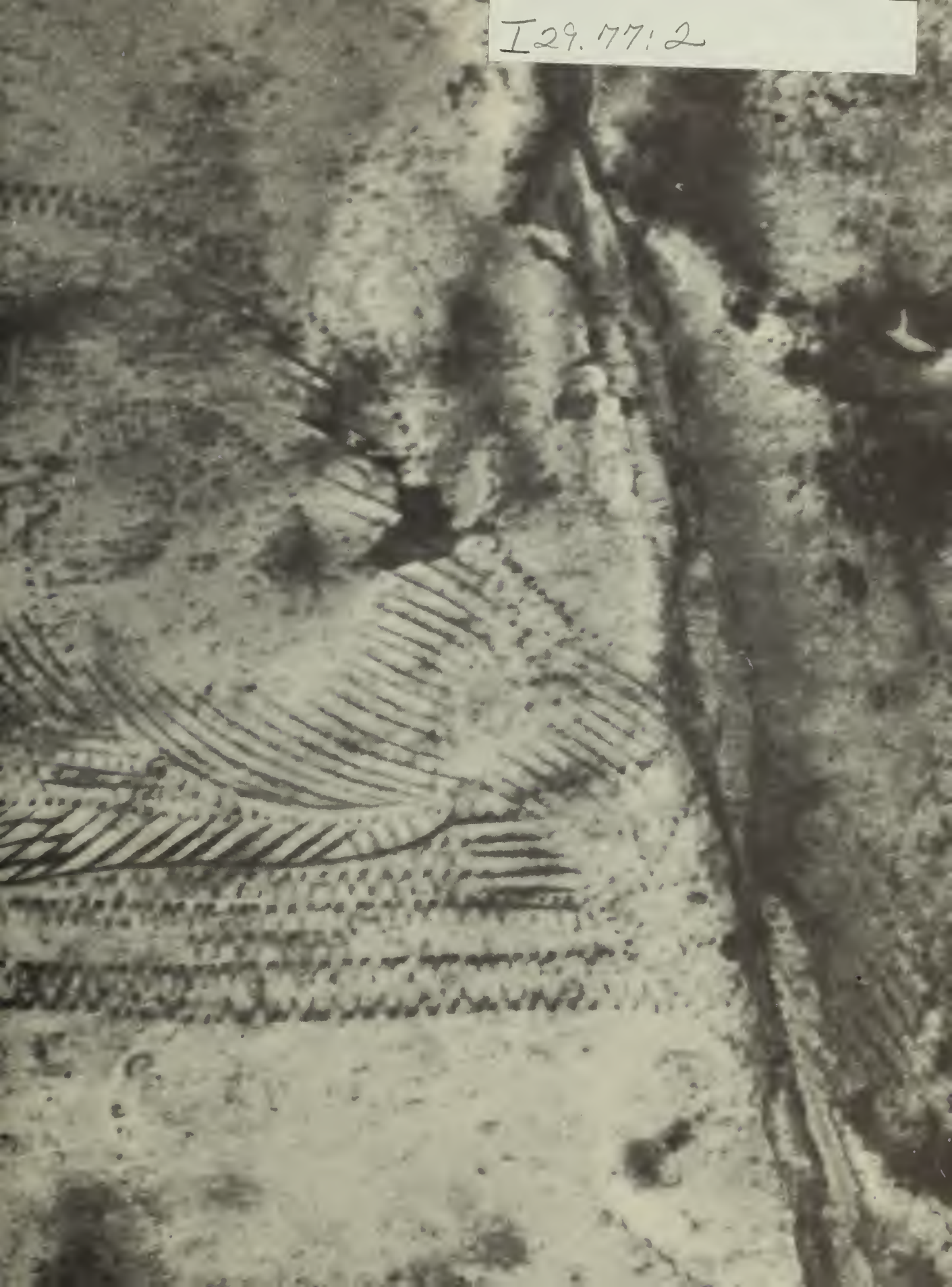
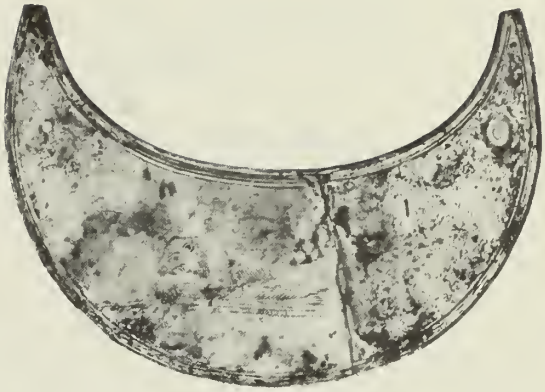
LIKE-A-FISHHOOK VILLAGE AND FORT BERTHOLD

GARRISON RESERVOIR
NORTH DAKOTA





National Park Service Anthropological Pape

1. Introduction to Middle Missouri Arch
ology.
2. Like-a-Fishhook Village and Fort Berthol
Garrison Reservoir, North Dakota.

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LIKE-A-FISHHOOK VILLAGE AND FORT BERTHOLD GARRISON RESERVOIR NORTH DAKOTA

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ANTHROPOLOGICAL PAPERS 2

PREFACE

The former earth-lodge settlement of the Hidatsa, Mandan, and Arikara Indians, known both as Like-a-Fishhook Village and as Fort Berthold Indian Village, was one of the important historic sites of the upper Missouri Valley. For more than 40 years this community was the chief remaining example of a distinctive native culture. Previous centuries had witnessed the adjustment of these peoples to countless changes in the natural and cultural environment. Still further adjustments were required of them here, before they were moved to separate allotments on their reservation. The abandonment of Like-a-Fishhook Village marked the close of a decisive era of Indian history in the Northern Plains.

Other native peoples were frequently drawn to this village, sometimes with hostile, sometimes with friendly, intent. White and mixed-blood traders established themselves here as well, maintaining commercial relations that strongly influenced the course of native history. Somewhat later, U.S. Army units, agents of the Office (now Bureau) of Indian Affairs, and missionaries came to live near the village. Thus any account of the settlement must take note of the actual residence here of numerous white persons, in some instances as members of native families and exerting direct, sustained influences upon them. At few sites in the Plains were different indigenous and alien groups brought into closer or more continuous relationships.

The Fort Berthold Indian Reservation of the Three Affiliated Tribes, as they are called officially, survives today, though it is divided into several parts by the waters of Garrison Reservoir. Only a small part of the original reservation was ever opened to homesteading by Whites, and the region still preserves something of its original wilderness character. The immediate area of the village was never given over to individual Indian allotments or white possession, and the significance of the village was never wholly forgotten by Indians or Whites. The native peoples seem to have regarded it as hallowed ground, and as early as the 1850's students of native culture came here to record aspects of customs which were soon to disappear forever.

The special significance of the village for the Three Tribes is illustrated by the fact that in 1924, more than 30 years after abandonment of the community, a new burial ground was established where formerly scaffolds had served for exposure of the dead. In this cemetery numerous memorials were erected, honoring faithful military scouts, mainly Arikara, who had served in the Sioux campaigns of the 1870's. Until its removal to a new location, with the creation of the Garrison Reservoir, the cemetery continued to serve as the principal burial ground of the Three Tribes.

Like-a-Fishhook Village thus linked a noteworthy period in the history of once independent, culturally distinct native peoples with recent events of broad scope. In the year 1845, a visitor to the new village would have entered a community of special character and interest, whose aboriginal culture had already passed its climax. A century later, the Missouri Valley at this point became the setting for a modern engineering project of daring scale. The abandoned village had almost completely disappeared from view, and most of its former inhabitants were dead. A decade later still, the site lay submerged beneath the waters of the reservoir. Few more striking examples could be offered of the rapidity of cultural and environmental changes, affecting both Indians and Whites, anywhere in the United States.

The report that follows considers the physical and material history of the community from the evidence of historical documents and of archeological investigations—bits of evidence derived from two strong currents in the earlier history of the New World, the spread of European peoples at the expense of indigenous populations, and the extinguishment of native cultures. No attempt is made to review the wealth of information concerning biological, linguistic, social, and other evidence that has been preserved on the changing material culture of this community. An effort is made, however, to discuss the evidence obtained during the salvage operations that pertains to the accommodation of native to alien

culture, and of Indians to Whites, at this point on the unstable frontier.

Numerous studies of the village peoples of the upper Missouri afford information on these groups during historic times (e.g., Will and Hyde, 1917; Schulenberg, 1956). A brief account of the village by Bushnell (1922, pp. 147–150) contains a compilation of important source materials. Major monographs on the Mandan (Will and Spinden, 1906; Bowers, 1950 and MS.; Bruner, 1961; Wood, 1967), and on the Hidatsa (Matthews, 1877; Wilson, 1917, 1924, and 1934; Bowers, 1965), present other essential historical matter, as does a résumé of Arikara history (Wedel, 1955, pp. 77–84). Two recent studies bear directly on the history of the community, including its trading posts (Shane, 1959; Dunn, 1963). Summaries of the present state of knowledge of both historic and prehistoric eras in the Northern Plains (e.g., Wedel, 1961, pp. 156–209) provide still further background information. A map showing the location of certain historic Indian village sites and related 19th-century military and trading establishments in the region has been published by Wedel (1957, p. 100), and there are other useful maps and historical references (Mattison, 1955).

The material culture of these sedentary villagers has interested many earlier students, and several detailed accounts of their remarkable earth-and-timber dwellings, or earth lodges, were made while such dwellings were still in use (e.g., Morgan, 1871, pp. 40–42, and 1881, pp. 125–130; Matthews, 1877, pp. 1–8, and 1902). When Gilbert L. Wilson began systematic ethnographic studies of the Hidatsa in 1908, he also gave special attention to this topic. At that time, seven Hidatsa earth lodges were still standing on the reservation, at sites other than Like-a-Fishhook Village. Wilson prepared detailed plans, drawings, and notes on the construction and use of certain of these habitations, with the assistance of his brother, Frederick N. Wilson (Wilson, 1934).

