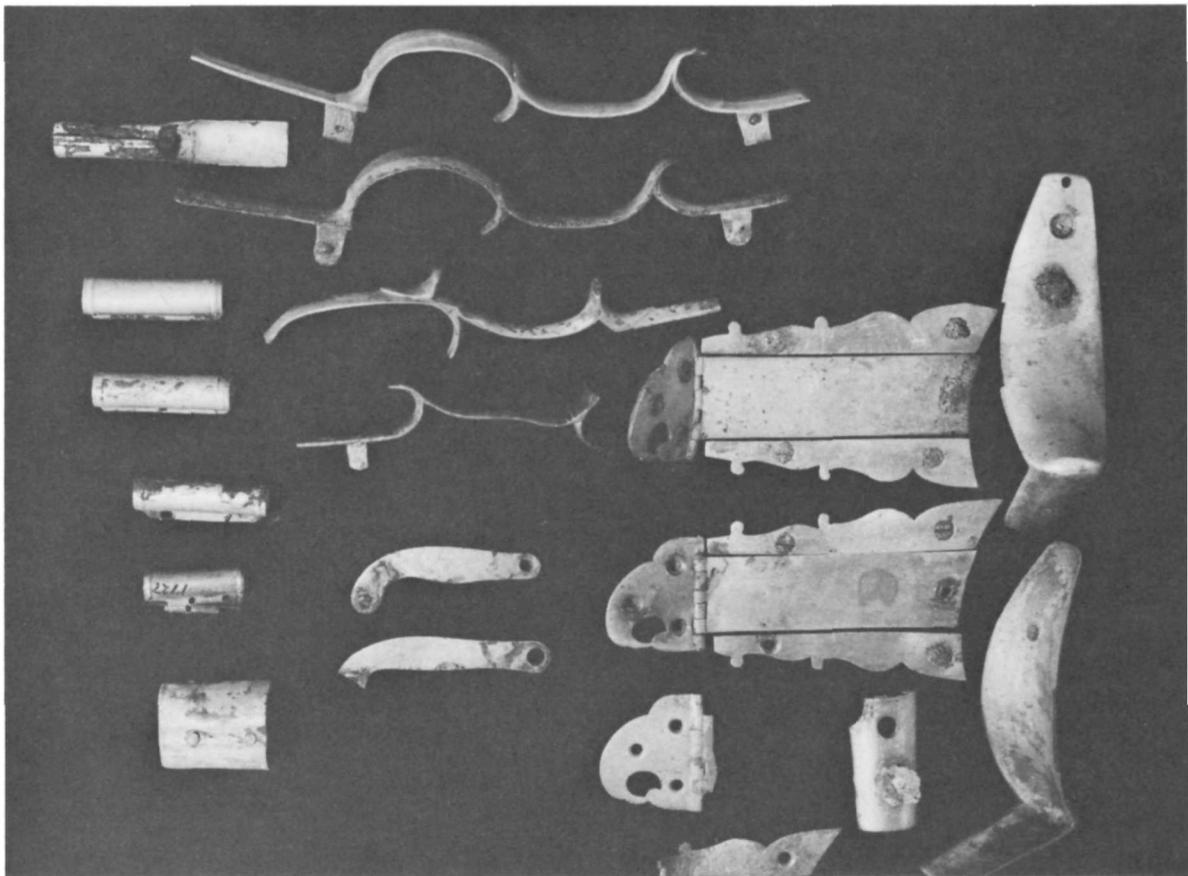
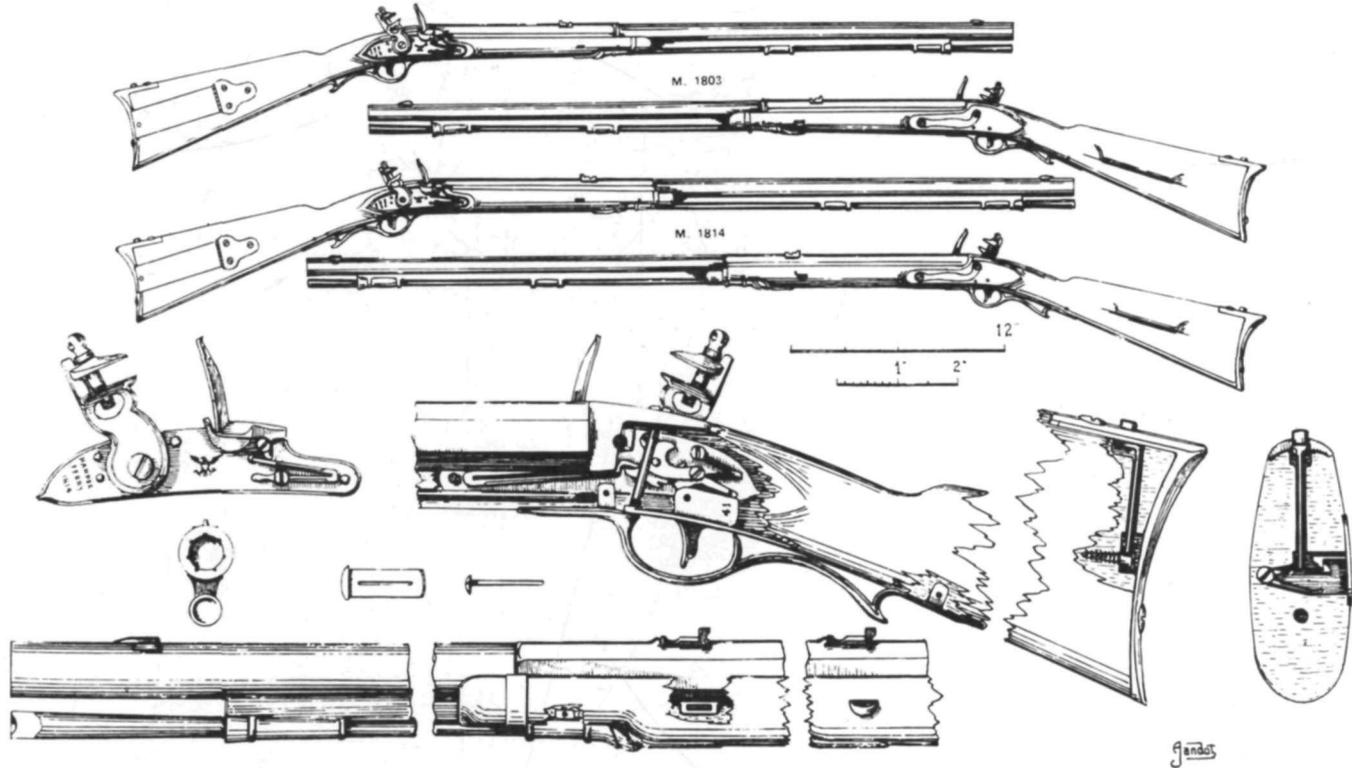


FIGURE 45. Brass furniture from Indian trade rifles. All are Deringer make with the probable exceptions of lower ramrod thimble (F. S. 1727), lower two trigger guards, broken tang from butt plate. Both butt plates and patch box lids are stamped "Deringer * Phila" on the undersides.

U. S. RIFLE, MODELS 1803 & 1814
(Harper's Ferry Armory)



Capt. Hicks and A. Foster Jr. Collections

FIGURE 46. Drawings of U.S. Rifle M1803 and M1814 and their furniture. Parts and furniture left over from the manufacture of these models were used in the rifles made under contract for the Bureau of Indian Trade. Drawing by Andre Jandot, from Hicks (1962).

profile, a pattern, Hanson stated, that only Henry Deringer used. Deringer contracted to make military rifles in 1814 and 1819 (Russell, 1957; Hicks, 1962). These were the U.S. Rifle M1803 and M1814 which had a plain patch box without lateral plates (figure 46).

The butt plate, side plate, trigger guard, and ramrod thimbles were of brass and identical to those of the Deringer-made Indian rifles (figure 47).

These latter were made under contract to the Bureau of Indian Trade, and a comparison of the two rifles would show that the latter used parts which were obviously left over from the manufacture of the former. Henry Deringer was not singular among his colleagues in using surplus military furniture (and parts) to meet other contracts. In addition, the style of such brass furniture probably continued to be popular with Indians and frontiersmen long after it was discontinued by the army.

Contracts were let by the Indian Trade Office with gunsmiths other than Deringer—Tryon, for one—but only the former's marks were



FIGURE 47. *Five flintlock rifles. The three at the bottom were made by Henry Deringer under contract to the Bureau of Indian Trade. Those found at Bent's Old Fort were most likely contemporaries of the rifle shown at the bottom, which was made under the 1837 contract. The other four rifles are (from the top): Ketland Fowler (England), used in War of 1812 (not present at Bents Old Fort); Deringer Trade Rifle, 1837; Deringer Trade Rifle, (percussion for sale to Five Civilized Tribes during removal, largely repected, not present at Bent's Old Fort); and Deringer Trade Rifle, contract of 1810-20, probably not present at Bent's Old Fort. Museum of the Fur Trade, Chadron, Nebraska.*

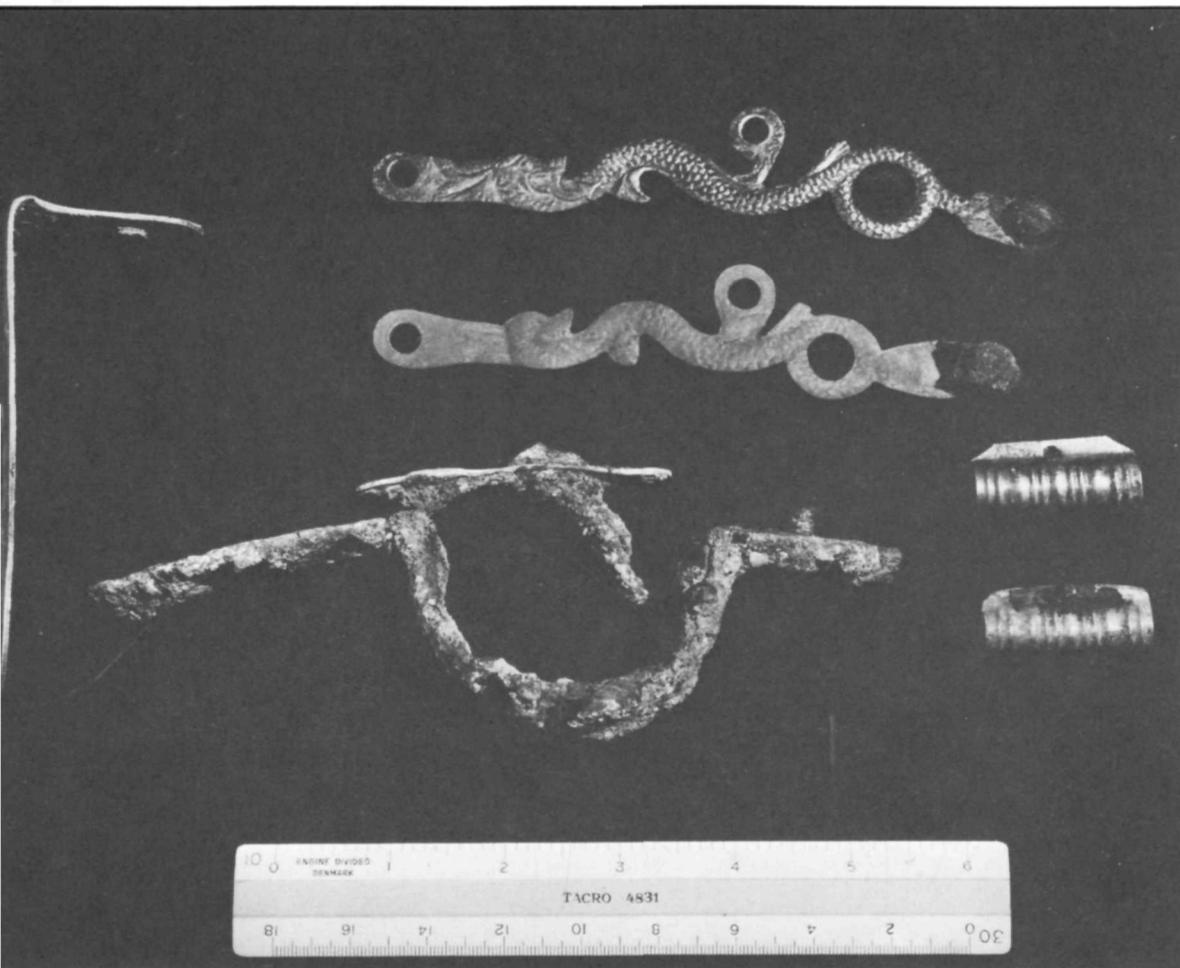


FIGURE 48. Northwest, or Hudson's Bay, Gun parts from Bent's Old Fort. All furniture shown is of brass; the trigger and trigger guard are of iron.

found at Bent's Fort. Known contracts with Deringer for Indian rifles include one of July 23, 1819, one in 1820, and a third let under terms of the Treaty of 1837. It was most likely this last contract which accounted for the Deringer Indian trade rifles at Bent's Old Fort.