Thus an impressive body of ethnographic material exists for the Three Tribes. Though it was largely collected after the abandonment of the community, much of this record pertains to the period of residence of these peoples at Like-a-Fishhook Village. Important data, pertaining particularly to the Hidatsa, had been obtained at the village by Dr. Washington Matthews (1877) during his service in the region as assistant surgeon, U.S. Army. Dr. Ferdinand V. Hayden (1862) also published accounts of the several Plains tribes which, though concise and somewhat unsystematic, contain primary information supplied by well-informed traders such as Edwin T. Denig and James Kipp. Certain of Denig's personal papers bearing on these tribes have been adequately published (Denig, 1930 and 1961). Further source materials, preserved by G. L. Wilson, still remain in manuscript, though several important parts of these have been published since his death. Other students who obtained basic materials through personal study include George A. Dorsey, Robert H. Lowie, Melvin R. Gilmore, Frances Densmore, Martha W. Beckwith, and Preston Holder.

That this report is silent about certain aspects of the physical history of the native community and of the trading posts results in part from the fact that comprehensive excavations and exhaustive documentary research were not feasible, and in part from the loss of physical remains and of records that must once have existed. Such gaps, regrettable though they are, do not obscure the fact that much has survived having to do with the rise and decline of this remarkable mixed community. Some of this evidence is offered here for the first time.

Much more is now known than could have been anticipated at this late date, thanks to the salvage operations. Had the Three Affiliated Tribes not been forced to relinquish title to parts of their long-standing reservation, to allow for the new construction, archeological investigations here and elsewhere in the reservoir area might not have been possible in view of the understandable reluctance of the tribes to grant the necessary permission.

As has been the case with countless other sites, prehistoric and historic alike, which preserve materials for the better understanding of man's past, this site was obliterated and lost to further study because it conflicted with contemporary needs of other kinds. That provision had previously been made by the people of the United States—Indian and White—for salvage of portions of the surviving physical data reflects credit on the Nation and on the Congress, which enacted legislation designed to minimize the scale of losses of cultural resources so situated.

Owing to the limited time available for the archeological work—limited in view of the size and complexity of the site—attention

was directed to locating, exploring, and recording remains of representative structures of the village and of the two more important adjacent trading posts. The collected objects of native manufacture provide data for comparison with those from other historic and prehistoric villages now being investigated, while those of alien origin reveal little-known aspects of the economic and social history of the frontier.

In referring to the region as the upper Missouri, I follow the time-honored division of the river into upper and lower parts, made at the mouth of the Big Sioux River at Sioux City, Iowa. Though that point may appear to be an arbitrary one, such a division has been in use by geographers, historians, and ethnographers since the beginning of steamboat navigation of the Missouri. I prefer the familiar terms, upper and lower Missouri, which are firmly embedded in the older literature, to a new term, Middle Missouri, coined by archeologists to designate that portion of the mainstem between the mouths of the White and Yellowstone Rivers.

This account of archeological investigations is based upon field reports of excavations performed by the State Historical Society of North Dakota under contracts with the National Park Service in 1950–52 and 1954, and by the River Basin Surveys of the Smithsonian Institution in cooperation with the Park Service in 1952 and 1954. These reports were prepared for the Society by Glenn Kleinsasser, James H. Howard, Alan R. Woolworth, and W. Raymond Wood, and for the River Basin Surveys by myself. Not one of these persons witnessed all the excavations at this extensive site, and the present statement leans heavily upon evidence and interpretation provided by the others named, as well as by myself. I have faithfully reported their observations and inferences, sometimes abridging them, as I have done with my own data, or rearranging them for the sake of coherence between the various parts. In so doing, I have had their generous assent, which I gratefully acknowledge. I wish also to express appreciation for the use of documentary materials assembled for the National Park Service by Ray H. Mattison, superintendent of the State Historical Society of North Dakota. Without this historical research, completed in advance of excavations, much of the archeological evidence would have been far less intelligible. Thanks are rendered to the City Art Museum of St. Louis for permission to reproduce a sketch from its collections.

The interest and helpfulness of the Army Corps of Engineers, Omaha Division and Garrison Area, were frequently greater than might have been expected. For his important contributions to this report concerning firearms and ordnance, I am most grateful to Carlyle S. Smith of the University of Kansas.

Many others, all of whom it is impossible to name here, capably assisted the Society and the River Basin Surveys in the excavations and surveys over several seasons. The skillful operation of a road patrol by Delton Wulf, of Riverdale, N. Dak., in exposing the site of the first Fort Berthold and the remains of the village palisade merits special mention, as do the survey and mapping of the entire site accomplished by Raymond S. Price and the late Newell F. Joyner, both subsequently of the National Park Service, and their assistants. Several present and former members of the River Basin Surveys staff were particularly helpful in the preparation of this report: the late Dean E. Clark, the late Nathaniel L. Dewell, the late Herman L. Harpster, Jerry L. Livingston, Lee G. Madison, George Metcalf, Wayne E. Nelson, Mrs. Evelyn B. Stewart, Mrs. Leona M. Whitford, Miss Joyce Williams, Mrs. Ione L. Wilson, and Mrs. Paulette C. Workman.

G.H.S.

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HISTORY OF THE VILLAGE AND TRADING POSTS

Three noteworthy tribes of the Northern Plains lived at Like-a-Fishhook Village, also known as Fort Berthold Indian Village, which was situated on the upper Missouri River in what is now North Dakota. This composite village, the last of its kind, was for many years the home of sedentary peoples who used earth-lodge dwellings and were dependent for their subsistence upon agriculture and bison hunting. The village had as immediate neighbors various white persons who also built and lived there, and the whole community (designated Site 32ML2) was for many years an important center of trade between various Indian groups and Whites.

The three groups of special concern are the Hidatsa (also known as the Minnetares and as the Gros Ventres of the Missouri) and the Mandan, both of Siouan speech, and the Arikara, of Caddoan speech. These tribes had first become known to Whites through exploration by French colonials who, coming from the northeast by water and overland, had visited the upper Missouri at least as early as 1738. After only a few years, however, contacts with Whites were broken, and were not reestablished until half a century later, as traders from the northeast, by way of the Missouri, opened more or less sustained relations with these tribes. Subsequently, trade with Whites was carried on primarily along the river itself.

These native peoples appear to have been loosely organized tribes having semi-autonomous villages, the number and location of which varied considerably during early historic times. The variability in the size of the several tribes and in the number, location, and

extent of separate villages composing them were the result of many factors. Among these were movements of other native peoples, the precarious balance between the needs and sources of subsistence, the exhaustion of timber in the vicinity of villages, and the destruction of arable bottom lands by the meandering river. For nearly half a century before they reached this place in 1845, these tribes had maintained trade relations with Whites—a factor of significance because of the direct and indirect effects of this trade upon native culture and the course of native history.

FOUNDING OF THE VILLAGE

In June 1837, and undoubtedly as a result of the new trade, an unprecedented epidemic of smallpox struck not only each of the three tribes but other Plains peoples as well. The region had experienced smallpox epidemics before, but none so devastating as this. It led to major relocations of the several occupied villages, thus drastically changing the course of the history of these peoples. The disease is said to have been brought to the area during the annual visit to the upper river of the supply steamboat *St. Peter's*, a vessel owned by the leading trading firm of Pierre Chouteau, Jr. and Company (Chittenden 1902, vol. 2, p. 620 ff.). Before the great epidemic, and while the Mandan and the Hidatsa were still living separately at Fort Clark, a seasoned white trader wrote in the company journal at Fort Tecumseh (predecessor of Fort Pierre Chouteau) that he thought "both nations" had a population of 600 fighting men, while the Arikara had about 550 (Jacob Halsey, March 17 and 19, 1830, in DeLand, 1918, pp. 106–107).

It was later estimated by Hayden, who had probably received the information from equally well-informed sources, that of the 1,800 persons who had previously composed the Mandan, no more than 23 grown men, 40 women, and 60 or 70 children survived the 1837 epidemic (Hayden, 1862, p. 433; cf. Chardon, 1932, p. 133 ff.). The plague seems to have fallen less heavily upon the Hidatsa and the Arikara. But nonetheless, after it subsided the three tribes became even easier prey for traditional enemies such as the Dakota, or Sioux. Within a few years small groups of Mandan survivors began to live with the Hidatsa, and within 25 years the Arikara joined the other two groups for mutual security.

Though other contemporary evidence is not known, Hayden stated that prior to 1837, while living near Fort Clark—i.e., at the mouth of the Knife, some miles above the post—the Hidatsa numbered 600 people (Hayden, 1862, p. 420). After the epidemic, they were reduced to 40 lodges, "and these thinly peopled and badly provided" groups later moved to a "large prairie" 60 miles above Fort Clark, on the opposite side of the Missouri (i.e., Site 32ML2, more nearly 50 miles upstream). This settlement, Like-a-Fishhook Village, contained about 80 huts, and from the outset probably included certain Mandan. Long afterward, native informants recalled that in 1861 the village consisted of 70 lodges. They also remembered the names of the male heads of each lodge (Wilson, 1934, p. 353 and fig. 2).

Factors other than smallpox undoubtedly caused the Hidatsa to leave their village on the Knife River. Poor Wolf, head soldier of the Hidatsa in 1906, recollected that his group of some 50 warriors, with 50 other adults and children, had moved to the new location not only because of the enmity of other tribes—the Dakota and the "Blackfeet" (perhaps the Blackfeet Dakota, or Sihasapa)—but because of the scarcity of timber at the previous village (Poor Wolf, 1906, p. 441). It is also possible that the Hidatsa hoped to benefit from more active trade with Whites and to replace the Mandan as major producers of the desirable furs and hides. This possibility seems to be confirmed by other Hidatsa lore, briefly mentioned in the 1850's, suggesting that their settlement in the new location was originally intended as no more than a brief wintering place. Instead, it became a permanent village, near which the first Fort Berthold was built at the request of the Indians (Boller, 1959, pp. 245–246).

Still another influence may have favored the removal. The traders desired to abandon Fort Clark in favor of a new location. The Arikara, however, had somehow managed to occupy the former Mandan village near that post despite its contamination during the epidemic. They protested the abandonment. The traders therefore reluctantly maintained that post, but also established themselves near the Hidatsa at the new village (Honoré Picotte

to P. Chouteau, Jr. and Co., March 11, 1846, and Fort Pierre [Chouteau] Letter Book, 1845–46, quoted in Chardon, 1932, pp. 249–250, n. 202).

It is not clear whether the decisive factor in the removal of the Hidatsa and Mandan was the Indians' desire to reestablish themselves in a more favorable location and to have the traders accompany them there, or whether it was the traders' insistence that these tribes should relocate where the traders wished to relocate. A desire to establish a new village which would have a permanent trade station nearby, as had been the case at Fort Clark, may well have been shared by both Indians and traders, who by this time were closely interdependent. At the new location, the villagers and the traders were to have a suitable place on which to build, with fresh timber supplies, ample game, bottom lands for gardens, open views of the vicinity affording better security from marauders, steamboat-landing facilities, and other advantages. But actual details of planning the removal are not known.

Matthews stated that the removal of the Indians to the new site took place in 1845. The Hidatsa were the first to arrive, and they were soon joined by the Mandan. Shortly after the Hidatsa reached the place, the American Fur Company (i.e., P. Chouteau, Jr. and Company), with the assistance of the Indians, started to build a stockaded post, which became the first Fort Berthold (Matthews in Larpenteur, 1898, vol. 2, p. 386 n.). It is also possible that the new community was established by the traders—Francis A. Chardon, James Kipp, Andrew Dawson, and others—who had been operating at Fort Clark. Whatever the reasons for removal, the first use of the new location as the site for a permanent trading post appears to have coincided with the building of the new village.

In the absence of specific contemporary records, Matthews' testimony on the date of these events is entitled to credit since it was based on information obtained as early as 1865. It may be noted that certain other less trustworthy statements give different dates for the establishment of the village. Bad Gun, a Mandan, is said to have recalled the date as 1842 (Libby, 1908, p. 465). Later still, the title of a painting of the community by Martin Bear's Arm, a Hidatsa (in the museum of the State Historical Society of North Dakota), prepared about 1910, errs in giving the year of establishment as 1834. It is also to be noted that the location of the Mandan for some years previous to 1845 is uncertain, as is their role in founding Like-a-Fishhook Village.

THE FIRST POST

The first trading post at the new site is said to have been built by James Kipp (1788–1880), and the post appears to have first been called Fort James, probably in his honor. Bad Gun is also the authority for Kipp's role in building the new post (Libby, op. cit.). He may have been a trustworthy witness to this because he was related to Kipp; both Bad Gun and Earth Woman (who by Kipp was the mother of Joe Kipp, b. Nov. 29, 1849, at Heart River) were children of the noted Mandan chief, Four Bears (McDonnell, 1940, p. 270, n. 75; Matthews, 1888).

An undated manuscript plan of parts of the community (in the archives of the State Historical Society of North Dakota), which is probably based on recollections of Frederick F. Gerard, a later trader, states that the first Fort Berthold was built by Chardon for Charles P. Chouteau, who, in the 1850's, succeeded his father, Pierre, Jr., as head of the Chouteau firm. Chardon appears to have been the first trader actually in charge of the new post, but no evidence is known of his having built it. On the other hand, Kipp is remembered as the builder of several posts for the Chouteau Company, and the name Fort James would seem to be evidence of his similar service here.

Although the exact date of the construction of Fort James (soon to be renamed) is unknown, one contemporary record shows that this name was in use by December 1845, and another that the name was still being used the following February (H. Picotte to Chardon at Fort James, Dec. 18, 1845, in DeLand, 1918, pp. 213–214; H. Picotte to Chardon at Fort James, Feb. 24, 1846, cited in Chardon, 1932, p. 250, n. 204). At this period also, Chardon is said to have been with the Hidatsa at "*l'ours qui danse*," or Dancing Bear, probably the new village (H. Picotte to P. Chouteau, Jr. and Co., Dec. 7, 1845, cited in Chardon, op. cit., p. 248, n. 195, from Fort Pierre Letter Book, 1845–46). Shortly thereafter, the name Fort Berthold replaced the original name (H. Picotte to Chardon at Fort Berthold, March 12, 1846, cited in Chardon, op. cit., p. 250, n.

206), and by the summer of 1846 it seems to have been in general use (U.S. Comm. Ind. Aff., 1847, p. 78; report of T. P. Moore, Sept. 21, 1846). The new name is believed to have been given to honor either Bartholomew Berthold (formerly a partner of, and related by marriage to, Pierre Chouteau, Jr.) or Pierre A. Berthold, his son, a nephew of Chouteau (Abel in Chardon, 1932, p. 250, n. 205).

There is no evidence of the construction of earth-lodge dwellings and substantial trading buildings at this place prior to 1845. There are records, however, suggesting that the immediate site of the new community possessed special significance for the Indians, particularly for the Hidatsa. In June 1833, Prince Maximilian alluded to some "singular hills flattened at the top," which he had observed in this part of the Missouri Valley, hills that were called *l'Ours qui danse* because of the fact that there the Indians were said to celebrate the bear dance, a medicine feast, in order to obtain success in the hunt (Wied-Neuweid, 1904, vol. 22, p. 366). The place name Dancing Bear was to be preserved in Dancing Bear Creek, which enters the Missouri from the south (opposite Site 32ML2), and the hills marking the location of the ceremonial dances may be the high bluffs immediately east of this creek (cf. Corps of Engineers, Garrison Reservoir [maps], July 1943, Sheet 141; Missouri River Commission [maps] 1892–95, Sheet LIII).

Edwin T. Denig, the veteran trader and student of native history, stated that, because they were unwilling to live with or near the Arikara following the smallpox epidemic of 1837, the Hidatsa and Mandan moved to the place known as *l'Ours qui danse*, "on the opposite side of the Missouri" from Fort Clark (Denig, 1961, p. 59). It is thus probable that grounds previously used particularly for ceremonial purposes (opposite the bluffs mentioned by Maximilian) became the sites of the new village and its posts. The broad and open terrace upon which these were built would have been well suited for such tribal ceremonies, as it was for the site of the new community.

Beyond these hints of previous use of this area by the Indians themselves, it is also known that Chardon, who now took charge at Fort Berthold, had traded in the neighborhood prior to 1845. According to its log, the steamboat *Omega*, on June 16, 1843, stopped at a place "opposite Dancing Bear"—perhaps at the site of the future community—where it took on board several wagons destined for Fort Clark, together with "some good dry wood from Chardon's houses" (Log of the *Omega*, Joseph A. Sire, Master, 1843, translated in Chittenden, 1902, vol. 2, p. 1000). Such houses may have been no more than a temporary kind of shelter, used from time to time by traders based at Fort Clark and hardly comparable to the trading post of Fort Berthold, soon to be built. Again, in June 1844, the same steamboat log refers to Chardon's former wintering place—"*l'ancien hyvernement de Chardon*"—opposite Beaver River—"*vis à vis la Rivière au Castor*"—perhaps the later Beaver Creek, but about 5 miles farther upstream (Log of the *Omega*, June 28, 1844, cited in Chardon, 1932, p. 296, n. 347).

During archeological surveys of the Garrison Reservoir area, the River Basin Surveys party noted the presence of refuse deposits near the mouth of Beaver Creek. But it recorded no village or trading post site on the north side of the Missouri, opposite that point, which suggested the period of the 1840's. (Metcalf, 1953, p. 29). This location was the site of the later Arikara community of Nishu, beginning in the 1890's. As sometimes happens, archeological evidence may have been lost relating to trading ventures before the year 1845 in the neighborhood of Site 32ML2.

From these contemporary references it seems certain that during two or more winters prior to 1845 Chardon had traded in the immediate area in which the new village and post were to be established, some 50 miles upstream from a base at Fort Clark. Such trading activities were probably limited in nature and conducted during brief residence in or near some native settlement, itself perhaps temporary. Short visits, of which no details are known, may have prepared the way for the building of a formal post, but there is no hint of continued residence by traders or of a permanent native settlement at this place until 1845.

The steamboat log, previously cited, records that in June 1844 the Hidatsa held a council at Fort Clark and considered the matter of establishing a "fort" (Log of the *Omega*, June 19, 1844, cited in Chardon, 1932, p. 249, n. 198). Whether this reference is to be understood as an allusion to a new trading

post, which would replace Fort Clark, or to a new native village, or indeed to both, it is clear that at least as early as the summer of 1844 discussions had occurred which would result in a new community to replace Fort Clark and its native settlement.

There are no contemporary records giving details of the events leading up to the establishment of the new village and its first trading station. However, there exists one account from traditional sources, and this is the narrative given to Wilson in 1911 and 1913 by Wolf Chief, a Hidatsa, assisted by Butterfly, a Mandan (Wilson, 1934, pp. 351–352 and fig. 2). This narrative gives evidence of authenticity, but it cannot be checked against any eyewitness account and at certain points it seems to differ slightly from the few known contemporary allusions to the new village. Although the informants acknowledged that they did not recall the precise position of each lodge, they were able to locate accurately those lodges situated immediately adjacent to the central ceremonial area and to approximate the locations of the lodges beyond this open area.

According to these recollections, the Hidatsa, upon first coming to this place, camped in tipis near the spot at which the village was to be laid out. Seated in a circle, all the important medicine men present deliberated upon a plan for the community. By request, one of these, named Missouri River, took the lead. He was the owner of the two skulls of the Big-birds Ceremony, the shrine bundle of which was regarded as the most important of the tribe. After walking with the skulls in a wide circle and returning to the starting place, he remarked, "Thus we shall plan the village." He then invited three other leading men to select places for their lodges and to give reasons for their choice. Missouri River next proceeded to select the site for his own lodge, walking three more times about the circle, carrying the sacred skulls, singing a "mystery song," and pointing with his right hand toward the center of the circle. On the fourth circuit, he chose the site of his dwelling, with appropriate prayers for abundant rainfall and for strong and healthy children. He then directed the other men to choose sites for their own dwellings, leaving the circle open as he had marked it out (Wilson, op. cit.).

The village plan, as recalled by Wolf Chief, provided for a central open area, for ceremonial purposes, and for generally concentric rows of dwellings. On the evidence of later visitors, the intended symmetrical arrangement of the community was lost sight of (Matthews, 1877, p. 4; Trobriand, 1951, p. 88; Canfield, 1953, pp. 202–204; Walker, 1953, p. 29). The perspective painting by Bear's Arm, depicting the village as it looked at a later date (probably somewhat idealized, with log buildings of non-native style outnumbering the lodges), corroborates in a general way the recollections of Wilson's informants concerning the original plan.

Whether any of the Mandan were present when the community was laid out is not specifically mentioned in the account given by Wolf Chief. However, Buffalo-bird Woman, a Hidatsa (b. ca. 1839), stated in 1912 that, although the Hidatsa were accompanied by many Mandan families, the greater part of the Mandan tribe did not join the Hidatsa until a later date (Wilson, 1934, p. 351). This testimony, corroborated by casual references in contemporary records, also suggests that some of the Mandan continued to reside elsewhere and that the consolidation of the two groups was not completed until the late 1850's (e.g., Boller, 1959, p. 31).