Guns 3, 4, and 6 were remains of Hudson's Bay, or Northwest, guns (figure 48). No barrel remnants were recovered, which was not surprising, as they were usually made with salvaged metal, heated and shaped about a mandrel. Such hardening as was attained resulted from direct contact with carbon in the forge. Like all of the guns from the pit in Room W4, these had been severely burned.

The Northwest gun had a history which paralleled the expansion of the United States and Canada. Although manufactured not only in Great Britain but on the Continent (especially Belgium) as well, the shapes and styles varied only subtly. The flat, simple butt plate could be of either iron or brass, but only brass ones were recovered at Bent's Fort. The ramrod thimbles were thin and invariably ribbed. The iron trigger guard bow (no brass ones were found) was always large and symmetrical and could quickly accommodate mittened fingers.

The most distinguishing characteristic of the Northwest gun, of course, was the side plate. This dragon- or serpent-shaped piece showed proportionately more variation from maker to maker. It originated with a dendritic scroll on

an Italian side plate of 1650 and reached its final dragon-like form on trade muskets by the mid-19th century (Russell, 1957). The dragon-motif side plate, together with the characteristic trigger guard and ramrod thimble, survived only on trade guns after the mid-18th century, due to Indian tastes and attitudes (Mayer, J. R., in Russell, 1957).

In addition to the burned flintlocks described above, parts of identical and similar weapons were recovered from the plaza and the trash dump. The fact that few of the latter specimens had good Bent association hardly detracts from those weapons which did.

A cartouche case remnant was recovered from the Room W4 basement pit with the flintlocks (figure 49). It appeared to have been a U.S. Dragoon case of the 1830s (Wallace, 1966).

No complete, or even nearly complete, percussion weapons were recovered at Bent's Old Fort. Individual parts which were found attest to a respectable inventory of such arms. A single, tanged, brass barrel band appeared to have been from the U.S. Musketoon M1839. The U.S. Rifle M1841 was present in two versions (figure 50). Both a brass, double upper band, with sling swivel attached, and a single iron band were found which would have be-

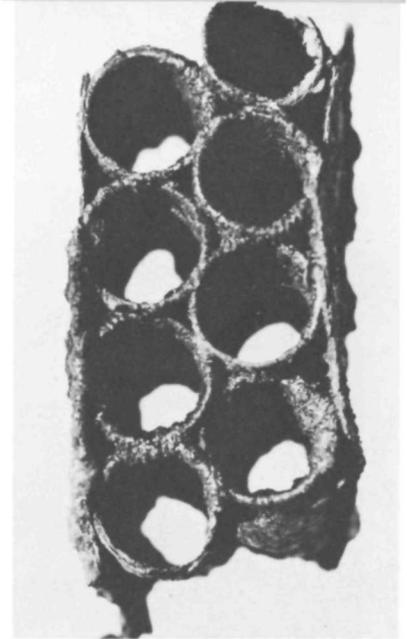


FIGURE 49. Cartouche case remnant appears to be a belt-carried model used by the U.S. Dragoons in the 1830s.

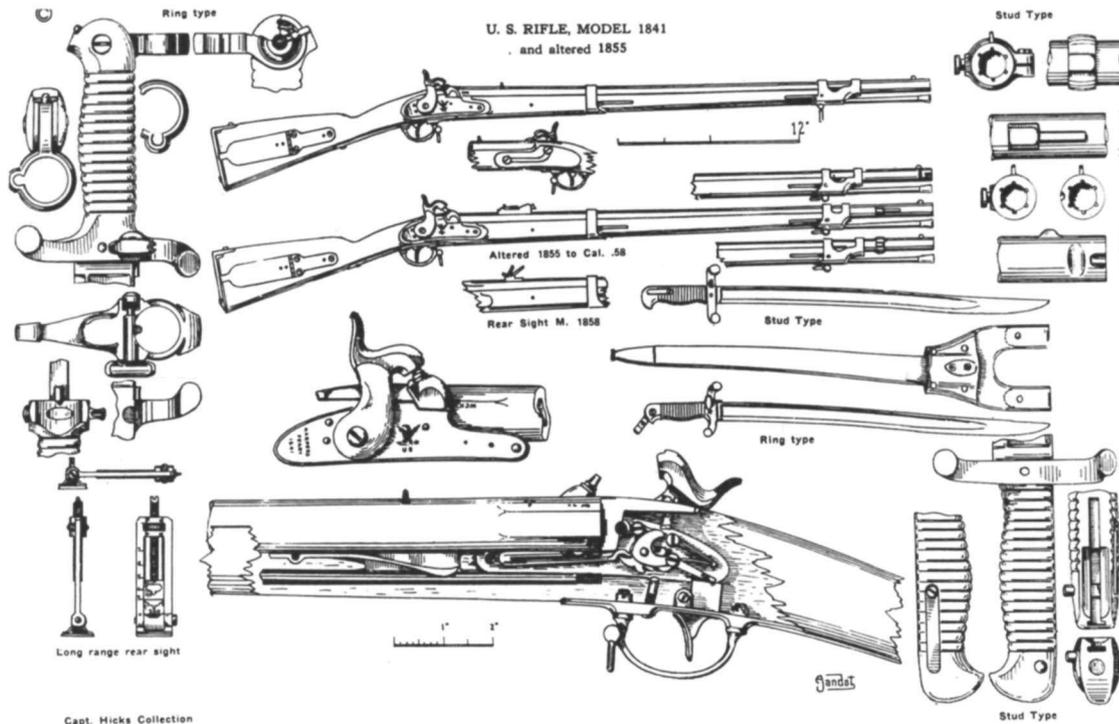


FIGURE 50. U.S. Rifle M1841. In 1846 this rifle was brought to Bent's Old Fort on the shoulders of General Kearny's Army of the West. Drawing by Andre Jandot, from Hicks (1962).

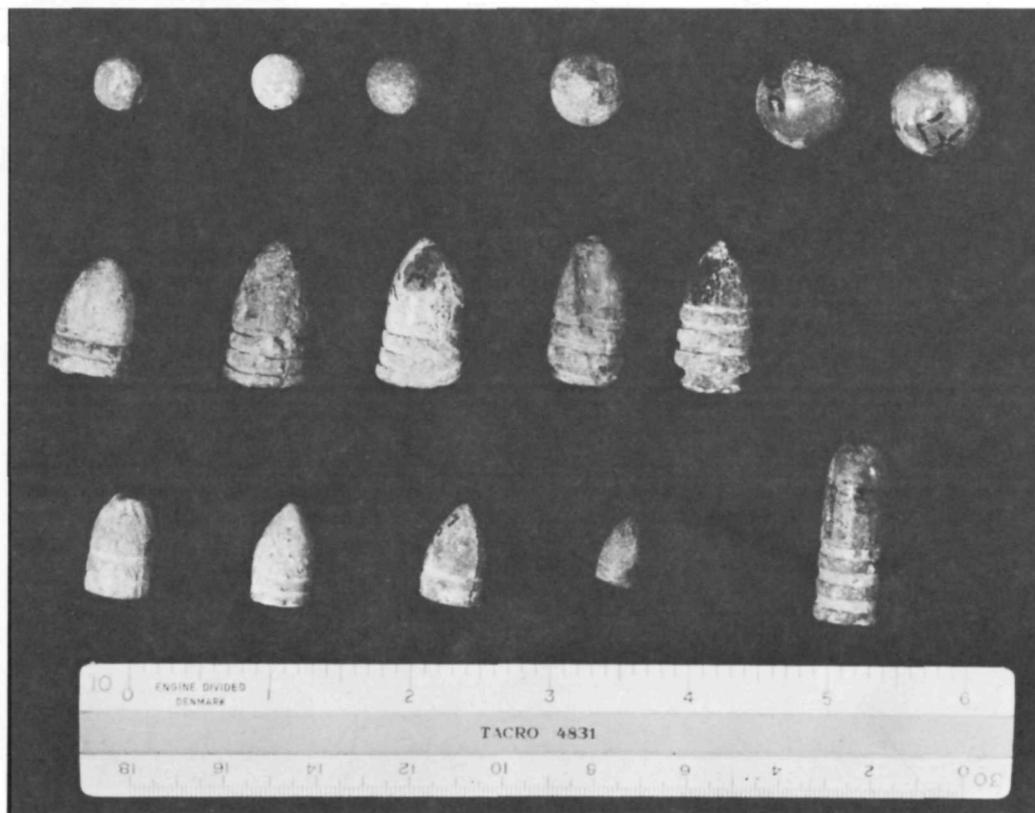


FIGURE 51. Representative lead projectiles from Bent's Old Fort.
 TOP ROW (left to right): U.S. Navy pistol, caliber .36 (1); Army pistol, caliber .44 (2) and .54 (1); U.S. rifle M1841 and earlier, caliber .69 (2).
 MIDDLE ROW (left to right): Siner cartridge for Colt revolving rifle, probably 1860-63 (1); Minié-type paper cartridge for U.S. Rifle M1858, caliber .54 (2); and paper cartridge for Sharps Carbine M1853 (2).
 BOTTOM ROW (left to right): .45 Colt long, issue bullet, 1873-90 (1); .44 Colt, M1860 Army cap and ball (1860-73) (2).
 .31 Colt, 1849-65 belt and pocket pistols (1); and .45-70, Ideal Mold, Springfield M1883(?) (1).

longed to different individual arms. As an 1856 Morse alteration of this weapon also had this style band, no certain identification could be made for the recovered bands.

Further evidence of identifiable U.S. pieces was presented by round lead projectiles, which were the only ones used by the army in the West until 1843 and which continued to be used by Indians and civilians somewhat after that time. All U.S. military muskets were flintlocks, taking a round ball, until 1841. Production of such flintlocks continued until 1844 in the arsenals and until 1848 in private arms works.

The presence of the U.S. Rifle M1841 was suggested by a .54-caliber ball which could have been used with a patch for the weapon during the interim period between Bent and Stagecoach when this gun was altered to a .58-caliber piece. This alteration of 1855 was intended to permit the use of an elongated Minié type projectile in the old gun. These latter projectiles were also present at Bent's Old Fort (figure 51).

Civilian arms could also be suggested by these lead projectiles. The caliber .54 ball was used with many frontier rifles.

The 1853 Sharps elongated projectile (figure 51) was definitely in evidence. This rifle, although separately primed and therefore slower than such repeating arms as the later Spencer and Henry, was accurate; and its bullet had tremendous shock and penetrating power.

On the basis of investigation of cartridges and projectiles, patent fire weapons at Bent's Fort appear to have been limited to the 12-mm pin-fire pistol (figure 52). This arm used the first fully self-exploding cartridge and was the in-

vention of M. le Fauchaux in 1836. There was an ever-present danger that the pin might receive an unintentional shock and detonate in pockets, pouches, etc. Numerous such cases are on record. This hazard notwithstanding, the



FIGURE 52. Representative cartridges from Bent's Old Fort.

TOP ROW: All externally primed center fires; the first four from the left have Berdan primers.

MIDDLE ROW (left to right): Cartridges 1, 3, 4, and 5 are Spencer carbine ammunition manufactured by C. D. Leet, Fitch & Vechten, and Sage Ammunition Works; 2 may have been a .56-.46 Spencer also; 6 is questionable; 7 and 8 are Spencers; 9 and 10 are .45 caliber army, internally primed center-fire (Benét) manufactured by Frankford Arsenal; 11 and 12 are .50-70 army, internally primed center-fire (bar-anvil or cup) also by Frankford.

BOTTOM ROW (left to right): Civil War period RF .22 ranging later to the post-World War II (sixth from left); 12 mm. pinfire, unmarked Smith carbine separate primed copper; Plant .28, National test-fire (both front-loading revolver) caliber .32; caliber .44 Henry with marks of breech pin snapper (1856 Henry or 1866 Winchester); caliber .44 profile; three caliber .44 Henry cases showing various firing pin marks.

economical pinfire continued to be manufactured well past the Civil War, and this long life span diminishes its value as an index artifact. It was made not only in France but also in Germany and England, where Eley Brothers of London was among the better-known manufacturers. Three cartridges for this weapon were recovered at Bent's Old Fort, all unmarked. The provenience was post-Bent in each case.

The carbine known variously as the Smith, the Massachusetts Arms Company, or the Poulney and Trimble was assigned to an early phase of the Stagecoach Period at Bent's Fort. The sole evidence of this arm was the presence of two unusual cartridge cases (figure 52). Neither is illustrated in any of the better-known references, but ammunition for this carbine was manufactured by several firms at a time when precision was minimal. Smith cartridges were .50 caliber and commonly of foil, or foil and paper laminate. Both of the caliber .50 cases found were of thin copper with a tiny orifice at the base which admitted the blast of the priming cap (Murray, 1966). One was found in the pit in the basement of Room W4. Since the arm was used early in the Civil War, this find proved that some Stagecoach Period disturbance of the pit took place before a wooden floor was built across it. It also indicated a date in the 1860s for the conversion of Room W4 to Stagecoach use.

The Spencer carbine was very much in evidence together with the Starr carbine, al-

though proof of their presence derived primarily from brass cartridge cases. Most of the 36 cases and two projectiles found were unmarked. One was a .56-caliber cartridge case made by the C. D. Leet Company, Springfield, Massachusetts, and bore the headstamp "C.D.L." Eleven cases bore the "S.A.W." headstamp of the Sage Ammunition Works, Middletown, Connecticut. Models of Spencers inferred from cases were the model 1865 caliber .50 (.56-50) and the caliber .56 (.56-56), which was popular in the West throughout Civil War years.

Cartridges for these arms were interchangeable, due to similar dimensions and low tolerances. One .56-56 bottleneck, unmarked, was found. It was burst just beneath the rim, as frequently occurred when fired in a .56-50 (Murray, 1966).

Some of these cartridge cases bore unidentifiable firing pin scars, and it was considered that these might testify to the presence of the Josylin carbine at Bent's Fort, a weapon which accepted the Spencer ammunition. A Spencer-fired cartridge was recognizable by the vague, oval indentation it acquired on one side of the rim, just inside the pin scar. A characteristic vertical scar, opposite the pin scar, was made by the ejector and further identified Spencer-fired cases.

Five cases stamped "F.V.V. & Co." were found; these were made by Fitch and Van Vechten for the M1856 .56-50 Spencer. This

company was located in New York City and was known to have been operative in the late 1860s.

Even more numerous at Bent's Old Fort than the Spencer cartridges were those for the Henry and its successor, the 1866 Winchester. The Henry was invented by B. Tyler Henry in the mid-fifties and took a relatively small rim-fire cartridge, caliber .44. This was the first fairly large caliber, rim-fire ammunition produced. The arm was popular during the Civil War and until the mid-seventies. The Henry was less legendary than the Spencer, but probably more effective overall, despite serious continuing problems with ammunition. It was lighter to carry and held several more rounds in its magazine. Several observers noted that the killing power of the little caliber .44 was every bit as great as that of the caliber .56 or .58. The best index was the fact that many owners of Spencers were willing to add up to \$30 boot to trade for a Henry. The Stagecoach traffic must have seen a good many of these rifles come and go, for 10,000 Henrys were made between 1860 and 1866.

In 1866 Oliver Winchester, who had bought the Henry Company a few years earlier, brought out a rifle under his own name. The new Winchester used the same .44-caliber ammunition developed for the Henry and had the same double-pronged firing pin, called a "breech pin snapper," which struck the cartridge's rim on two sides at once. The new Winchester, therefore, also had the same prob-

lems with misfires, and many .44-caliber cartridge cases were found reflecting this.

It should be noted that probably not all of the .44-caliber cases at Bent's Old Fort were fired in a Henry or Winchester; some were undoubtedly fired in a Ballard or a Frank Wesson single shot.

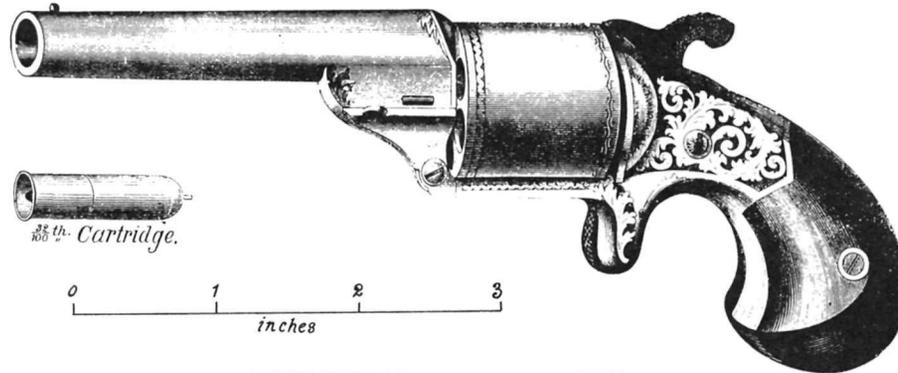
The following types of caliber .44 cartridges were found at Bent's Fort:

- .44-caliber Henry (M1855)
- .44-caliber Henry long rim-fire (a popular cartridge used by several single shot rifles)
- .44-caliber Henry (1866-72)
- .44-caliber Winchester (M1866)
- .44-caliber Henry (1872-plus)
- .44-caliber (unidentified headstamp of a broken circle)

All of the caliber .44 cartridges were recovered from Stagecoach or later levels.

Several other rim-fire weapons of intermediate sizes were inferred from a few cartridge cases. The caliber .30 short was a rare find and attested the presence of the four-barreled Sharps pistol (Murray, 1966). The caliber .41 derringer, made by Deringer and others, occurred with weak-to-good Bent provenience, but the cases appear to have been for blanks. Perhaps this gun was used at the race track mentioned by Susan Magoffin. The presence of the .41 derringer in percussion form was

demonstrated by round projectiles. A single, rim-fire, caliber .36 case, stamped "C.D.L.," was for a Navy .36-caliber percussion piece, converted to take a rim-fire cartridge (Murray, 1966).



DIRECTIONS FOR LOADING :

Set the hammer at half cock to relieve the cylinder, throw open the *Gate* on right hand side of barrel just forward of the cylinder, insert the cartridge teat downward, so that the flange sinks to its place in the cylinder—close the gate, and then the arm is loaded.

To eject the Cartridge Shell after explosion, set hammer at half cock, and open the gate as above, and with the small rod start the shell through the opening at the rear of abutment and cylinder, when the shell will fall out.

This arm can be carried safely, when loaded, with hammer at half cock, or resting on cylinder between the cartridges.

FIGURE 53. Drawings of National revolver and teat-fire cartridge. From Satterlee (1962).

Four cartridges were found which document the brief transition period (1854-69) when firearms ignition evolved from percussion to rim-fire. The new principle combined a self-sealing elastic metal cartridge case with inclusion of priming substance inside and at the base of the case itself. Intense competition among gun makers to market weapons employing this innovation resulted initially in two basic, self-firing cartridge types: the rim-fire and teat-fire. The appearance of weapons using these new cartridge cases at Bent's Fort was documented by the finding of rim-fire cases for the Smith and Wesson .22-caliber revolver and the .28-caliber 1863 Plant revolver. Two teat-fire cases were found, both made for the National Front Loading Revolver of 1864 (figure 53). This last cartridge came in two styles, one with a flat and one with a round teat (Logan, 1959). Both Bent's Old Fort cases were of the flat variety. They were also unquestionably Stagecoach in provenience.

Other lead projectiles found were for the .54-caliber Colt revolving rifle, probably M1855; the .31-caliber Colt belt pistol of 1849-65; the .44-caliber Colt army percussion of 1860-73; and the .45-caliber Colt long of 1873-90.

Other center-fire cartridge cases were recovered; these included both internally and externally primed types (figure 52). Among the internally primed cases both the Benét cup and the bar anvil were found. The latter included the Frankford Arsenal-made .50-70 of

1866-68. Also made at Frankford Arsenal were a number of Benét cup-primer cases, such as the 1863-73 .50-70, probably for the U.S. Rifle M1866; a trap-door Springfield reduced from caliber .58 to .50; and the .45 long Colt of 1872.

The earliest successful external primer was probably the Berdan. At Bent's Fort it was represented by a caliber .44 case for the Smith and Wesson American (commercial); the caliber .50-70 (Frankford Arsenal) of 1869-73, probably for the M1870 trap-door Springfield rifle; and a caliber .40-70 Sharps straight, probably for a buffalo gun of the mid-1870s.

One cartridge case specimen was reportedly quite rare. This was a caliber .44 Smith and Wesson American case, made in limited quantities at Frankford Arsenal in 1871 for use in field tests by the army in the West (Logan, 1959; Murray, 1966).

Gunflints

Until recently the archeologist has treated the gunflint casually, because of the unavailability of published data. Publications dealing with gunflints span two centuries and several disciplines. Most have appeared in rather limited editions of small journals in a number of languages. The *Missouri Archeologist*, volume 22, was a major contribution to gunflint research because it brought many articles to 1960 on gunflints between two covers. Included were two basic 18th-century works

translated from the French by Carlyle S. Smith (Smith, C. S., 1960a and 1960b).

Early gunflints were made in most countries where suitable flint could be quarried, with the majority being made in Holland. The "spall" technique, which resulted in a broad, scraper-like flint, dominated flint-making until 1750, even though the blade technique was developed by 1680. At archeological sites where spalls persisted after this time, they formerly were identified as French, but in the light of more recent data they now are considered to be Dutch (Hamilton, 1966).

The expertise developed by French craftsmen captured the trade between 1750-1800. Using a variety of specialized tools, one Frenchman could produce 1,000 good flakes in one day and finish them into flints in two days more (C. S. Smith, 1960a). These were single-edged flints, shaped by secondary chipping. The rounded heel thus formed and the blonde or honey color of the material were the most striking characteristics of French flints. During the American Revolution 95 percent of the flints used by all armies were of French manufacture (Hamilton, 1960), and millions of French flints remained stored in European arsenals long after France ceased to be the center of their manufacture.

By 1800 English flint knappers had developed the process of "understriking," which eliminated much of the secondary chipping needed previously. Besides being the dark color of

Dover flint, English flints were distinguished by their decidedly rectangular shape.

After 1838 the demand for flints was reduced due to overstocking and the introduction of the percussion system of ignition for firearms.



FIGURE 54. Gunflints from Bent's Old Fort. The two in the top row are Indian flints. The flints below, left, are French and English. All appear to be civilian types.

On the basis of research at trading-post sites along the Missouri River, Hamilton postulated a preference for English flints that increased with time after 1800 and with distance westward. The flints recovered at Bent's Old Fort did not support this thesis, but neither did they controvert it. The flints found there were almost evenly divided between French and English manufacture (figure 54). In the few areas where rooms could be shown to have had an early as well as late Bent horizon, the flints were largely English. Where the lowest level represented the entire Bent range, however, the distribution was equally or more French.

If Hamilton was correct in his suspicion that the U.S. Army preferred French flints, then the puzzle falls into place. The large number of troops present during 1846 and 1847 alone (without considering the several earlier visits by contingents of dragoons) would have deposited flints to equal those of the 19 years of trading activities dominated by English flints. In any event, the presence of so many English flints would indicate the importance of the flintlock to Bent's operation.

One of the Deringer rifles of the Bureau of Indian Trade contract type had a French flint in the cock, which suggested a practice of interest (figure 55). The flint was much wider than the cock was designed to take, a fact which would indicate that it was a flint designed for use in the larger cock of a musket. Its presence in a rifle was testimony to the

make-do attitudes of men to whom guns were an essential ingredient of life.

As suggested above, size is a clue to the weapon for which a flint was intended, although no assumption can be made that they were actually used as intended. Strike-a-lights and cannon-used flints, which ranged from around $1 \frac{28}{64}'' \times 1 \frac{12}{64}''$ to $2 \frac{8}{64}'' \times 1 \frac{32}{64}''$ or more, tend to be largest. Musket and carbine flints are next, with dimensions well over an inch in both length and width ($1 \frac{16}{64}'' \times 60/64''$, to $1 \frac{32}{64}'' \times 1 \frac{32}{64}''$). Fowling pieces used flints which ranged to over an inch from as little as $56/64$ inch in length by $12/64$ inch to 1 inch in width. Rifle flints generally measured from just under to slightly over an inch square. It should be pointed out, however, that even these types of measurements differed between nations and decades and were mostly for military flints.

Most of the Bent's Old Fort material was civilian (Hamilton, 1966) and fell into the horse or pocket pistol range, which was somewhat less than an inch maximum. Five of the 26 French flints and an equal number of the 28 English flints were one inch or over in length. It must be remembered, however, that most archeologically recovered flints are smaller than they originally were due to use and/or breakage in use.

Firm Bent provenience was ascribed to four of the French flints, and four more were assigned to "soft" Bent provenience.

Seven of the English flints were associated with Bent Period zones, while four were from zones of Bent-Stagecoach contact. Percentages for Bent provenience ran from 15 to 30 percent for the French and from 30 to 39 percent for the English flints. It should be

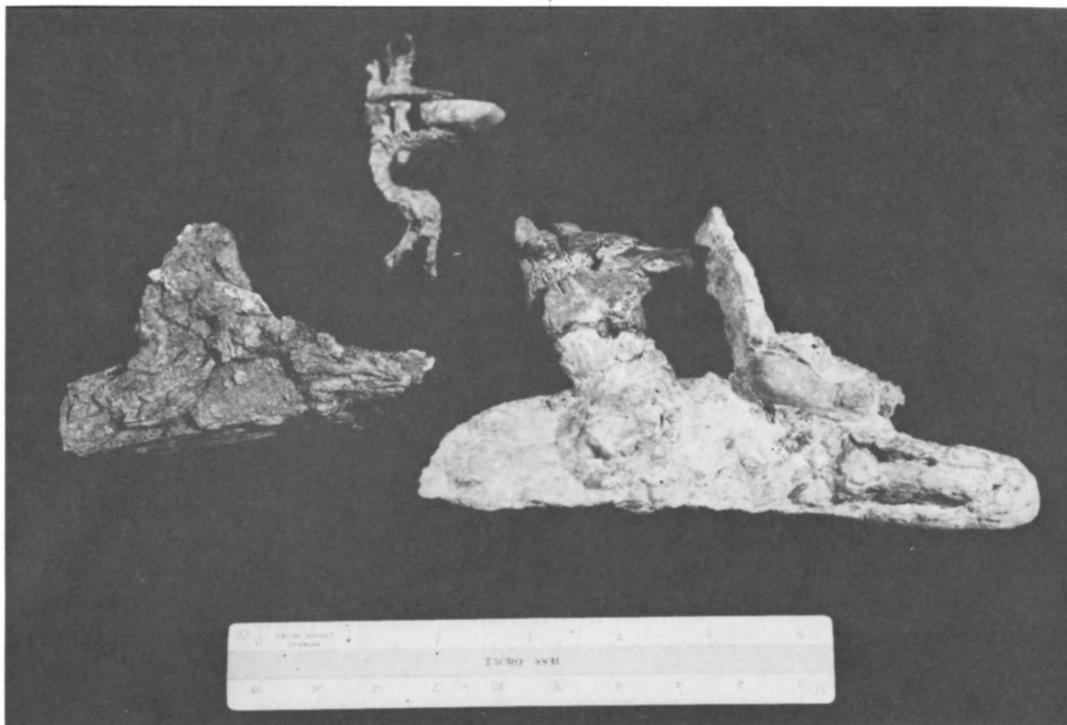


FIGURE 55. Gunflints in place in the jaws of cocks from Bent's Old Fort. Left to right: lock of Deringer Trade Rifle with flint held bevel up; cock from another Deringer Trade Rifle with flint held bevel down; and lock from gun 7 (a variant of the Charleville M1777) with flint held bevel up. All are from pit in Room W4.

pointed out that these data would appear to reveal more about the integrity of the excavation units than about the flints themselves, for there is little likelihood that any flints were used at Bent's Fort in Stagecoach times.