According to the report of an Indian agent, the Mandan were still, in late 1854, occupying a small village about 4 miles above Fort Clark (U.S. Comm. Ind. Aff., 1855, p. 80; report of Alfred J. Vaughan, Oct. 19, 1854; cf. Culbertson, 1952, p. 137). Agents' reports for the following 2 years mention the village of the Hidatsa near Fort Berthold, with the Mandan apparently still living chiefly near Fort Clark (U.S. Comm. Ind. Aff., 1856, p. 73, report of Vaughan, Sept. 12, 1855; U.S. Comm. Ind. Aff., 1857, p. 78, report of Vaughan, Sept. 10, 1856). In 1857, the report of a new agent mentions his having passed the site of the "old village" of the Mandan during his visit. It was located about 6 miles above that of the Arikara (still at Fort Clark). Only five or six of the Mandan lodges were then occupied, the larger part of the tribe having gone up to Fort Berthold and put themselves "under the protection" of the Hidatsa (U.S. Comm. Ind. Aff., 1858, p. 128, report of Alexander H. Redfield, Sept. 9, 1857). The following day the agent reached the "high, beautifully situated villages [sic]" of the two tribes. The Mandan, he wrote, wished to join

the other tribe for protection but feared that by doing so they might lose their separate annuity in the form of goods. He therefore told them that there was no risk of this as long as they preserved a "distinct organization" (ibid.). Whether this counsel influenced the Mandan in any way is not apparent, but they seem to have merged with the Hidatsa before many more years elapsed.

Bits of other native traditions have also survived pertaining to the establishment of the village. One of these is a winter count kept by Butterfly and recorded about 1911 for Wilson by Edward Goodbird, a Hidatsa (Howard, 1960). This tribal record stated that "our people"—perhaps the Mandan and Hidatsa considered as one group—came to the site of Like-a-Fishhook Village in the spring of 1844 and began to build there the following winter (Howard, op. cit., pp. 31–32). Butterfly added that the Black Mouths were in charge. Noting that these tribal police had supervision of all construction activities of both tribes, Howard suggests that the construction of permanent lodges at the village was not begun until autumn, probably replacing temporary dwellings such as tipis.

Tribal lore relating to the removal was briefly noted during the late 1850's by Boller (1959, pp. 245–246). Less specific as to time, these recollections reveal a desire of the Hidatsa to reunite with the Crow, linguistic relatives from whom they had long been separated. The tribe's decision to move resulted also from the numerous raids upon previous settlements and the prevalence of disease. The recollections give the autumn of the year (not specified) as the season at which the new site was reached. They differ from other accounts by mentioning only the name of the chief of the Hidatsa, Four Bears (not to be confused with the Mandan chief of the same name), in connection with the choice of a site. They say nothing about the presence of any Mandan at that time.

Throughout the entire occupancy of the village, the only name appearing in known contemporary records is Fort Berthold Indian Village. This is hardly surprising, since for most white men the native name would have had no special interest. Even accounts such as those of Boller, Hayden, and Morgan omit any mention of a native name for the settlement. Matthews' ethnographic study, which includes a list of local names employed by the Hidatsa, records only the form *Hidátsati*, "Dwelling [or village] of the Hidatsa Indians," used by that people themselves (Matthews, 1877, pp. 1, 211). The term *hidátsa* was said to mean "willows," and had been the name of one of the previous villages on Knife River, subsequently becoming "the present name of the entire tribe" (Matthews, op. cit., pp. 35, 148).

Buffalo-bird Woman provided another and perhaps somewhat later name used by the villagers: *Mu' a-idu' skupc-hi' ccc*, or Like-a-Fishhook Village (Wilson, 1917, pp. 7–8). She also testified that white men were accustomed to call the village by the name borne by the nearby trading post. The form *Búa idútskupc hiša á tiš*, Fishhook house (or village), also appears on a painted map made about 1905 by a young Mandan, Sitting Rabbit, doubtless in consultation with former villagers (original in the archives of the State Historical Society of North Dakota; photocopies in the River Basin Surveys office). This native record shows the valley of the upper Missouri from a point near the South Dakota-North Dakota boundary, just below Standing Rock Agency, to a point above the mouth of the Yellowstone River, with native landmarks, place names, and pictorial devices indicated.

One visitor, in June 1850, stated that the new village did not appear to differ from the village near Fort Clark (originally of the Mandan, subsequently occupied by the Arikara), except that the new one was being enclosed with log pickets and had a "bastion" with loopholes at the middle of each side (Culbertson, 1952, p. 100). Numerous earlier earth-lodge villages had had palisades, often with dry ditches or moats, and as early as 1846 it was noted that the village at Fort Berthold was protected by pickets (U.S. Comm. Ind. Aff., 1847, p. 78, report of Moore, Sept. 21, 1846). But the palisade under construction in 1850 differed somewhat from most native defenses, as will be described later on.

The original plan of the village, centering on an open ceremonial area, was probably retained throughout its existence, though minor changes were made as the result of construction of new lodges and the abandonment and removal of old ones (Wilson, 1934, p. 353). In 1861, the lodges numbered at least 70 and were arranged in three roughly concentric rows about the ceremonial area, as is shown on two plans based on the recollections

of native informants (Wilson, op. cit., figs. 1 and 2). Such symmetrical and regular arrangement of structures was probably an ideal plan rather than the actual one. Stereoscopic photographs taken about 1870 by Stanley J. Morrow, of Yankton, Dakota Territory, afford visual evidence of the confusion and apparent lack of regularity in the village plan at that time. Other Morrow photographs of the ceremonial lodges of the Hidatsa and the Arikara show that the ceremonial areas near entrances to these lodges were still open and free of other structures. Topographic mapping of the site in 1952 revealed, however, that these ceremonial areas had subsequently been used for native structures, both earth lodges and log buildings.

A NEW POST IS BUILT

Following the building of the first Fort Berthold, only a few years passed before formal opposition to the Chouteau Company developed. A visitor noted, in June 1850, that between Fort Berthold and the village a log house stood, belonging to a man (presumably a trader) who had been put to death during the preceding winter. His reputed offense was that he had killed an Assiniboin, and in revenge he had been killed by the Hidatsa (Culbertson, 1952, p.. 101). His identity is not known, but he may have been an independent trader, for his house was separate. Since his offense was that he had killed an Indian belonging to a tribe other than those of the village, it is of interest that the latter took the matter of retribution upon themselves.

At least as early as the summer of 1851 a second post was in operation on the "eastern" (i.e. southeastern) side of the village, opposite the first post and competing with it. This post was managed by Jefferson Smith (Kurz, 1937, pp. 86, 96, 196, and 246) and was the property of Harvey, Primeau and Company, whose principals included Alexander Harvey and Charles Primeau. This was also known as the St. Louis Fur Company (McDonnell, 1940, p. 265). Although the group operated several competing posts on the upper Missouri, little is known of its efforts at this place. It seems unlikely that the group was successful in defying the near-monopoly of the Chouteau Company. A visitor of 1853 mentions only the American (i.e., Chouteau) Company as trading here (Saxton, 1855, vol. 1, p. 265), and it is possible that local opposition had for a time been stilled. Subsequently, the firm of Daniel M. Frost, John B. S. Todd, and Company, organized at Sioux City, Iowa in 1856, was licensed to trade at this place and did so, perhaps using buildings left from earlier opposition efforts (U.S. Comm. Ind. Aff., 1858, p. 135, report of Redfield, Nov. 9, 1857; Thomas, 1949, p. 181).

No further major changes in the composition or appearance of the community as a whole are known to have occurred until the year 1858. The success or failure of the first opposition trading group seems to have gone unrecorded. In 1858, however, another opposition group appeared, and from that date more is known of the community as a whole because of the records kept by one of its members, Henry A. Boller (1959, 1966a, and 1966b). This new opposition is said to have again included Smith and Primeau. They, together with Malcolm Clark, Charles Larpenteur, and Robert Lemon (Quaife in Boller, 1959, pp. xxi, xxiii), formed what was to be a short-lived association to build a new post. It was larger than the original Fort Berthold of the Chouteau firm and was first called Fort Atkinson, probably for Edward G. Atkinson of Sioux City, a member of Frost, Todd and Company (Boller, 1959, p. 33 ff.). With the passage of time and the loss of the original Fort Berthold by fire, Fort Atkinson was to take the place as well as the name of its predecessor (Boller, op. cit., p. 362).

Another landmark in the history of the community was reached in 1862, when the Arikara, perhaps despairing of being able to survive and maintain themselves separately elsewhere, built a new village near Like-a-Fishhook Village, but on the opposite side of the Missouri. This has been called Star Village (Site 32ME16), a name probably derived from that of a prominent tribal leader Son of the Star (Metcalf, 1960, p. 75). According to Morgan, the destruction of Fort Clark by fire in 1861 and its abandonment by the Chouteau Company deprived the Arikara of all protection from their enemies, the Dakota (Morgan, 1871, p. 30; and 1959, p. 161). He stated further that the Hidatsa had urged the Arikara to settle on their side of the Missouri and to make common cause with them against the Dakota. However, the Arikara had refused, giving as a reason that they and their ancestors had always lived on

the west side of the river and they thought it "more prudent" to remain there.

The greater concentration of the three village tribes seems not to have reduced Dakota raids upon them. In the summer of 1851, Kurz noted that, while the Hidatsa never went far from their stockaded village, a Mandan from the village was killed. The murder, supposedly by a Dakota, was soon avenged by the taking of two enemy scalps (Kurz, 1937, pp. 74–75). The continued existence of the village doubtless excited the envy of its enemies, and on December 24, 1862, a determined party of Dakota, reportedly numbering only 20, attacked the village and posts in a raid recounted long afterward (Horatio H. Larned in Collins, 1925, pp. 46–48; Matthews in Larpenteur, 1898, vol. 2, p. 386 n.). The date of the raid is sometimes erroneously given as 1863 (e.g., Quaife in Boller, 1959, p. 72 n.), and the number of attackers is elsewhere said to have been as great as 600 warriors.

The new Arikara village opposite Like-a-Fishhook Village was also attacked by the Dakota in the summer of 1862. Visitors reported that when they went up the Missouri earlier in the year they found that the Arikara had built a permanent village about 3 miles above Fort Berthold. The Indians were cultivating their land and appeared to have become more civilized. But when the visitors came down river that autumn, they found the Arikara village and lands deserted. Several of the villagers had been killed and the remainder had been compelled to join with the tribes at the village opposite (U.S. Comm. Ind. Aff., 1863, pp. 162–163, joint letter of Henry W. Reed and "LaBarge, Harkness and Co.," Jan. 14, 1863).