The shapes of both types of flints are of further interest here. As stated above, the classic French flint was blonde, single-edged, and round-heeled. However, several rectangular French flints were recovered at Bent's Fort. Their sides were not understruck but were formed by secondary chipping. T. M. Hamilton knew of no significance which might be attached to this phenomenon.

The classic English flint, on the other hand, was double-edged. Nevertheless, most of the English flints from this site were single-edged. Hamilton saw some significance in this phenomenon, especially when both types occurred together at a single site but could not provide conclusions without further study.

Finally, some Indian-made flints were found (figure 54). These were square, or very nearly so, and lacked a "face" or platform behind the bevel. The entire flint was shaped by secondary chipping in the manner of other flint tools (i.e., scrapers, projectile points, drills, etc.), and the result was a very neat gunflint. These probably were not made after European flints became available, since their manufacture was tedious and time-consuming. The paucity of their occurrence bears out this conclusion. Only three such flints were found,

and these were not recovered from "hard" Bent provenience levels but from mixed fill beneath Stagecoach surfaces.

Glass Trade Beads

The penchant of all primitive peoples for personal adornment probably exceeds only slightly that of their technologically advanced brothers. Lacking the technology of "civilized" man and his vast inventory, American Indians found glass beads very attractive and became a dependable market for them (figure 56). Although the use of native materials such as shell, bone, hammered copper, and drilled and polished stone (including turquoise) continued, their love for glass beads of all types dates earlier in many cases than their first visual confrontation with the white man.

The methods for manufacturing glass beads have changed little over the years. A frequent method consisted of a tube of glass from which long cylindrical, long faceted, barrel-shaped faceted, and the small "common" bead types were cut.

Another method of manufacture involved winding a strand of glass around a steel mandrel. Beads produced by this process were of various sizes and could be egg-shaped, slender or thick cylindrical, round or ovoid.

Some beads were mold-pressed, and these can be identified by a characteristic seam. No beads of this kind were found at the fort.

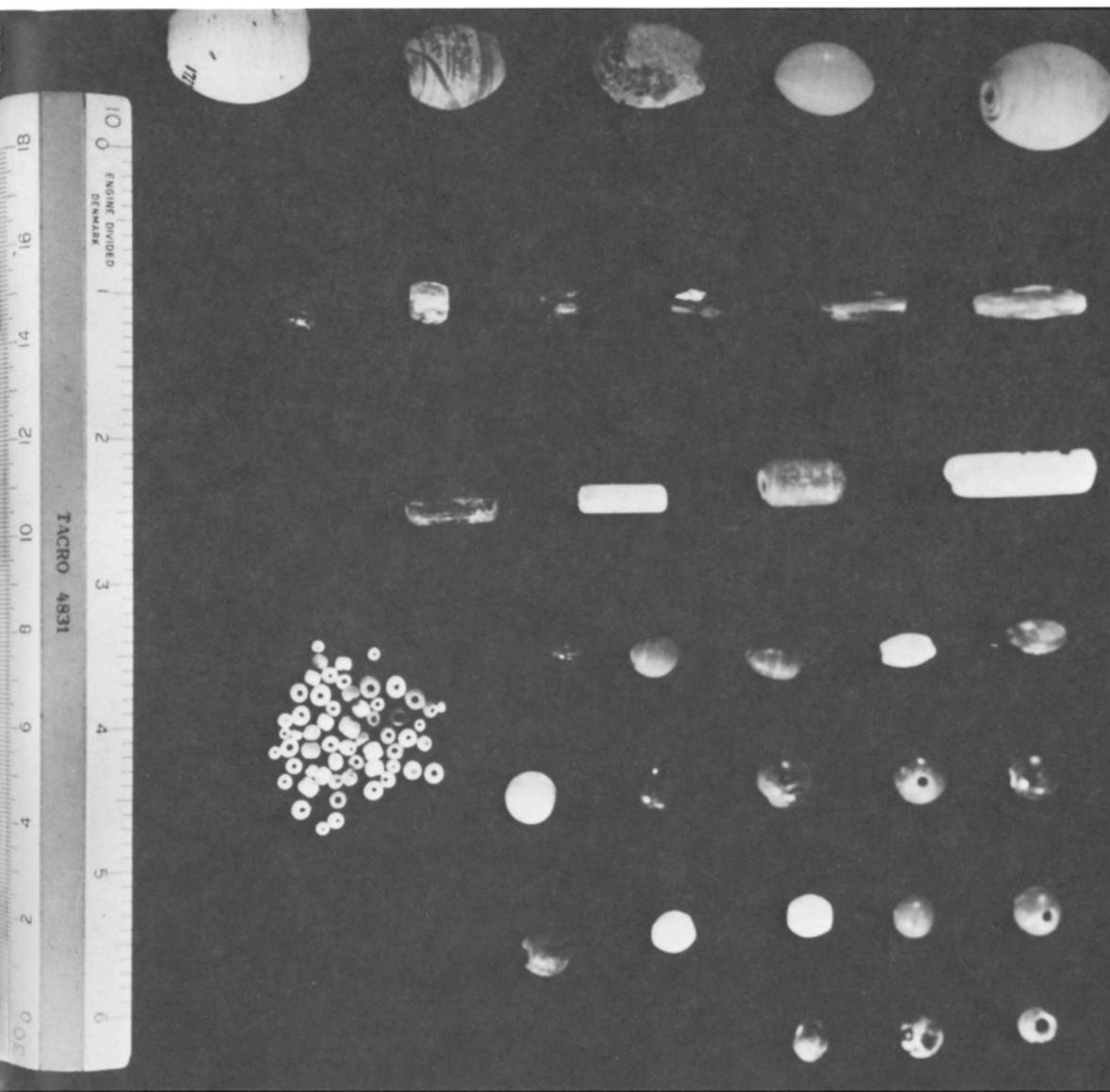


FIGURE 56. Representative glass beads from Bent's Old Fort.
 TOP ROW. Mandrel-wound large opaque beads: white; pearlescent; green, deteriorated; blue; white.
 ROW 2. Transparent drawn tubular, faceted: long beads—clear, green, blue; short or barrel beads—blue, clear, red.
 ROW 3. Industrial porcelain: opaque white (insulator?); mandrel-wound cylindrical beads: blue, white, lavender.
 ROW 4. Mandrel-wound small egg beads, translucent: blue, white, blue, red, red.
 ROW 5. Mandrel-wound round, flat beads: blue, green, black, red, white.
 ROW 6. Mandrel-wound round beads: blue, blue, white, white, green.
 ROW 7. Round, transparent beads: blue.
 LEFT. Group of mixed common beads.

Common Beads

These very small beads made up the largest group recovered at this site. Although cut from tubes of glass, these beads when finished were shaped like tiny wheels and, at least in the 19th century, do not appear to have derived from tubes. Tubular beads were made from a long, thin, glass tube formed when the glass-blower's apprentice grasped the pontil, at the opposite end of the "gather" from the blow pipe, and ran full speed with it before the glass cooled. The result was a hollow tube of glass with its internal and external diameters largest at either end and thinnest in the middle. Such rods, sometimes 150 feet in length, were marked into segments of the desired length and the beads snapped off. The tiny common beads were taken from the thinnest middle section of the rods, and they vary considerably in size, reflecting the taper of the tubes from which they were taken. Their tubular origin was obscured by tumbling in a lapidary drum which softened their edges.

Of a total of 27,568 common beads found at Bent's Fort, 14,789 or 53 percent are white, 9,464 or 35 percent are blue, 393 or 2 percent are red, 2,649 or 9 percent are green, 208 or .75 percent black, 98 or .35 percent "pearlescent" (a light blue), and 29 or .10 percent yellow. Of the individual colors, 54 percent of the white beads have Bent provenience, 11 percent of the blue, 48 percent of the red, 93 percent of the green, 47 percent of the black, 100 percent of the "pearlescent,"

and 82 percent of the yellow. Not factored into any of the percentages were 182 white beads, 113 blue, 14 red, 16 green, and 5 black beads which lacked provenience.

Many of the common beads exhibited an extra trait, such as a red band of glass wound over a white tubular core. None of these have been given detailed analysis. Only a cursory check was made of orifice diameters, all of which fell within the range of diameters given by Murray for the common beads at Fort Laramie (Murray, 1964).

Tubular Faceted Beads

Made by breaking off long or short segments of drawn hexagonal tubes with facets filed down by hand, beads in this style were most often pressed after 1860 (Murray, 1964). The short beads of the type resembled barrels in profile and are often called barrel beads. It would seem likely that both the long and barrel forms would have been struck from similar, if not the same, tubes, perhaps even by the same maker. It should then follow that both forms would share the same color range, but this was not so at Bent's Old Fort. The long form was found in transparent clear (4), blue (10), and red (2), while the barrel form occurred in transparent clear (39), blue (22), and green (3). No long forms were found in green, and no barrel forms in red.

Only 16 long beads were found, compared with 64 barrel forms. Yet the percent with

Bent provenience was close: 62.5 percent for the former and 68.5 percent for the latter. This similarity disappeared when the colors were compared, however. The clear long beads had 25 percent Bent association, compared with 89.5 percent for the clear barrel form. The long blue beads showed 70 percent Bent association, against only 40 percent for the barrel blue beads. The two long red beads were both Bent in provenience, but none of the three green barrel beads were.

Egg Beads, Large

These large beads were single-twist, mandrel-wound, and opaque (Murray, 1964). They occurred in white, blue, and green at Bent's Fort and seemed particularly prone to patination. This gave white beads, particularly, a flat laminated appearance which has caused some prehistorians to mistake them for shell. The single green bead found was chalky and deteriorated, a characteristic it shared with the opaque green, common beads.

One of the 28 white beads found was not really large but only medium in size and had a lustre which also set it apart from the others. It was identical to some specimens in the collections of the Museum of the Fur Trade, Chadron, Nebraska, which were documented as having been excavated from a 17th-century site at Jamestown, Virginia. If this fact did not demonstrate antiquity for the Bent's Old Fort bead, it did at least indicate a long history of popularity for the style.

Only three of the large egg beads (one percent) had firm Bent provenience, although they are regarded as an early bead type. One of the three was the pearlescent medium-sized bead.

Egg Beads, Small

There were 84 specimens in this the second most numerous group of beads at the site. They averaged 30/64 of an inch in length and were of six colors—white, blue, green, red, lavender, and yellow. They were single-twist and mandrel-wound (Murray, 1964).

Fifty-five percent had Bent provenience. Fifty-four percent of the 33 white beads had Bent provenience, as did 56 percent of the 46 blue beads and the single lavender bead.

Cylindrical Beads

Like the long, tubular, faceted specimens, these beads were basically long cylinders. Unlike the former beads, however, these were mandrel-wound, translucent to opaque, and soft-edged. In addition, no facets were found on any of these beads, which were always round in cross section and parallel-sided. At Bent's Old Fort these beads occurred in white, lavender, yellow, and blue. Like other wound beads, they have tended to patinate more readily than those made from drawn tubes.

Fifty-one percent of these 41 beads have Bent provenience. By color, the white beads are

most numerous with 27 specimens, 66.5 percent of which had Bent provenience. One quarter of the 12 lavender beads had Bent association, but neither the yellow nor the blue bead (one each) could be assigned to the Bent Period.

Round Beads

There were two styles of mandrel-wound spheroidal beads at Bent's Old Fort. In addition to those which were truly round, there were some which tended to be flat at the ends. Transparent round beads in the same shape were counted separately from the opaque majority.

Among those truly round, 43 of 66, or 65 percent, had Bent provenience. Four colors were present, which broke down as follows: white—33 of 45, or 73 percent Bent; blue—8 of 11, or 72 percent Bent; green—1 of 6, or 16 percent Bent; black—one bead from a disturbed zone. One of three transparent blue beads, or 33 percent, was Bent in provenience.

There was a very close similarity in the percentages when the flat beads were compared with round ones. Dissimilarity appeared, however, when percentages were compared by bead color. The total Bent percentage for the round beads was 66.5 percent, with a 68 percent Bent provenience for those with flattened ends. When seven medium-size (all blue), flattened beads were added, the percentage dropped to 60 percent. Among the white beads

73 percent of the round specimens had Bent provenience, against 67 percent for the flattish; among the blue 72.5 percent for the round and only 33 percent for the flattish. Each form had one black bead, but only the flattish type had a red.

Polychrome Beads

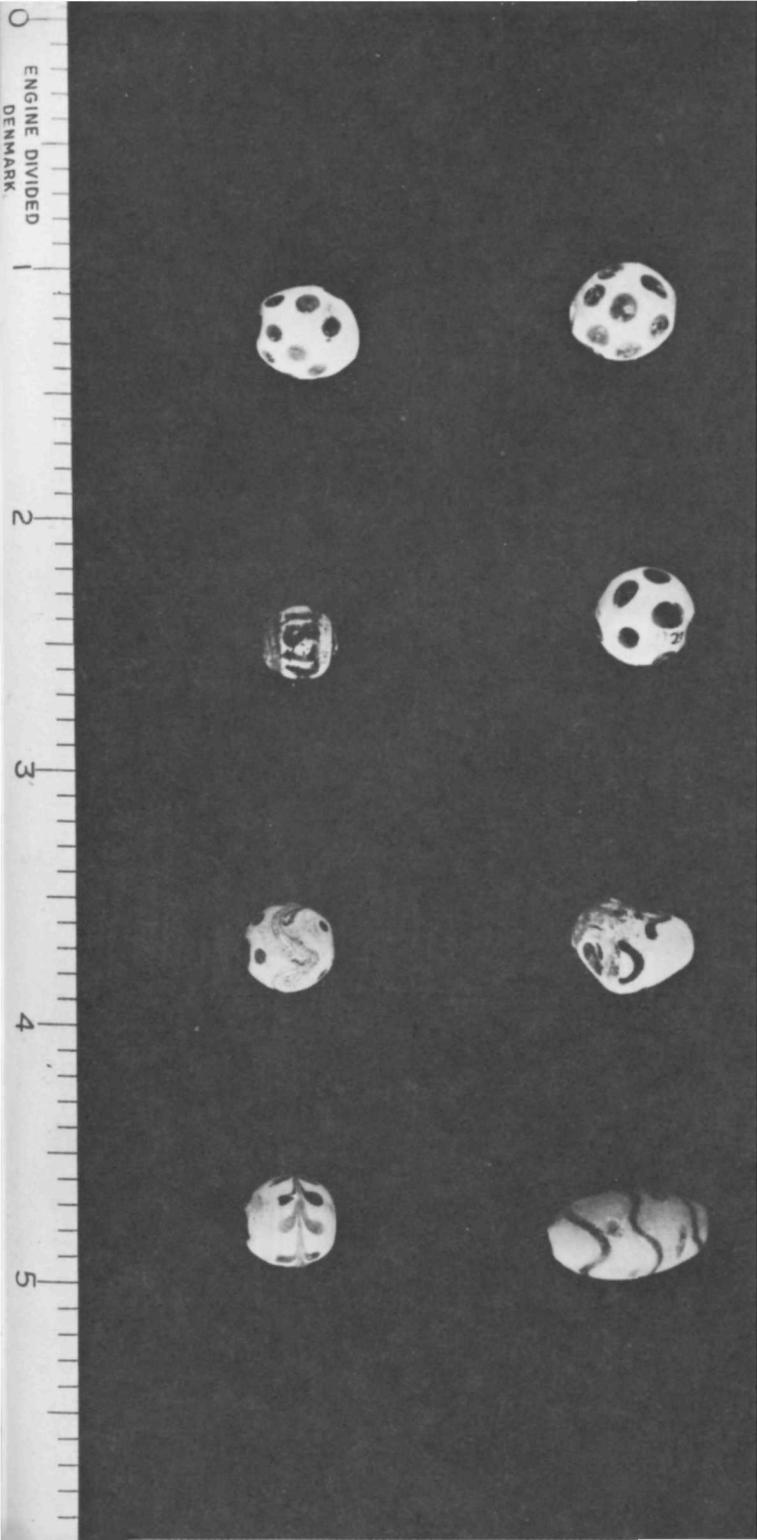
Nine polychrome beads were found at Bent's Old Fort. All were sufficiently dissimilar to permit them to be assigned to six or seven styles. Two-thirds of the total were recovered from Bent zones.

All of the polychrome beads were inlaid in various manners; some had thin strands of a different color glass laid on, while others had hollow cavities filled with a different glass. Of this latter type 15 blue inlays of a translucent glass into opaque white bodies were found.

In figure 57 firm Bent provenience was ascribed to the first two beads from the left, in both rows, and also to the one on the right end, bottom row.

Green Beads

Due to inherent chemistry, opaque green beads of any style failed to survive in usable proportions. There was no real way to measure the green "chalk" residue that was encountered, but an estimate of 10 percent bead recovery to 90 percent loss would be close. It was first assumed that the deterioration of these green



glass beads was due to the heat of the 1849 fire, but the phenomenon of their disintegration occurred equally where no burning was evident. Green glass beads which were translucent or transparent were not so affected.

Discussion

Although only 53 percent of all beads found had Bent association, I feel confident that most or all of them were deposited during his occupancy. Bent, St. Vrain and Company transported beads from St. Louis, Missouri, and did a brisk trade in them. Some, but not many, may have been deposited by being torn or ripped from garments, bags, costumes, etc. The Stagecoach Period probably saw very few bead-adorned Indians and no trappers at all.

I am confident, thus, that the beads found resulted from (1) normal spillage in the course of trading operations, (2) abnormal dispersal during the destruction and abandonment of the fort, and (3) drastic dispersal during the 1859-65(?) cleanup and rebuilding period of the Stagecoach era. Decades of intermittent digging by individuals and small groups, vehicular traffic, and rather recent "landscaping" probably contributed to further dispersal, vertical as well as horizontal.

FIGURE 57. *Polychrome glass trade beads from Bent's Old Fort.*

FIGURE 58. *Pewter spoon with iron shank, recovered from 1954 backfill.*



Household Articles

An iron-shanked pewter spoon fragment was the first household item to be recovered (figure 58). Unfortunately, its original provenience is not known; it was recovered from a back-filled, 10-year-old archeological trench. The specimen was early in style, very broad and shallow, and its unusual iron shank may indicate the work of a frontier shop.

One large iron pot (figure 59) with three legs and two small, harp-shaped handles was recovered from Bent's well. Several Bent floor levels yielded iron pot lids with upturned rims deep enough to hold glowing coals.

Two brass bibcocks (figure 60) were recovered from level 13 of the pit in Room W4. These could have served to pour any liquid held in a keg, such as vinegar, whiskey, wine, etc., for the basic design of bibcocks has not changed greatly over two centuries. Those found at Jamestown and Fort Frederica overlapped stylistically, and some from Fort Frederica overlapped the style of those from Franklin Court in Philadelphia. The bibcocks at Bent's Old Fort were very similar to a style present at Franklin Court and were identical to one found at Fort Pierre II (G. H. Smith, 1960b).

FIGURE 59. *Fragmentary iron pot and pump from Bent's well. The iron pot has three legs and two small handles. The old pump is basically a rectangular barrel with square iron "hoops."*

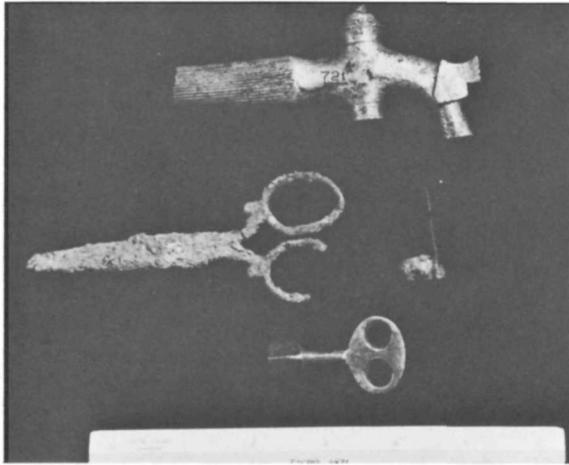


FIGURE 60. Household items from Bent's Old Fort. Brass bibcock at top is one of two recovered from pit in Room W4. The scissors were recovered from outside the northeast wall of the fort, at a Bent-Stagecoach "overlap" level. Clock hand and key are Bent Period.

FIGURE 62. Brass telescope in Room E4. The two-thirds portion recovered here includes the ocular end, at the right. The objective one-third was later donated by the individual who dug it up a half-century earlier.



Iron keys found tended to be few and relatively small. Only one key was over 0.3 foot long and was undoubtedly for a box lock. The others (figure 61) were probably for the heart-shaped padlocks which were recovered (figure 61) along with a brass telescope (figure 62). Some of these padlocks had Bent provenience.

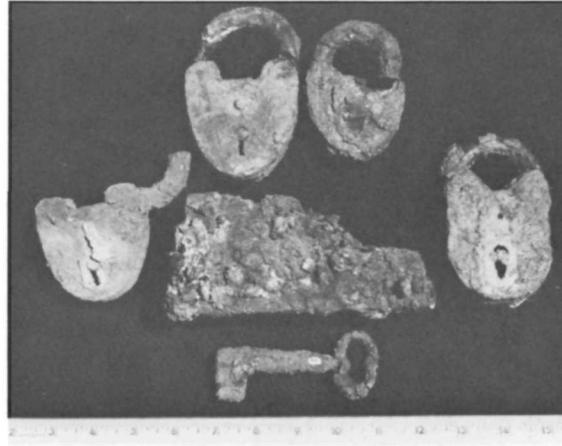


FIGURE 61. Representative padlocks, box lock, and key recovered from Bent's Old Fort.

They measured 3 $\frac{1}{4}$ " x 3 $\frac{1}{4}$ " and had brass, pendulum-type keyhole covers. A single iron box lock was found in IT-11, which was located in the plaza adjacent to the door of Room N6 and the narrow east passageway. Associated with this remnant were much ash and some charred boards, which could have derived from shutters or the sidewalk overhang but were most likely the door of Room N7. The lock was in a poor state of preservation, having succumbed to the "swelling" which afflicted so much iron at this site. It measured 7 $\frac{3}{4}$ " x 4" in its expanded state. The only doorknobs recovered were of brass. They were not found in association with a box lock, although they were of the type generally used with such locks. These were found on the floor of Room E3, only inches from the west corner of Room E4. It seemed possible that they were from a door common to both rooms, but they also could easily have been from a door opening on the plaza.

Latches were not numerous but did occur. One was found on the floor of Room E2, still near its position at the center of a large shutter's edge. This was the largest latch found and the only one which was shaped to go around a protrusion. It did not survive removal but had been previously measured, triangulated, and photographed.

Two small bone or ivory brush handles were found with their brush ends missing. Both were more rounded than those of known, early 19th-century provenience found at Fort Smith,

Philadelphia, and Fort Frederica, where handles tended also to be thinner and flatter. The Bent's Old Fort brushes were Stagecoach in provenience, and one was stamped "Alex Leitch/St. Louis." Leitch first appeared in the St. Louis register in 1854 when he was listed as a wholesale and retail druggist (memorandum from L. R. Brown, superintendent, Jefferson National Expansion Memorial, St. Louis, Missouri, 1966).

Evidence that time was not forgotten in this prairie oasis is provided by a bronze hand mounted on an iron pin (figure 60)—clearly part of a clock. A brass clock key also was found. The hand was recovered from a Bent level of the trash dump, and the key from below the ultimate Bent floor in Room E4.

Fragments of a drawing slate (figure 63) were recovered from a Bent level in Room E2. Nearby was a fragment of a red slate scribe, octagonal in section. Both ends were missing, its red color perhaps attributable to burning.

The drawing slate had suffered from the fire even more. Its two-plane cleavage, accelerated by the fire, continued to cause fragmentation in storage. The slate, however, bore a very clear, incised drawing of a Plains Indian leg. The leg was bent and clad in a tight-fitting trouser of fringed buckskin; the foot was shod with a fringed moccasin. Other incised elements also could be observed; these included model letters of the alphabet, the date 1848, and others which were not quite legible.



FIGURE 63. *Fragments of incised slate, recovered from level 2 in Room E2. Note fringed buckskin-clad leg raised in dancing posture. Fragment at left bears date of either 1846 or 1848.*

Items of trade recovered from the site, which have been described separately, included brass rings and steel projectile points, in addition to the beads.

Two brass rings, shaped like standard wedding rings, were recovered from the bottom of the Bent provenience pit in the basement of Room W4. Two smaller rings of more elaborate shape came from Bent zones in the trash dump and Room N7.

The projectile points were of mixed provenience (figure 64). Two, found in the sub-floor pits of Rooms E3 and W3, had good Bent associations, while the remaining two were found in disturbed zones. Only one point was a complete specimen. It measured $1 \frac{5}{6}$ inches long and $\frac{52}{64}$ inch long and $\frac{52}{64}$ inch across the shoulder.