The full effect of the December raid upon the now united tribes can hardly be judged at this late date. The raid did put an end to the original trading post, which appears to have been almost entirely destroyed by fire. At the same time and elsewhere on the upper Missouri, it was reported that four white men had been killed in the attack and that "Fort Berthold" had been captured and burned (anonymous letter, Feb. 12, 1863, in Throne, 1959, p. 135; and letter of "W. W.", Feb. 23, 1863, quoting a report of Capt. Bradley Mahana, Co. B., 14th Iowa Infantry, Fort Pierre, no date, Throne, op. cit., p. 140). No other contemporary accounts mention that any Whites were killed or that either of the two posts was actually captured during the raid. Writing some months later, Boller (1959, p. 362) implied that the newer post, known earlier as Fort Atkinson, where he had traded, was now occupied by the Chouteau firm since its predecessor had been destroyed in the course of the raid. However, Matthews (in Larpenteur, 1898, vol. 2, p. 386 n.) stated that the old post had been abandoned previously. The Chouteau firm may have subdued its opposition here before 1862, and may have occupied Fort Atkinson after the raid without thought of any formal transfer of title and name. It is by the name Fort Berthold that this second major post is best known in various records, rather than by the name first given it.

At the time of the raid most of the Hidatsa of the village, according to custom, were in winter quarters elsewhere (Boller, 1959, p. 362). Boller felt that his post had been saved from capture and destruction only because a Hidatsa party was accidentally present during the raid. Bullet marks on the blockhouses clearly revealed to him how hard fought the engagement had been. At a later time, Poor Wolf also referred to the chance presence of his people during the attack, and to the help they gave in defending the "trader's corral" and blockhouse (Poor Wolf, 1906, p. 442). He testified that the Dakota burned a large part of the village, including his own lodge, and took some of the goods stored in the caches.

Details are lacking with regard to the removal in 1862 of the Arikara to Like-a-Fishhook Village from their temporary location opposite the village. It would be interesting to know how the Arikara were received, how space was chosen for their use, and what the necessary adjustments were. It is known that they settled on the north side of the town, probably immediately adjacent to the lodges of the other villagers. The area of Arikara occupation then overspread the site of the first trading post and so completely obscured it from view that its precise location was forgotten. Indeed, Matthews believed that the site had been destroyed by the river itself (Matthews in Larpenteur, 1898, vol. 2, p. 386 n.).

Commenting on the matter of relationships between the Arikara and the other tribes at the village, Hoffman later wrote that

the alliance of the three groups *was not based upon friendly feelings for one another, but* [*was*] *for mutual resistance against the Sioux on the south, and the occasional incursions of the Crees on the north. At the present day it is seldom that a Mandan, or a Hidatsa, will select an Arikara wife, though the contrary is of frequent occurrence* (Hoffman, 1886, p. 294).

The latter comment is intriguing. It is not supported by the testimony of others, so far as is known, but serves as a reminder that important evidence concerning the village culture disappeared with the passage of time.

The village now took on its final form, consisting of Hidatsa-Mandan and Arikara sections. In the native view, these sections appear to have been considered separate, and the people of each probably maintained a measure of independence. Certain prominent males continued to serve as chiefs of each section, though their management of the community is obscure. During the 1840's and 1850's the leading Hidatsa chief was Four Bears, or *Nocpittscetoppish*, or *Nochkpitshitoepish*, said to have been born an Assiniboin. He was a signatory of the unratified "Treaty" of 1851 at Fort Laramie and was killed in a raid during the winter of 1861–62 (Kurz, 1937, pp. 85, 95; Boller, 1959, pp. 58–59 and *passim*; Trobriand, 1951, pp. 266–267; Maynadier in Raynolds, 1868, p. 149; U.S. Comm. Ind. Aff., 1847, p. 78, and 1863, p. 193; Kappler, 1904, vol. 2, p. 596). A second chief of the Hidatsa was Long Hair, or *Batsaarahansceha*, celebrated as a speaker, portrait sketches of whom were made by Kurz (1937, pl. 31, upper, and pl. 41, upper; Boller, 1959, pp. 86–87 and *passim*; U.S. Comm. Ind. Aff., 1858, pp. 138–140, speech of Long Hair, July 1, 1857). In the year 1867, the first and second chiefs of the Hidatsa are said to have been Crow's Breast, or Crow's Belly, and Poor Wolf, or Lean Wolf (Trobriand, 1951, pp. 86–87 and *passim*; Boller, 1959, p. 170 and *passim*). Portrait photographs of the latter two were made about this time by Morrow (Taylor, 1932, p. 83; Hurt and Lass, 1956, fig. 55).

Among the Mandan, the first chief at this period is said to have been Red Cow, whose "lieutenant" or second chief was Running Eagle (translated also as Rushing Eagle, Rushing War Eagle, Rushing after the Eagle, and Eagle Who Pursues the Eagle). Known subsequently as Bad Gun, he had been a signer of the agreement of 1851 (Boller, 1959, pp. 308–309; Trobriand, 1951, pp. 100, 127; Libby, 1908). Running Eagle was a son of the well-known Mandan chief Four Bears, whose portrait Catlin had drawn. Later, Morrow made portrait photographs of both Red Cow and Running Eagle (Hurt and Lass, 1956, p. 75 and fig. 52; Matthews, 1888).

Among the Arikara, the chief White Shield, or White Parflèche (1798–1878), is specially remembered. His second chief in 1867 is said to have been Star Man (1813–81), also known as Son of the Star, or Son of the Starry Robe (Boller, 1959, pp. 30, 350–352; Trobriand, 1951, pp. 95, 100).

Certain other persons and events should also be mentioned. Chardon, who had been the first *bourgeois* or manager of Fort Berthold, died there in 1848 and was buried at Fort Pierre Chouteau (Palliser, 1857 ed., pp. 188–189; Chardon, 1932, pp. 269–270, n. 254). He was succeeded by Andrew Dawson (1817–71), who, like Chardon, was previously at Fort Clark and at Fort Benton (Palliser, op. cit., p. 203; McDonnell, 1940, p. 266). In 1851. when Kurz served at Fort Berthold, and in 1854, when Louis D. Letellier worked there, Kipp was in charge (Kurz, 1937, p. 73; Letellier, 1908, p. 236). In 1855, Frederick F. Gerard is said to have been in charge of the Chouteau post (Sears, 1906, p. 349), and in August 1860, one Riter (perhaps Frederick G. Riter) was in charge (Maynadier in Raynolds, 1868, p. 147). Jefferson Smith was trading in opposition in 1851 and subsequently, and in 1855 and 1858 John C. McBride was in charge of the opposition (Sears, op. cit.; Boller, 1959, p. 46). Perhaps the longest single connection with the trade at this community was that of Pierre Garreau, probably of Arikara and French ancestry, who served as interpreter and in various other capacities in the trade until his death by suffocation in a fire in 1881, at the age of 92 (Larned in Collins, 1925, p. 48). His account of the attack on the community in December 1862, and of his prominent part in the defense, is a vivid one (Trobriand, 1951, pp. 90–93).

INDIAN-WHITE TRADE

The importance of the community as a center for trade with Whites also requires comment. The sedentary villages on the upper Missouri had long been important centers for

trade between their occupants and the less settled peoples (Ewers, 1954), and this intertribal trade had prepared the ground for the larger scale export trade that succeeded it. At the new village, export trade was to become a dominant influence.

Though based upon agriculture, the subsistence of these villages since prehistoric times had included the hunting of game animals as an important supplement. With other native peoples, the villagers were accustomed to barter a wide range of foodstuffs and commodities, including materials for bodily comfort and adornment, and horses for more rapid and dependable transportation. Though this intertribal trade was to decline and eventually come to a stop, it persisted into the period characterized by heavy trade with Whites. In contrast to other peoples of the region, the villagers often had surpluses of food other than meat, as well as horses. This fact, together with their geographic location, placed them in a favorable position in intertribal trade and, at the outset, probably in the new trade also. The latter was to cause radical changes in their economy, since for the men it entailed the taking of vastly increased numbers of game animals, a dwindling resource, in order to supply the demands of white traders. Furthermore, such products as robes and hides required preparation, a time-consuming task for the women, who also were the producers of agricultural products, the cultivation and preparation of which were equally time consuming.

The trader Denig (1961, pp. 46–47) observed that two markets were ordinarily available to the villagers for their surplus agricultural products. His description of the Arikara trade at Fort Clark in the mid-1850's may serve to illustrate what doubtless took place at centers such as Like-a-Fishhook Village. In a favorable season, he stated, the Arikara traded from 500 to 800 bushels of corn at the older post. The trade was carried on by the women, who were accustomed to bring the corn in pans, and also squashes on strings. They exchanged these for knives, hoes, combs, beads, paints, and the like, which they used themselves. In addition, they obtained ammunition, tobacco, and other articles useful to their menfolk. Denig asserted that although the women did all the labor of tilling they were "amply compensated" by receiving their full share of the profits.

The second market for surplus produce was with Dakota bands at peace with them, bands which customarily made annual visits to the Arikara to exchange buffalo robes, skins, meat, and other commodities for corn. The skins and other items thus obtained by the Arikara enabled them to trade with Whites for cloth, cooking utensils, and other domestic items desired by the women, and for guns, horses, and other items required by the men. A visitor of 1853 commented on the fact that the villagers at this place raised crops in sufficient quantity "to supply many of their neighbors with bread" (Saxton, 1855, vol. 1, p. 265).

Matthews (1877, pp. 27–28) at a later date gave special attention to intertribal trade at the village, as well as to the trade between the villagers (then including the Arikara) and Whites. He noted that although the older trade had diminished greatly, it continued to exist, with the villagers customarily trading agricultural produce for horses and, later, for robes. Slender spruce poles, used with the skin lodge but not obtainable in the immediate neighborhood, were traded to the villagers by the Dakota, who obtained them in the Black Hills. About a dozen of these poles were equal in value to a good "buffalo horse." Other articles traded included tail feathers of eagles (a single "tail" having a value equal to that of a "buffalo horse"), and dentalia and abalone shells furnished by the white traders. Matthews believed that in earlier times the Indians obtained Pacific coast shells such as these by indirect trade. With respect to general relationships between the tribes, Matthews stated that a truce was observed from the time the nomadic peoples came in sight of the village. But once they had departed beyond the bluffs, the nomads might steal an unguarded pony or take a scalp and might suffer attack in return.