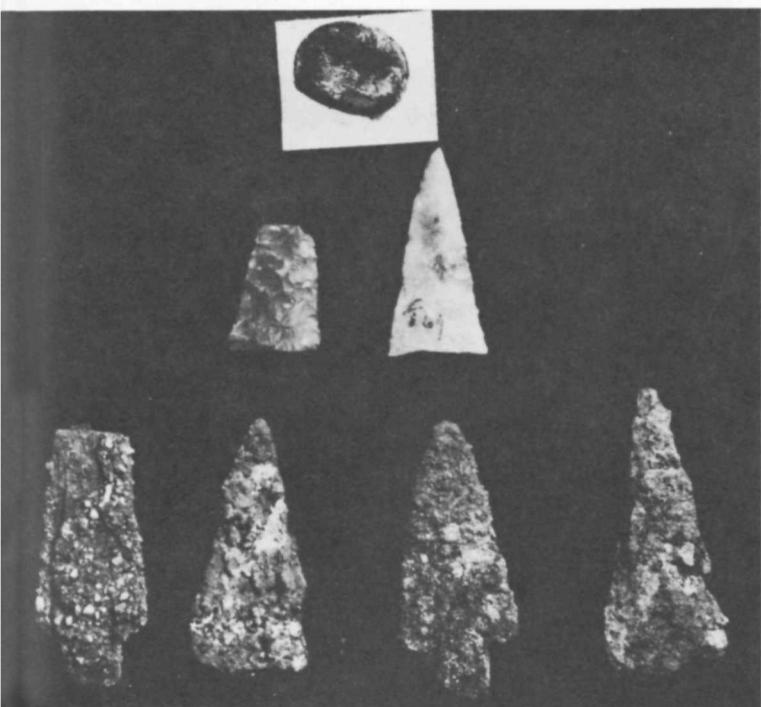


FIGURE 64. *Plumseed gaming die, and stone and steel projectile points. TOP: One of several charred plumseed dice recovered from Room W4, pit. MIDDLE: Flattened projectile point fragments of chipped black flint and quartzite. BOTTOM: Iron projectile points probably made from barrel hoops.*

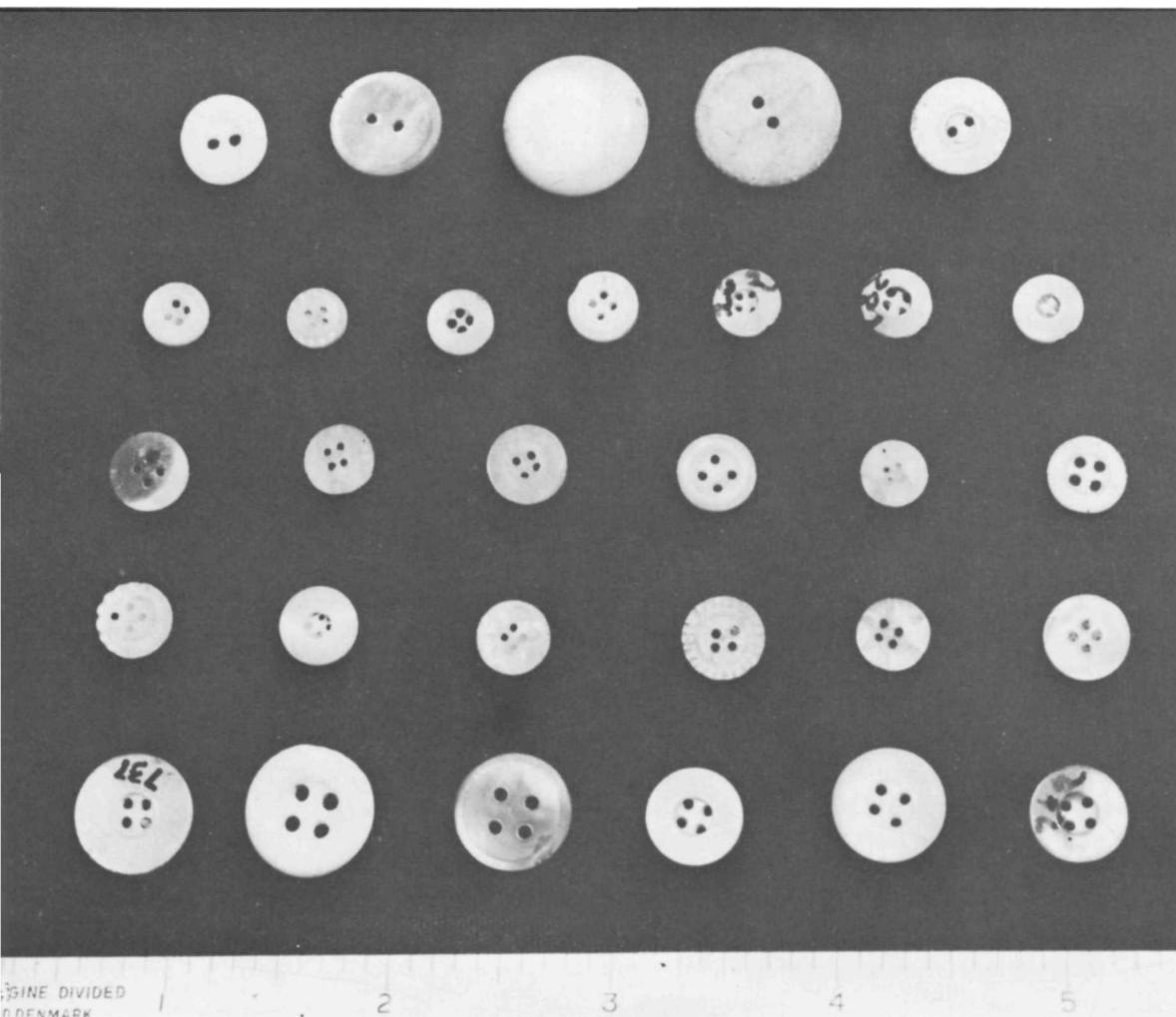


FIGURE 65. Varieties of nacreous buttons from Bent's Old Fort.

At the site were recovered three pocket knives, two of which had Bent provenience. Of these latter, one was bone-handled with parallel sides $3 \frac{31}{64}$ inches long. A crude "X" had been carved on each side. Both of the other knives were of a graceful concavo-convex shape. The one with Bent association was $3 \frac{10}{64}$ inches long, while the other had a length of $2 \frac{61}{64}$ inches. The similarity of style between these two knives would suggest that the one found without Bent association was, nevertheless, of the Bent Period.

Domestic buttons, made of glass, brass, nacre (mother-of-pearl), and bone, as well as pewter and vulcanized rubber, were recovered from a variety of provenience levels. Except for the brass, pewter, and rubber, all buttons had four holes pierced inside a concave recess.

The brass buttons varied widely in form and style, and only three of the 22 specimens had Bent associations. One of the three was $\frac{43}{64}$ " x $\frac{7}{64}$ " and had four holes and an iron and leaf border. In each was an impressed six-pointed star encircled by a wreath.

Glass buttons were not greatly different from those of bone or nacre, but only three percent of the 37 had Bent provenience. All were of the four-hole variety.

Twenty-five percent of the 37 nacre (figure 65) or pearl buttons were found with Bent associations. All eight of these were of the four-hole, recessed type and ranged from $\frac{20}{64}$ " x

5/64" to 3 5/64" x 4/64" in size. Similar pearl buttons were found at Fort Smith I, Arkansas.

The bone buttons (figure 66) appeared to have been the most common type at Bent's Old Fort; more than 34 percent of the 37 bone specimens recovered had Bent associations. They, too, were of the four-hole, center concavity type and, like the pearl specimens, resembled bone buttons found at Fort Smith.

Iron buttons were also found, and many of them probably had faces of a different material originally. Only one of these buttons had Bent provenience. It measured 46/64" x 8/64", had four holes, and was found one level below the bottom of the "cap" placed over the debris of the Bent well in Room W2.

Only two buttons of pewter were found at this site. One, with Bent associations, was 49/64" x 4/64" and had four holes. The other pewter button was similar. It had a diameter of 48/64 inch and a thickness of 6/64 inch, with four holes. Both were within the range of such buttons found at Fort Smith I, Arkansas, and were presumed to have come from soldiers' underwear.

Also found were four buttons made of vulcanized rubber, one of which was from a Bent level of Room N3. It measured 48/64" x 11/64", was black, and had a cross of raised dots on the face. The reverse was stamped "Novelty Rubber Co." Two of the other rub-

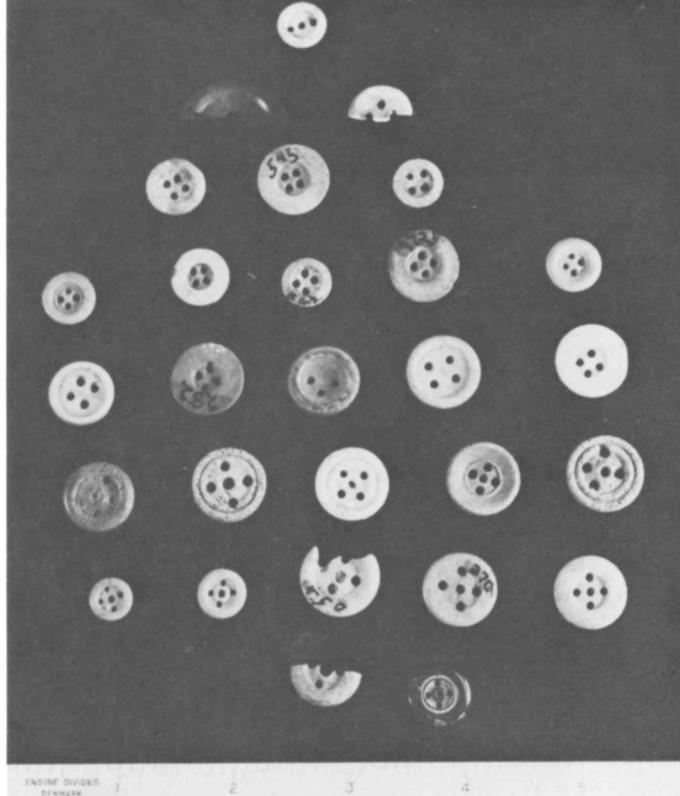


FIGURE 66. *Representative bone buttons from Bent's Old Fort.*

ber specimens were believed to be later buttons made by the same manufacturer. These latter measured 1 16/64" x 12/64" and were stamped "Novelty Rubber Co.//Goodyear's//Patent 1851" on the reverse.

Fifteen brass military buttons were found, but none of them had Bent provenience. The oldest in style was a dragoon button, bearing a spread eagle with ruffled neck feathers. This button was undoubtedly lost during the 1846-47 period, but it was found high in a disturbed area. All of the other buttons, except for one bullet type, were of the line eagle style which post-dated the spread eagle button.



SUMMARY AND CONCLUSIONS

The main purpose of the archeological project at Bent's Old Fort conducted by the National Park Service in 1963-66 was to provide the necessary data for the reconstruction of the site to its condition at a salient point in history. These included all structural features at original grade levels, to the extent that such data can be retrieved and dependably interpreted. Actual physical reconstruction of the site may not be carried out in the near future. Nonetheless, the archeological information, together with that furnished by the historian and the architect, should be available for this enterprise. Other goals of the project, such as artifact recovery and the identification of previous and subsequent features, were subordinated to the primary objective. In practice, this amounted to a question of emphasis, since each goal reinforced the other.

The fact that the site had been investigated archeologically a decade earlier during a six-week field school presented some problems. The technique employed, narrow wall-trench-

ing, was designed to explore much ground in a short period of time. The outer and inner faces of almost every wall of every room identified were traced, but evidence of the association of the walls with particular grade levels was destroyed. The technique also removed evidence of the presence or absence of builders' ditches.

The trenching of Room W4 points up the fact that any gamble can fail. As described in foregoing pages, the earlier project picked the one corner of the basement that offered no clues to its function. The "pit" might have been recognized as a basement had the exploratory trenches at floor level been wide enough to see that pothunters had obliterated one corner and that there was a stairwell at the other. The narrow trenches did not make possible the identification of Room W6 and Room Alpha, reveal the nature of the door to the east tower, or expose a single basement or cache pit. The Trinidad State Junior College people lacked the time and resources to do other than they

did. But the important facts are that a reconstruction based upon their findings would have been inaccurate, and less data were obtained in the later dig than could have been possible if the earlier one had not been made. Still, it seems probable that if the earlier dig had not been undertaken, the later one would not have taken place.

From the structural evidence we can recapitulate the construction sequence. Lean-tos and other temporary shelters were necessary to provide living quarters and storage while the fort was under construction. The occurrence of postholes underneath room walls and floors indicates that this was the case.

The first adobes may well have been brought from Taos, as tradition has it. Many adobes are of an exotic chocolate color. Subsequently borrow pits were dug in and around the site. These include the comma-shaped pit in the trash dump and the long asymmetrical pit in the wagon room. The basements of Rooms E4, W4, and SE1-A were doubtless sources of adobe as well. It is common practice today to use such material in building an adobe house. The adobe bricks which became "wasters" were thrown into the borrow pits, along with trash and garbage. The average adobe brick was 18" x 9" x 4". In addition to some odd sizes, broken bricks sometimes were trimmed and used.