Despite the importance of the horse to the villagers, for both hunting and trading purposes, little is known of the numbers of horses owned, bred, or traded by them at this village. Ewers (1954, p. 440) has shown that at earlier villages horses were often obtained from nomadic peoples in exchange for agricultural produce, but he notes that few of the animals obtained in this way seem to have been retained. Other evidence collected by Ewers shows that, for each of the Three Tribes in the year 1871, the ratio was less than one

horse per person, and that this ratio was probably surpassed among most nomadic peoples at the time (Ewers, 1955, pp. 24–25, citing U.S. Comm. Ind. Aff., 1872, p. 612 and *passim*).

The ethnographic data on the role of the horse in Hidatsa culture collected by Wilson (1924) make it clear that the possession and breeding of horses was important, but the data shed little light on the actual numbers of such animals owned or bred, or on their use in trade, since the recollections are concerned chiefly with ways of caring for and using horses. It is probable that one factor in the decline of the village culture was a decrease in the production of, or trade in, horses, perhaps as a result of reduced food production at the village.

It is difficult to determine the scale of the trade at any given period between Whites and Indians at the posts of Fort Berthold. In a statement made late in 1849 for the upper Missouri subagency, which included several tribes in addition to the Three Tribes, it was asserted that the number of buffalo robes shipped from the region during the preceding year had reached 110,000. They were valued at $3 each. Other furs, peltries, and miscellaneous trade items totaled $60,000, with the grand total amounting to $390,000 (U.S. Comm. Ind. Aff., 1850, p. 135, report of William S. Hatton, Oct. 5, 1849). The accuracy of this estimate, probably furnished by the traders themselves, cannot be verified, but it should probably not be regarded as a representative figure in view of yearly fluctuations in both the volume of the trade and the market values of its products. The statement is, nevertheless, of interest in demonstrating clearly that the robe and hide trade had become dominant, while smaller peltries and other items accounted for no more than 15 percent of the total dollar value claimed.

The trade at this time—probably centered at Forts Clark, Berthold, and Union—is said to have been in the hands of two large licensed companies and a few small traders who together commanded a capital of $500,000, though it is noted that a great part of this sum was not actively employed in the trade (U.S. Comm. Ind. Aff., 1850, p. 136). Whatever the reliability of such estimates, the agent displayed no obvious bias in favor of the traders. What the Indians received for their robes, furs, and other items would, he felt, have been amply sufficient for their support had it not been for the "exorbitant" prices of the articles supplied by the traders, and he hoped that the "considerable competition" then springing up among them would help to correct this state of affairs and favor the Indians.

Another glimpse of the scale of the buffalo robe and hide trade at this place is afforded by a statement of about 1876 credited to Gerard (Roe, 1951, p. 499). For the year 1857, which he regarded as an average year in his experience (beginning about 1855), he reckoned a total trade falling between 8,700 and 9,000 bales, or 75,000 robes, at the five chief posts on the upper river. However, the totals for Forts Berthold and Clark, of 500 bales each, fell far below those for Fort Benton with 3,600, Fort Union with 2,700 to 3,000, and even Fort Pierre with 1,900 bales.

Though documentary proof has not been found, nor material evidence recognized in archeological investigations of the site, it is probable that basic changes occurred during the existence of the community in the commercial relationships between Indians and Whites. At the outset, as in previous periods, commerce had been carried on by simple barter of furs, hides, and other products desired by the traders for articles and commodities desired by the Indians. During this initial period of barter—sometimes modified by the insidious system of "credits," which favored the trader somewhat more than the Indian—the advantages of the system to the Indians must have been considerable so long as they could maintain a flow of exports from actual surpluses in sufficient quantity to provide both the bare essentials and the luxury goods that the traders could supply. But once surpluses were no longer available, the Indians were at a great disadvantage.

With the disappearance of many of the game animals in the region, especially of those most wanted in trade, barter declined and ultimately almost ceased. The traders now became involved with the system of annuities of the Federal Government, made by the agents largely through issue to the Indians of goods supplied on Federal contracts. The era of brisk trade in furs and hides—which reached a peak in the 1850's and declined with the withdrawal of the Chouteau firm in the 1860's—came to an end during the 1880's. By this time the annuity system was firmly fixed in local Indian affairs and probably kept the villagers alive. That even in the 1870's the

Indians did not have the means to carry on trade was noted by Taylor (1932, p. 63), who attributed this fact to a lack of interest on the part of the firm of Durfee and Peck in the welfare of the villagers.

It is as difficult, lacking ledgers and daybooks, to determine the scale of the trade at such posts as Forts Berthold I and II as it is to define the exact role of the villagers in the traffic and to compare it with that of other peoples who came there to trade with Whites. One trader recalled that during his own service at Fort Berthold II, from 1867 to 1870, about half of the trade was with the nearby villagers and the other half with the roving Dakota, who would come in for several days at a time (Larned in Collins, 1925, p. 32). Visits of other peoples to this place were also common. Among these were Plains Ojibwa and *métis*, or mixed bloods, who occupied areas to the northeast and customarily traded with the Hudson's Bay Company. One such visit was mentioned during 1851 (Kurz, 1937, pp. 84–85). Other groups found there periodically included the Crow, close linguistic relatives of the Hidatsa, and the Assiniboin, who were ordinarily served by traders at other posts, such as Fort Union (Boller, 1959, pp. 125, 329 ff.).

Though no inventory is known, showing goods and equipment actually on hand at any given date at either Fort Berthold I or II, the relative importance of the earlier of these two posts is revealed by ledger totals for the year 1852, giving inventory values for it and for other establishments, as of July 1 (McDonnell, 1940, p. 236). On that date, the Fort Berthold [I] inventory was valued at $4,759.21, or about 65 percent of that at Fort Clark, which was shown as $7,365.68. Whether the disparity between these inventories was due simply to chance is not evident. But the fact that the Fort Clark inventory was the larger suggests that it was still the more important of the two posts at that time. Values recorded for the departmental posts are also of interest in comparison with that for Fort Berthold, the inventory for which was but 32 percent of that for Fort Union, shown as $14,717.11, and only 14 percent of that for Fort Pierre Chouteau, shown as $34,744.47.

DECLINE OF THE TRADE

The trade on the upper Missouri decreased markedly in volume and importance in the years following the establishment of Like-a-Fishhook Village and its posts. It is apparent that the well-being of villagers also declined. There is abundant testimony to this in the reports of various Indian agents and observers, not all of whom were unmindful of the plight of their charges. Once dependent upon an export trade based upon the resources of native animals, particularly the bison, the villagers found it impossible, now that these resources were vastly diminishing, to extricate themselves from the system and to reestablish their older economic patterns of self-sufficiency. Ways were not devised by administrators responsible for these tribes to reverse the trend toward dependency.

That the deterioration in the material welfare of the villagers was not more rapid may have resulted in part from the fact that during favorable years these food-producing peoples were able to raise more than they consumed and to provide adequate storage for surpluses (Wilson, 1917; Will and Hyde, 1917). It was estimated by one agent that, in 1854, the corn gathered by the Mandan totaled 1,500 bushels and that of the Hidatsa 2,500, while the Arikara gathered 4,000 bushels, with other vegetables such as squashes, beans, and pumpkins yielding in proportion (U.S. Comm. Ind. Aff., 1857, p. 79, report of Vaughan, Sept. 10, 1856). In such seasons, it was said, these tribes raised enough corn for their own use, and also a large quantity to sell to traders and to other tribes (U.S. Comm. Ind. Aff., 1855, p. 80, report of Vaughan, Oct. 19, 1854).

In favorable years, native wealth must have risen strikingly. At other times, by contrast, crop failures were calamitous. Thus in 1855, because of excessive drought and an unprecedented heavy frost on August 15, the Three Tribes harvested no more than a third of their usual crop (U.S. Comm. Ind. Aff., 1857, p. 79, report of Vaughan, Sept. 10, 1856). The season of 1857 was equally difficult. On reaching Fort Clark, en route down river, the agent learned that a heavy hailstorm that year had destroyed two-thirds of the crops of corn and other vegetables belonging to the Arikara and Mandan, and he felt that only the "large excess" that had been raised by the friendly Hidatsa would make certain that the other tribes would not suffer from want (U.S. Comm. Ind. Aff., 1857, p. 86, postscript of

Vaughan, Oct. 27, 1856). On the other hand, he assured the commissioner that their country abounded with game. The precarious balance existing between village needs and its sources of subsistence, in crops and native game, is clearly revealed in such records.

Not all surplus produce of the villagers was exchanged with other tribes in peaceful fashion. Raids upon the village and its posts were unceasing, having as one of several purposes that of obtaining food. The theme recurs constantly in contemporary records. As early as the summer of 1849, it was reported that a war party of some 800 Dakota attacked the village and post, and was repelled only after it was fired upon by the Whites with cannon from the blockhouse (U.S. Comm. Ind. Aff., 1850, p. 135, report of Hatton, Oct. 5, 1849). In this raid, it was claimed, only two or three Hidatsa were killed, a few others being severely wounded, whereas the loss by the attackers was "much greater."

A similar incident occurred 2 years later, when a group of Yanktonai attemped a raid, though unsuccessfully, in the hope of finding large quantities of corn in the village, then temporarily abandoned because of the winter hunt (Kurz, 1937, p. 184). Still another raid occurred in September 1857, in the very presence of the agent. As the steamboat on which he was traveling tied up at the village, a party of some 60 mounted Yanktonai attacked the Hidatsa and Mandan, driving off 11 horses belonging to the former, and killing six fine oxen belonging to Frost, Todd and Company, the old opposition (U.S. Comm. Ind. Aff., 1858, p. 135, report of Alexander H. Redfield, Nov. 9, 1857). The two tribes "bravely pursued" the raiders and a running fight ensued, lasting into the night. Almost an equal number of horses were recovered, but at a cost of three Hidatsa and one Mandan killed and several wounded, while four Dakota were killed and others were wounded.

Not only were the villagers victimized by such raids, but the traders were sometimes imperiled also. As early as 1846, the Hidatsa chief exhibited to an agent the scalp of one Bonaventure LeBrun, who had been an employee of the Chouteau firm. He claimed it had been taken by the Dakota. During the previous year, according to the chief, not less than eight white men had fallen in these intertribal affrays (U.S. Comm. Ind. Aff., 1847, p. 78, speech of Four Bears, in report of Moore, Sept. 1, 1846; cf. Abel in Chardon, 1932, p. 299, n. 367).