The quality of the adobe at Bent's Old Fort is very poor since the crystalline interstices did

not form completely. Yet, they served, with some maintenance, for 20 years. This was sufficient for the company's needs.

The plaza may not have been leveled as meticulously as the parade ground of a military post would have been, but it was leveled and gravel was spread over the ground to keep down the dust and to minimize the problem of mud.

The original *enceinte*, or compound, may not have included the northeast rooms (Rooms N5, N6, and N7). Until Lieutenant Abert sketched them in 1845, there is no mention of these rooms or of the belfry, which could not have existed without Room N5. It is possible that Room W2 also was later. The well was there, although the original floor level is gone. The elaborate stairs and housing for a well house would not have been necessary inside a room. Early descriptions do not mention a second story on the west. If it was added in the half year between Boggs's description and Abert's, then Room W2 would have had to be enclosed for additional support.

The caches in Rooms W3, W5, S4, S5, and S6 were probably dug in late 1843. At that time, Bent, St. Vrain and Company was obliged to construct storage pits to house for the U.S. Army 35,000 pounds of provisions which were not claimed until 1845. These pits may not have held all the goods, but they would have helped.

The south row of rooms originally consisted of five rooms. It is not known when or why it became necessary to divide the second and fourth rooms, but it was probably due to a steady increase in visitation by 1845.

The fur press is another feature first mentioned in 1845. More than 11.0 feet long, it is larger than most presses. Since beaver were already in decline, we cannot attribute the large press to heavy volume of beaver pelts. I am inclined to believe that it indicates the increasing importance of bison in the fur industry.

The wagon room is not mentioned prior to 1845. The Murphy wagons may have had to be sheltered under canvas before then. The presence of the long borrow pit, later filled and compacted, indicates that the wagon room and the alley were of later construction. The nature of the adobe bricks makes subsequent structural modification difficult to identify, but there must have been open entrances with wooden sills facing on the alley. The filling of the entrances would have benefited only the later Stagecoach people, who required a full enclosure.

The east gate is traditionally called the stage gate. There is frequent reference to a "back" gate in the documents examined by Dwight Stinson, so, as I explained earlier, I feel that this gate is as early as the east outer wall.

The utilization of artifacts in the interpretation of a historic site is less important than in the

case of a prehistoric site. In the latter case no written accounts provide the "who," "when," or "why." The technology is limited, not only by the preliterate stage of development but also by the conservative attitude toward stylistic change. These factors enable the prehistorian to identify index artifacts which will help to determine the cultural affiliation of the group and its approximate placement in time. In the case of historic sites, the same procedure often can be followed but with more difficulty and less need. The proliferation of styles accelerates each quarter of a century. To be valuable at Bent's Old Fort, the index materials should separate the 1830-48 period from that beginning in 1849. However, experience has shown that objects which ceased to be manufactured in 1840 will often be found in an 1850 context, or even later. To require that artifacts differentiate brief occupations that are separated by short spans of time is unreasonable. Still, artifacts are not to be overlooked; they fill out the site inventory, furnish added cultural information, and are useful for exhibit and comparative purposes.

The artifacts at Bent's Old Fort were not needed to identify its builders, the use of the post, or the time of its occupation. But they lend confirmation to, and they help to date more precisely, the modifications of some areas (e.g., Room W4). They also make it possible to avoid "generalized" refurbishing of many rooms and features. Because of archeological research and artifact analysis, experts on furnishings now know where a specific

style of brass doorknob or iron box lock belongs. We knew that the Northwest Gun was here, but we did not know about the presence of the full-stocked Deringer Indian Trade Rifle. We know what styles of clay pipes were present. We also know that many items available to Bent were also available to Sanderson and Barlow.

The responsibility for the reconstruction of Bent's Old Fort does not rest on the shoulders of the archeologist. A team of historical architects, landscape architects, engineers, and administrators will carry the project to completion. All their work, however, will be based on the findings of the historian and the historical archeologist.

APPENDIX I

ROOM DATA

<i>Room</i>	<i>Dimensions</i>	<i>Plaster Sequence (oldest at left)</i>
NW1	17.8' x 11.0'	White fragments in fill
N2	19.0' x 14.5'	White
N3	17.7' x 12.5'	White fragments in fill
N4	17.25' x 15.5'	White fragments in fill
N5	17.75' x 15.33'	White fragments in fill
N6	15.65' x 14.95'	White
N7	15.25' x 14.4'	White fragments in fill
E2	17.7' x 15.6'	Yellow/red
E3	29.55' x 20.09'	
E4	20.1' x 20.2'	Adobe/white
E5	20.1' x 20.1'	Adobe/white/adobe/white/adobe/white
SE1-A	13.0' x 8.4'	Adobe
SE1	20.1' x 18.09'	Adobe/white/red
S2	19.8' x 10.3'	Adobe/red/adobe/yellow/white
S3	19.7' x 7.1'	Adobe/white
S4	19.4' x 18.0'	Adobe/white/adobe/red
S5	19.7' x 10.3'	Adobe/white/adobe/white
S6	19.65' x 9.48'	Adobe/white/adobe/white/adobe/white
S7	19.8' x 18.5'	Adobe/yellow/white/red/adobe/white
W2	18.45' x 16.2'	White
W3	17.1' x 19.2'	
W4	17.1' x 25.45'	
W5	21.33' x 17.0'	
W6	10.66' x 10.15'	
W7	6.12' x 6.12'	

APPENDIX II

TEXTILE FRAGMENTS

*By Mary Elizabeth King
The Museum of Texas Tech University*

With the exception of one piece (F.S. 195A), all the textile fragments from Bent's Old Fort are probably cotton and may have been portions of clothing. One fragment (IT. 81-B) is from a hem. F.S. 195A is hemp, jute, or a similar fiber, and may have been sacking. All of the textiles could have been either made by machine or handwoven. The six groups of fragments contain a total of seven distinct textiles. There were two basic weaves in the group: plain and twill. One piece of plain weave (F.S. 195A) had paired warps and wefts; all other plain weaves had warps and wefts used singly. One group of twill fragments was over-two, under-one; the others were over-three, under-one.

SE 1

L 3 Charred and encrusted fragments

Fiber: Z-spun cotton (?). Diameter 0.2 to 0.3 mm. Count per cm about 26 x 16.

Weave: 3/1 twill. Strong diagonal ribs on one side. No selvages. Dimensions of largest fragment about 5 x 3.5 cm. There is some sewing thread of /m\ cotton (Z-spun yarns, more than two, plied S).

Rm W2, Pit 5, L 13 Charred fragments

Fiber: Z-spun cotton (?). Diameter 0.3 to 0.6 mm. Count 16 x 14 yarns per cm.

Weave: Plain weave. No selvages. Some small holes which may be needle holes; the larger holes seem to be insect damage. The largest fragment is about 10 x 6 cm.

F.S. 195 Two types of charred fragments:

A. Fiber: Paired Z-spun singles of jute, hemp, or a similar fiber. Fiber diameter of 1 to 2 mm. Three pairs of warps or wefts per cm in each direction.

Weave: Plain weave, paired warps and wefts. No selvages. Dimen-

sions of fragment about 9.5 x 9 cm.

B. Fiber: Z-spun cotton (?). Diameter 0.2 to 0.3 mm. Count per cm is 18 x 18.

Weave: Plain weave. Largest fragment is 2 x 4.5 cm. The fragments are folded. No selvages.

IT. 81-B Layers of charred and encrusted fragments

Fiber: Z-spun cotton (?). Diameter 0.2 to 0.3 mm. Count about 20 x 22.

Weave: 2/1 twill. No selvages. Some Z-spun, S-ply sewing thread along one edge.

Remarks: One piece constitutes a hem of an article. The hem is about 2 cm deep. It has a raw edge folded in. This fragment is about 3.7 cm long and 8 cm wide.

E 4 Charred fragments

L2

Fiber: Z-spun cotton (?). Diameter 0.2 to 0.3 mm. Count about 30 x 36.

Weave: 3/1 twill. No selvages. The size of the largest fragment is about 20 x 8 cm.

APPENDIX III

TWO HUMAN SKELETONS

*By William M. Bass III
University of Kansas*

In February of 1965 Jackson Moore, archeologist with the National Park Service, submitted to me for identification two adult human skeletons recovered in the archeological excavations conducted at Bent's Old Fort. My observations and measurements of the two female skeletons follow.

Burial 1

Sex: Female
Age: 20-35 years
Race: American Indian
Stature: 5' 5" (164.86 cm.)

Bones Present

Fragmentary skull and mandible,
two tibiae, two fibulae, two femora,

two radii, two ulnae, two humeri, two scapulae, one left calcaneus, one left patella, seven cervical vertebrae, 10 thoracic vertebrae, miscellaneous ribs, one distal phalanx of a hand.

Missing were most of the hand and foot bones and the pelvis.

Sexual criteria were based on both morphological observations and metrical data. Small mastoids, sharp upper orbital margins, a pointed chin, and small gracile long bones all suggest a female. Metrically the diameter of the right humeral head was 39 mm, thus placing it well within the female range for this characteristic (Krogman, 1962). The heads of both femora and the left humerus were either missing or too fragmentary to measure.

Age was based on the following observations. All epiphyses where observable were fused. Cranial sutures had not begun to close, and all were open endocranially. Tooth wear was a class 4 (Hrdlicka, 1952), "Crown worn off markedly." This amount of wear Hrdlicka thought indicated a person in the sixth or seventh decade of life. I do not feel this advanced age to be consistent with the general appearance of the bones. No arthritis was

present. The scapulae are too fragmentary for observations (no innominates present).

Estimations of race were based upon an edge-to-edge tooth bite in the incisor region, a flat face with forward projecting malar or zygomatic bones, and advanced tooth wear with subsequent loss of some of the maxillary molar teeth through abscessing. All of these traits are characteristic of the American Indian branch of the Mongoloid division of man.

Stature estimates were based upon measurement of the left tibia using the formula for Mongoloids by Trotter and Glaser (1958). This female had an average stature of 5'5" (164.86 cm) with a range from 5'3 $\frac{1}{4}$ " (160.59 cm) to 5'6 $\frac{1}{4}$ " (168.13 cm).

Pathological conditions included a first cervical vertebra fused to the occipital bone. Also, pinpoint inflammation on the shafts of both femora and tibiae suggest an osteitis possibly due to dietary deficiencies. Both first and second maxillary pre-molars and the first and possibly the second maxillary molars were abscessed, the teeth being lost before death.

The table below gives the basic anthropometric measurements that could be taken on the fragmentary skull. A wide skull is exhibited in the cranial index of 83.24 which falls in the broad or brachycranial range for this index. This would not suggest an individual of great antiquity.

Measurements in millimeters and indexes of a female skull from Bent's Old Fort, Burial 1:

Maximum length	173
Maximum breadth	144
Minimum frontal breadth	89
Cranial index	83.24

Mandibular Measurements

Symphysis height	24
Bigonial diameter	85
Bicondylar diameter	105
Height of ascending ramus	47 (right)
Gonion-gnathion length	81

Burial 2

Sex: Female

Age: 30-45 years

Race: American Indian

This individual was more fragmentary than Burial 1; thus, the following information is less complete.

Bones Present

All long bone shafts with both femoral heads, fragments of skull and pelvis, and miscellaneous hand and foot bones and ribs.

Sex estimation is based upon a wide sciatic notch of both innomines and on the skull with the following observations: sharp orbital margins, small brow ridges, smooth skull and long bones, small mastoids, low mandibular body, high mandibular angle.

The maximum diameter of the head of the left femur was 41 mm, thus placing this measurement well within the female range (Krogman, 1962).

All epiphyses were united but all observable sutures were unfused. A left mandibular molar (possibly the third molar) shows beginning class 3 wear with enamel of the masticating surfaces worn off completely (Hrdlicka, 1952), suggesting an age of 35 to 50 years. No evidence of arthritis was present.

Observations

No maxilla was present. Only one tooth (3rd [?] molar, left) remains in the mandible. All others apparently were lost postmortem.

APPENDIX IV

POLLEN ANALYSIS

*By George Batchelder
Geochronology Laboratories,
University of Arizona*

Twelve of twenty samples submitted proved suitable for a routine analysis and were counted (N=200 pollen grains, plus spores). All samples were extracted chemically with 70 percent HF and HNO₃ treatments to reduce mineral content. The counts were made in June and July of 1966 by George Batchelder, a graduate student at the University of Arizona, with supervision from P. S. Martin.

Pollen preservation was reasonably good. As in most Southwestern alluvial floodplain sites, the number of recognizable pollen types was small (see pollen analysis table). Fungal spores were more common than pollen grains in some cases. Despite some searching no very large grass pollen grains that might represent corn (*Zea*) and no other economic plant pollen types definitely indicating agriculture were found.

Pollen counts in the two stratified collections, cores 1 and 2, appear to duplicate each other. Both feature a maximum in cheno-am and grass pollen at the top, a medial maximum in "low-spine" Compositae (Ambrosia and its relatives), and a maximum of fungal spores at the bottom (see pollen analysis table). The record of pine in core 2, 42 percent at 31 to 35 inches, is anomalous; but both cores show more pine at the top (9 to 13 inches) than in the dark compact soil beneath.

Elsewhere in the Southwest an historic-age rise in tree pollen, especially pine and juniper, has been found in the youngest soil samples at various archeological sites. A switch from low-spine Compositae to cheno-ams has also been encountered along floodplains of southern Arizona and New Mexico sometime within

the last few hundred years (Martin, 1963). Both these changes are clearly registered between 20 inches and 10 inches in the core samples from Bent's Old Fort. The only noticeable difference in the cores is the presence of *Tidestromia* (a summer-fall blooming annual in the Amaranth family) in 1 and of *Artemisia* pollen in 2.

The single sample from core 3 resembles the middle rather than the upper levels of cores 1 and 2.

Of the five grave and room samples that proved countable, all but possibly the Room E5 sub-floor resemble the top samples of cores 1 and 2. They are dominated by cheno-am pollen with much less low-spine pollen than one would expect in the medial part of the cores. Variation in percentages of other types is large but no more than one might expect from point samples across a surface of varia-

ble local plant distribution and pollen production. In part the low cheno-am count of the sample from Room E5 is a function of the large number of unknowns. The ratio of cheno-ams to low-spine Compositae, 2:1, is less than one finds in most of the other room samples but much greater than the medial parts of each core.

Accepting the data at face value, it seems that all the cultural samples belong to the same time period as the top samples from cores 1 and 2.

Summary

Two 100-grain pollen counts of 12 samples from Bent's Old Fort, Colorado, indicate all cultural horizons resemble the youngest alluvial deposit analyzed along the Arkansas River. No economic pollen types were found.

APPENDIX V

ARTIFACT DISTRIBUTION

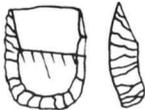
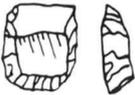
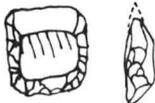
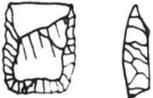
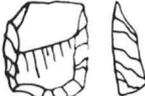
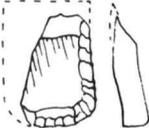
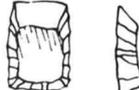
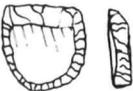
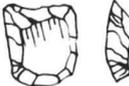
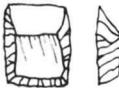
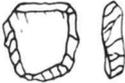
 Rm E 4 Door	 IT 23J L3	 TD 21 L4	 TD 33 L3
 Rm N5 S1/4 L2	 TD 5 L2	 TD 21 L4	 TD 36 L4
 Rm E4 E1/4	 TD 5 L2	 TD 22 L2	 TD 38 B L5
 Rm W3 W1/4 L1	 TD 5 L1	 TD 31 L3	 Rm E4 Pit 4 w1/4 L3
 Pit 2 L9	 TD 6 L2	 PT66 L1	 Rm E4 Pit 4 W1/4 L5
 Pit 2 L14	 TD 9 L2	 TD 33 L4	 TD 31 L3
	 TD 12 B L1		

Table A. French gunflints.

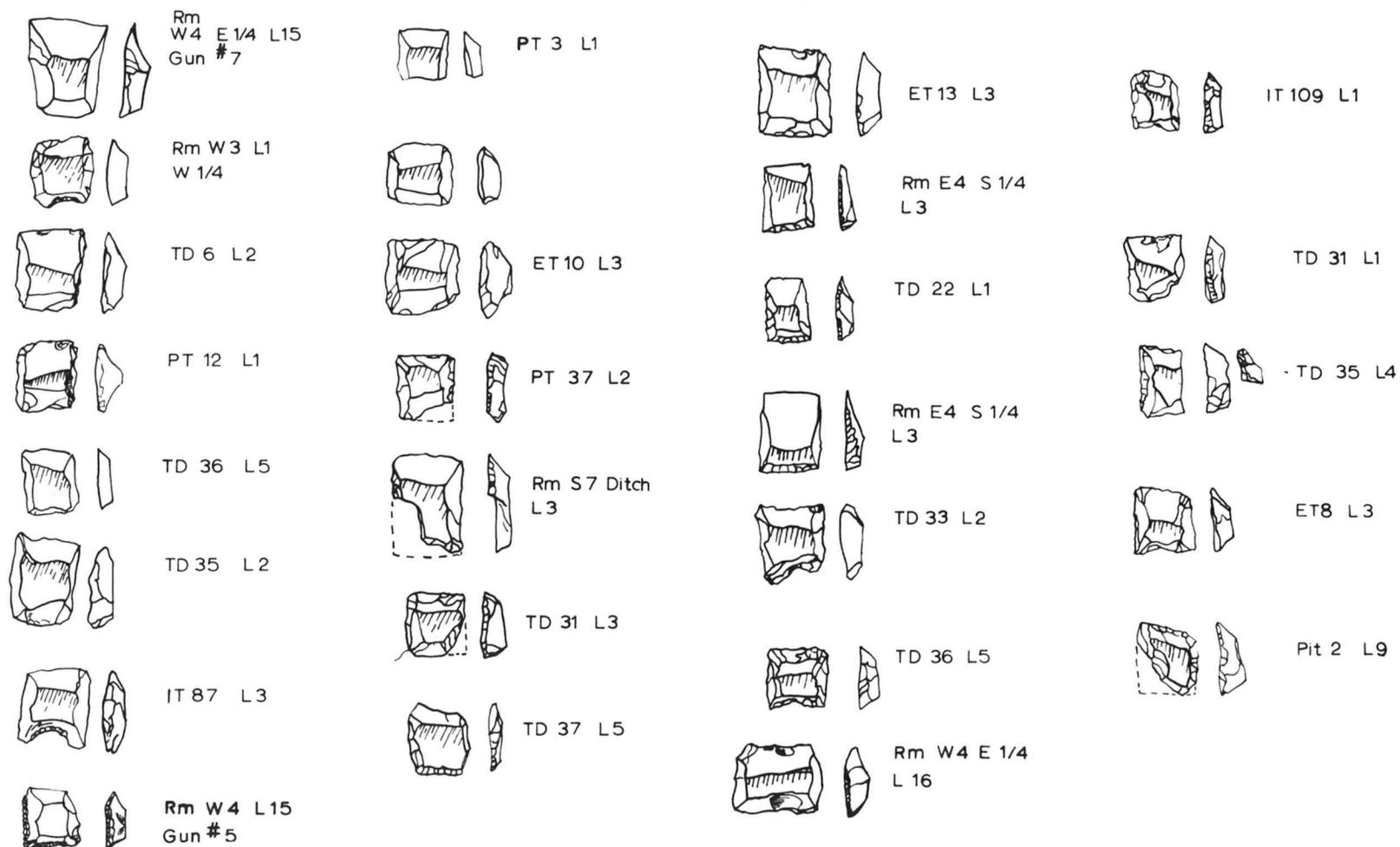


Table B. English gunflints.

TRENCH	LEVEL	PORCELAIN	BLUE TRANSFER PRINT	BROWN TRANSFER PRINT	GREEN TRANSFER PRINT	RED TRANSFER PRINT	BLACK TRANSFER PRINT	MILBERRY TRANSFER PRINT	COPPER LUSTRE	SPATTER WARE	BLUE FEATHER-EDGE	SPRIG RED PATTERN	RED RIM STRIPE	BLACK RIM STRIPE	GREEN RIM STRIPE	QUEENS WARE	FILLED WARE, C.V.	BLUE MOOSA, C.V.	TRAIL SLIPPED, C.V.	GREEN, MACHINE-TURNED, C.V.	BLUE MARDED, C.V.	WHITE STAFFORDSHIRE EARthenWARE	PIPE NOMLS	PIPE STRNG	4/6A"	5/6A"	6/6A"	7/6A"	BLACK BASALT WARE	
Pr-1	1																						1-12	1						
Pr-2	1																							1-12	1					
Pr-3	1																							1-12	1					
Pr-4	1																							1-12	1					
Pr-5	1																							1-12	1					
Pr-6	1																							1-12	1					
Pr-7	1																							1-12	1					
Pr-8	2																							1-12	1					
Pr-9	2																							1-12	1					
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Pr-65	2																							1-12	1					
Pr-66	1																							1-12	1					
Pr-67	2																							1-12	1					

TABLE F. Ceramic and clay pipe distributions in Bent's Old Fort plaza trenches.

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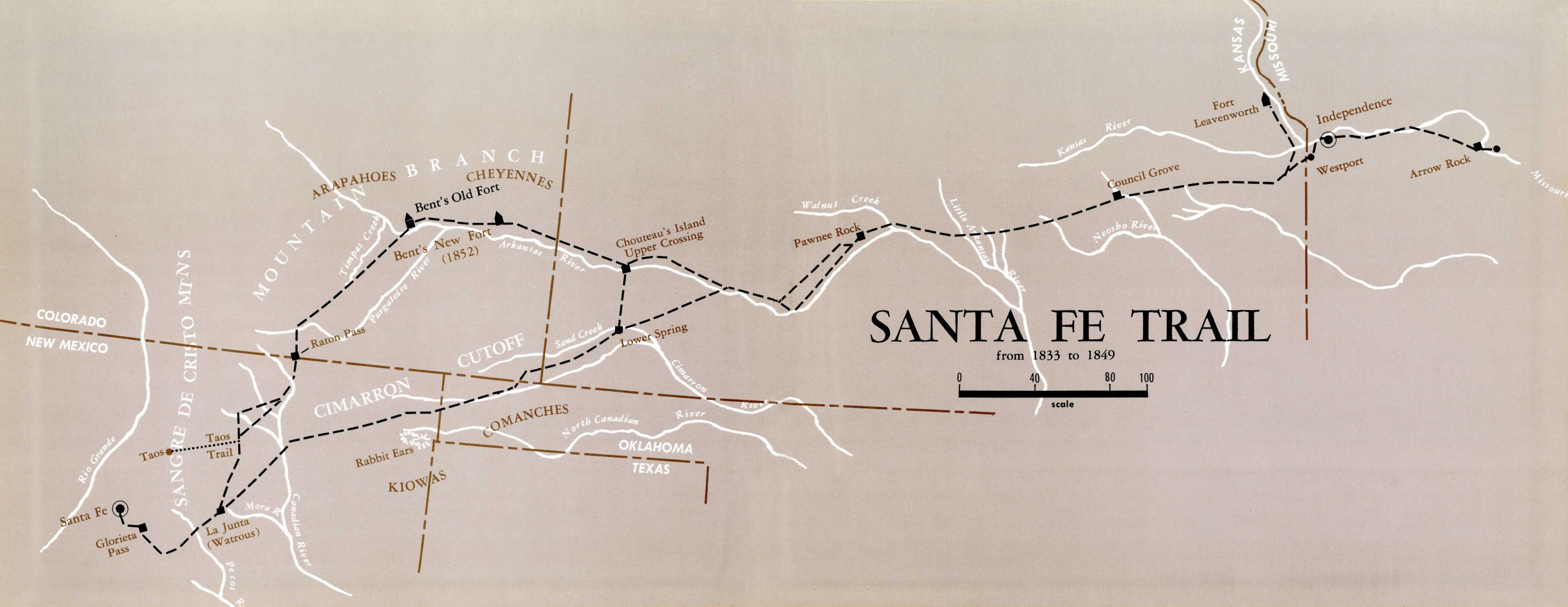
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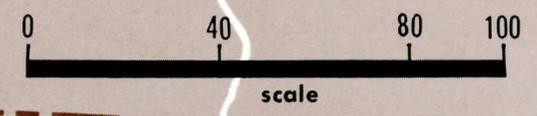
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SANTA FE TRAIL

from 1833 to 1849



COLORADO
NEW MEXICO

OKLAHOMA
TEXAS

ARAPAHOES BRANCH
MOUNTAIN
CHEYENNES

SANGRE DE CRISTO MTS

CIMARRON
CUTOFF

COMANCHES

KIOWAS

Bent's Old Fort

Bent's New Fort
(1852)

Chouteau's Island
Upper Crossing

Pawnee Rock

Lower Spring

Fort
Leavenworth

Independence

Westport

Arrow Rock

Santa Fe

La Junta
(Watrous)

Taos

Taos
Trail

Rabbit Ears

Glorieta
Pass

Raton Pass

Timbas Creek

Purgatoire River

Arkansas
River

Sand Creek

Cimarron
River

North Canadian
River

Walnut
Creek

Little Arkansas
River

Neosho River

Kansas
River

KANSAS
MISSOURI

Rio Grande

Mora R

Canadian River

Pecos R

Missouri

About the author

National Park Service archeologist, Jackson W. Moore, Jr., has been with the Park Service since 1954. He has served at a number of parks and monuments, including Mesa Verde National Park and Natural Bridges, Tonto, and Chaco Canyon national monuments. He has also done archeological and historical work at Independence National Historic Park in Philadelphia, Ocmulgee National Monument in Macon, Georgia, Fort Union in North Dakota, and Fort Frederica National Monument on St. Simons Island in Georgia. Prior to his assignment at Bent's Fort he assisted in the excavation of the first Fort Smith at Belle Point on the Arkansas River. Currently he is with the Division of Archeology and Historic Preservation in Washington, D.C.

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