There are accounts of many other raids, and such attacks seem to have been particularly numerous in 1862, coincident with the outbreak of the Santee Dakota in Minnesota. During the preceding winter, a war party of "Sioux and Yankton Sioux" attacked the Hidatsa and Mandan at their village. Four Bears and several others were killed, and 175 head of horses were taken (U.S. Comm. Ind. Aff., 1863, p. 193, report of Samuel N. Latta, Aug. 27, 1862). As late as July 1866, according to Larpenteur, an eyewitness who served as interpreter for the Northwestern Treaty Commission of that year, deliberations between commissioners and villagers had scarcely begun before an alarm was sounded and a party from the village was off on a raid against Dakota offenders (Larpenteur, 1898, vol. 2, pp. 383–384). Larpenteur stated further that the party returned the same day with five scalps, which they exhibited to the commissioners, and that some of the party had the feet and hands of Dakota victims tied as trophies about their horses' necks. The party had also taken nine horses, which soon died because of overfeeding.

In June 1867, a party of 400 Yanktonai, under chief Fool Dog, was said to have come to trade meat and hides for corn (Canfield, 1953, pp. 206–207). This might seem to be an instance of more peaceful intertribal trade, but the purpose of such visits was probably never entirely peaceful. One visitor of 1869 stated that the Lower Yanktonai, or Hunkpatina, under their old chief Two Bears, had for many years taken the lead in attacks on the villagers, and he intimated that the Hunkpapa and Blackfeet Dakota were also involved (Taylor, 1932, p. 52).

One trader of the period later recalled the alternately hostile and friendly relations between villagers and the Dakota, their most frequent visitors. He was struck by the fact that, despite the constant warfare between the two groups, the Dakota were accustomed to pitch their tents near the village and visit in the most friendly way (Larned in Collins, 1925, pp. 33–34). Yet the following week might find the Dakota attacking again. His own opinion, not shared by most witnesses at the time, was that the Dakota, being mounted, frequently suffered more in such encounters than the villagers, who usually fought on foot.

He asserted that the traders never took part in these engagements, but were accustomed to close the gates of the post, holding themselves in readiness for any eventuality. It was their "fixed policy" never to provoke an attack, though they were resolute in defense if an attack were made. Whatever may have been the policies of the traders, it is certain that they were not above trading in improved firearms and ammunition with whomever they chose and as they saw fit. One witness, not himself a trader, testified that one firm in 1869 traded such articles "in quantities to suit the demands of their customers," and that the best customers were then the "prosperous and haughty" Dakota (Taylor, 1932, p. 47).

It is evident from numerous sources that the villagers were not wholly passive victims, and that they frequently made retaliatory raids. In the late 1850's, a party of about 30 young and daring Hidatsa and Arikara braves made a successful raid for horses and scalps as far away as Fort Pierre Chouteau, 200 miles down river (Boller, 1959, pp. 86–90). This raid was probably but one of many such incidents. An account of a raid in 1862 by a party of 24 villagers against the Dakota of the same area, which was successful in capturing 12 horses, was obtained by Morgan (1959, pp. 155–156) from a Hidatsa who had been a member of the party. Testimony of the traders at Fort Pierre, concerning the danger there of such raids from afar, has also been preserved (Joseph Wandel in DeLand, 1902, pp. 369–370).

An account of a retaliatory expedition was given one agent by Long Hair, a Hidatsa speaker, at a council held at the village in 1857 (U.S. Comm. Ind. Aff., 1858, pp. 138–140, speech of Long Hair, July 1, 1857). This speech, which made no attempt to hide the existence of reprisals or their violent character, contained complaints about the specific killings and thefts of horses carried on by the Dakota against the villagers, despite promises to the contrary. It referred to several instances of retaliation by the villagers upon the Dakota, as well as upon the Arikara, whom the speaker also accused of having offended in the same way. The speaker alluded to a recent raid upon the villagers in which 30 horses were taken by the Santee from the Mississippi River, in retaliation for which a party of villagers had gone out to follow the raiding party and recover the horses. He then described the capture, by young men of the village, of a Dakota who had attempted to steal horses, and their questioning and torture of the captive, including the taking of a scalp-lock, before sending him back to his people.

Although the village peoples were continuously at odds with their neighbors, the various tribes frequently intermarried and ostensible tribal affiliation often masked blood relationships with other people. An example is the case of Four Bears, originally an Assiniboin and adopted as a child by the Hidatsa, among whom he rose to chieftainship (Quaife in Boller, 1959, pp. 58–59 n.). It is possible that, though of alien speech, the Arikara were somewhat more closely related by blood to the Dakota than were the other two groups, who shared Siouan speech with the Dakota. Numerous individuals among the village groups were mixed bloods; an example is Garreau, who is said to have been of Arikara and French ancestry.

It should be noted that representatives of other tribes, even of Dakota divisions, were sometimes actual residents in the community. One such was *E-ten-ah-pen-ah*, or "The face that don't run," an aged Santee, who in the late 1850's lived in a building near Fort Berthold II, together with his Yankton wife, young son, and four or five old women. Long a resident of the village, he was regarded by the villagers as a medicine man, or "doctor," and probably was a specialist in cures (Boller, 1959, p. 91 ff.).

There are numerous contemporary reports of physical conditions among the Three Tribes. Although they mostly refer to earlier years, these accounts are important to the history of the community as a whole. As early as 1830, a trader informed his company that the number of Mandan villages had dropped from 13 to only 2. The causes for this, he noted, were the smallpox epidemics which struck the villages about 30 years previously, and also the prevalence of venereal diseases (Jacob Halsey, March 17, 1830, in DeLand, 1918, p. 104).

Another trader in 1850 stated that, during the 30 years that he had known them, the Three Tribes had probably lost five-sixths of their number (H. Picotte, quoted in Culbertson, 1952, pp. 101–102). He assigned four prime, related reasons for their decrease—

reasons which applied, he believed, to all peoples having fixed villages, such as the Oto, Omaha, and Pawnee. These were (1) their remaining in one place, thus leading to exhaustion of wood for fuel, and forcing them to "winter out," where wood was convenient; (2) their premature return to the villages because of danger from enemies and high water in early spring, thus subjecting themselves to cold and dampness; (3) the fact that many, especially the very young and the old, succumbed to colds and diseases; and (4) their living in earth dwellings, thus exposing themselves to epidemics and to enemies who would attempt to kill them at home or as they worked in their gardens.

Many other adverse factors affected the physical welfare of the villagers, causing illnesses and premature deaths which often reduced the population sharply. Though reliable vital statistics are not available, malnutrition and starvation unquestionably occurred with monotonous frequency, particularly during winter seasons, which were often severe in the region. One sympathetic visitor noted that during 2 or 3 months' time in the spring of 1869 more than 40 persons had died "by actual or partial starvation," in addition to those who had fallen victims in raids (Taylor, 1932, p. 47). Communicable diseases were also a major cause of death and ill health. Venereal diseases were probably never completely absent and on occasion must have raged unchecked. Cholera seems to have been severe in August 1851, when several deaths were attributed to it (Kurz, 1937, p. 97 ff.). Varioloid smallpox, the form of the disease more often referred to, seems always to have dealt harshly with these tribes, as it had done particularly in 1837. This disease is said to have again fallen upon the Arikara and Mandan in 1856, both still near Fort Clark, causing 63 deaths among 800 members of the former tribe, and 17 among 250 of the latter (U.S. Comm. Ind. Aff., 1857, pp. 85–86, report of Vaughan, postscript, Oct. 27, 1856). It was stated, the following year, that the epidemic of 1856 had probably swept off fully one-fourth of the population of the Three Tribes, and this event may have been a contributing factor in causing the Mandan to join the Hidatsa (U.S. Comm. Ind. Aff., 1858, p. 128, report of Redfield, Sept. 9, 1857). A visitor of 1869 regarded cholera and smallpox as the chief causes of the decline in population, surpassing in importance even hostile raids (Taylor, 1932, p. 46).

SOLDIERS AND AGENTS

In the 1860's, this mixed community of Indians and Whites was a base for Federal military units campaigning in Dakota Territory against fugitive remnants of the Santee and other tribes responsible for the outbreak in Minnesota. Upon returning from his Northwestern Indian Campaign in September 1864, Gen. Alfred Sully stationed a company of the 6th Iowa Cavalry, commanded by Capt. Abraham B. Moreland, at Fort Berthold (U.S. War Dept., 1896, ser. 1, vol. 48, pt. 1, pp. 979, 1030). This detachment remained there until April of the following year, when, because of disagreement with the traders, the military moved to log buildings outside the fort (Mattison, 1951, p. 174, citing documents in the National Archives). The exact sequence of events in the use of the post by the military at this period is confusing. While it was officially reported that the troops had moved outside the fort in April 1865, the same report noted that facilities at the post had been provided the military by the representative of the trading company, who had erected offices, quarters, and warehouses for himself outside the post stockade and had occupied them during the stay of the military, which was to last until June 1867 (U.S. Surg. Gen. Off., 1870, pp. 395–396). The exact details of the matter are, however, of slight moment here.

In the spring of 1865, the company of Iowa cavalry was relieved by Company K, 1st U.S. Infantry, made up of former Confederate prisoners, commanded by Capt. B. R. Dimon (Matthews in Larpenteur, 1898, vol. 2, p. 387 n.; Mattison, 1951, p. 174). Other military units also stationed here included Company C, 4th U.S. Volunteer Infantry, from the latter date until June 1867 (Mattison in Canfield, 1953, p. 201 n.). When the new military post of Fort Stevenson (Site 32ML1) was then built, 18 miles downstream, troops were withdrawn from Fort Berthold (G. H. Smith, 1960). Few details of events during the brief military use of the trading post have survived, though bitter complaints from the Indians over the mistreatment they had endured at the hands of both soldiers and agents were to be recorded by a sympathetic

missionary (Smet, 1905, vol. 3, p. 885).

Glimpses of the life of the villagers, the traders, and the military at this period are afforded by the observations of two soldiers. The first soldier was struck by the great quantities of corn being raised by the Indians, whose ripening fields in August of 1864 extended over the bottom lands for miles, nearly as far as the eye could reach (English, 1918, pp. 293–294). By exchanging sugar, coffee, and other spare rations with the villagers, the soldiers were able to enjoy succulent roasting ears. This witness noted that the Indians would not take money in exchange and did not seem to know what it was. He was of the opinion that in their warfare with the Sioux, the villagers generally won out, especially if equally matched. He believed that the villagers did not hesitate to attack the Sioux, even in overpowering numbers and even in the vicinity of their own village, and thought that they "seldom came out second best." He noted further that the soldiers had been warmly welcomed, and that the villagers were loath to have them leave. About the trading posts, his comments were less kindly. On making some purchases there, he found that the prices were very high. Thus, for saleratus, or soda, he had to pay $1 for a package that usually sold for 10 cents. Though he felt that such a price was "outrageous," he invested $4 in this article because it was needed for the soldiers' flapjacks. Learning that his company captain had been forced to pay twice what he had paid, he concluded that he had driven a hard bargain.

The second soldier, a cavalryman like the first, noted that the villagers had the finest ponies he had ever seen. They were, he thought, "regular Oregon ponies—fat and sleek as moles" (Myers, 1936, p. 29), apparently referring to the cayuse (cf. Ewers, 1955, p. 33.). He noted also that the Indians appeared to be "great fellows for sporting and fun," and were accustomed to race their horses during the daytime, "out by our camp," or to play cards with the soldiers.

Nearly a year elapsed following the removal of the troops before representatives of the Office of Indian Affairs, who had previously only visited their charges, first took up residence in the immediate vicinity of the village. An agency was established in the trading post in June 1868, by Mahlon Wilkinson, then agent (U.S. Comm. Ind. Aff., 1868, pp. 192–193). Blacksmith and carpenter shops were built, and a saw and grist mill was put into operation. Successive agents continued to reside here until August 1875, when specially planned buildings (Site 32ML49) were occupied, 1½ miles below the village (U.S. Comm. Ind. Aff., 1875, p. 242). For the intervening years, apart from the generally hostile comments of others on the administration of Indian affairs at the village, few details are known of material changes within it. When new agency buildings were proposed in 1874, the explanation of the need for them was that the original agency was housed in the trading post, whose log buildings were said to be vermin infested and tumbled down. It was located immediately southeast of the village and during prevailing northwest winds agency employees were exposed to offensive odors, dust, and noise. Further details were offered to justify removal of the agency to more pleasant surroundings (U.S. Comm. Ind. Aff., 1874, p. 245).

THE LAST YEARS

After this move, the known history of this community is concerned chiefly with the activities of the Whites in trade, Indian administration, missions, and the like (Mattison, 1951, p. 184 ff.; Shane, 1959). Except for accounts such as those by Morgan and Matthews, which deal only with certain segments of aboriginal culture rather than with the changing character of village culture generally, the history of the native community becomes difficult to trace as it became submerged in, or obscured by, external historical events. Tribal affairs during these years of eclipse have recently been reexamined (Bruner, 1961). But relatively little can now be learned about the political, social, and religious events at the village from ethnographic field research. On the other hand, a review of older agency records, primary sources surviving in the National Archives, offers hope of tracing some of these historical changes.

Numerous travelers visited the community, and some of these left brief accounts of their visits. Among these was the Jesuit Father Pierre-Jean de Smet, who during various trips to the upper Missouri, beginning in 1846, stopped here on several occasions and performed baptisms (Smet, 1905, vol. 2, p. 605 ff.). Father George Belcourt, of the

Oblate Mission at Pembina on the Red River, visited here briefly during the same year, baptizing 12 Mandan and Hidatsa children (Norton, 1931, pp. 154–155). Another member of the Pembina Mission was Father Albert Lacombe, who stopped here in 1851 (Kurz, 1937, pp. 82–83; Kurz gives his name as Father Charles). Missionaries did not live near the village until 1876, when Rev. Charles L. Hall of the American Board of Commissioners for Foreign Missions took up residence in buildings erected for the purpose (Site 32ML50). These comprised a mission house, serving as a dwelling, a church, and a school (Mattison, 1955, pp. 32–33). Four years later, a chapel and schoolroom were added. After the removal of the Indian agency to Elbowoods in the 1890's, the mission was moved to the same place.

Following such earlier travelers as Catlin, Maximilian, and Audubon, the upper Missouri was visited by a number of sportsmen in search of big game. A former British Army captain, John Palliser, was at Fort Berthold in 1848 and later (Palliser, 1857 ed., pp. 143–146, 187–189, 203–206). This tradition in the Northern Plains was to be continued by an Irish sportsman, Sir George Gore, who with a party that included Kit Carson spent part of the winter of 1855–56 here, living in the lodge of Crow's Breast (Heldt, 1876, p. 146; Sears, 1906, p. 349).

Members of exploring parties tracing overland routes for a Pacific Railroad, under the direction of Isaac I. Stevens, governor of the newly established Washington Territory, visited the community briefly in 1853. Among these were Brig. Gen. Rufus Saxton (1855) and Lt. Andrew J. Donelson, Jr. (1855). Lt. Henry E. Maynadier's brief account of his stop here, in August 1860, includes notes on the village (Maynadier in Raynolds, 1868, pp. 147–151).

Scientific visitors also touched here at an early date. Thaddeus A. Culbertson, brother of the prominent trader, Alexander Culbertson, and representing the recently established Smithsonian Institution, was at this place in June 1850 (Culbertson, 1952), and the noted ethnologist, Lewis Henry Morgan, was here in June 1862 (Morgan, 1871 and 1959). In 1865, Dr. Washington Matthews, a U.S. Army surgeon, began a series of studies which were the first systematic efforts to record the culture and language of the Hidatsa (Matthews, 1877, 1888, and 1902). In 1881, on behalf of the new Bureau of Ethnology, investigations, particularly of the sign language and pictographs, were made here by Dr. Walter J. Hoffman, also an Army surgeon, assisting Col. Garrick Mallery (Powell, 1884, pp. xxiii–xxiv; Hoffman, 1882 and 1884). Dr. Hoffman prepared a topographic map of the village, undoubtedly the first of its kind, which is said to have shown earth lodges and more modern dwellings as well as the parts of the village occupied by each of the tribes. Unfortunately, this map seems not to have been forwarded to the Bureau and its whereabouts is unknown.

The visits of several artists are of interest because their paintings and drawings reveal not only physical aspects of the community but also the appearance of its inhabitants. One of the earliest records of the kind is a drawing by Father Nicolas Point, Jesuit missionary, made during a brief visit in 1847. It shows the first Fort Berthold and the Gros Ventres (Hidatsa) village, and also scaffold burials (Point, 1967, p. 249). Four years later, Rudolph Friederich Kurz, a Swiss, while serving as clerk for Kipp at Fort Berthold I, produced many informative drawings and paintings which greatly enhance the vivid impressions of his experiences contained in his personal journal (Kurz, 1937). One watercolor, depicting the artist(?) and his horse standing within a sacred circle of buffalo and human skulls, includes in the background the trading post and village as seen from the opposite side of the Missouri (Bushnell, 1922, pl. 28; Kurz, 1937, pl. 11, lower).

Another artist was the German-born Charles Wimar, who is known to have made several trips by steamboat to the upper Missouri during the late 1850's, probably as guest of the Chouteau firm. His pencil sketch of the first Fort Berthold, reproduced herein (fig. 47), was made in 1858 (Rathbone, 1946). Another artist was Gen. Philippe R. de Trobriand. Some of the numerous specimens of his work during the 1860's, preserved in the museum of the State Historical Society of North Dakota, have been published (Trobriand, 1951). Still other artists who visited here include Granville Stuart (1963) and William de la Montagne Cary (Forrest, 1961).

In accord with provisions of various agreements made between representatives of these peoples and of the Federal Government, the Three Affiliated Tribes, at least since the

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1830's, received payments and annuities. (Two unpublished photographs taken by Morrow about 1870, showing the issue to the Three Tribes of annuities, are among the Morrow stereograph views now in the South Dakota Museum, Vermillion.) Numerous reports of the agents of the Office of Indian Affairs reveal the increasing dependence of the villagers upon means of livelihood beyond their control. These sources also indicate that ineptitude, dishonesty, or irresponsibility on the part of both agents and traders were common (Mattison, 1951, appendix B; Walker, 1953). Nevertheless, efforts had also been officially made throughout these years to reestablish the self-sufficiency of these peoples, especially through attempts to foster subsistence farming similar to that of contemporary white settlers in the region. In accord with this policy, and at the insistence of the Office of Indian Affairs, allotment of reservation lands to heads of families was accomplished by the late 1880's, and the removal of the inhabitants of the village was undertaken (Act of Dec. 14, 1886, article 3, in U.S. Stat., 1891, vol. 26, pp. 1032–1035).

Despite strong opposition from the Three Tribes and further hardships visited upon them, the village was abandoned and a new era of reservation life began. In 1886, the agent recorded that the village, which the previous year had been at "the height of its prosperity," was deserted and rapidly decaying, and would soon be "a thing of the past" (U.S. Comm. Ind. Aff., 1886, p. 63, report of Abram J. Gifford, Aug. [ ], 1886). He stated also that the whole Arikara section had been abandoned, leaving nothing but a few relics as evidence that only a short time before it had been a scene of activity and life, adding that the Mandan were the last to relinquish the hold that "tradition had given them to this place."

A final glimpse of the settlement is afforded by an eyewitness (Curtis, 1889) who had spent several days' time on the reservation with the agent as his guide. He learned that the Indians had left the settlement en masse, beginning in the summer of 1885, and that 2 years later only a few aged and infirm still lingered in "the old nest," around which the tribes gathered each issue day. At the time of his visit, he noted that "few even of the rude log huts which had of late years been introduced were still habitable," and that "of the ancient style of architecture, the curious earth lodges so often described by early explorers of the western wilderness, the last specimens were here upon the point of demolition." Of these disappearing native dwellings, he added: *From forty to sixty feet in diameter, and raising their earth-covered domes to a height of ten or fifteen feet, they bore a curious resemblance to gigantic ant-hills, which the solitary opening in the center of the roof rendered still more striking. Bleaching buffalo skulls and deer antlers crowned the summit, where grotesque bundles of "medicine" and rags flapped their protection over the lodge. Groups of tall medicine poles still bore aloft offerings of corn and herbs to the spirits whose aid was invoked for a plentiful harvest; and upon drying-frames or scaffolds, erected in front of every lodge, grain, berries, and meat from the last "issue" hung exposed to the desiccating powers of the Dakota sun. Climbing to the crest of one of the domes by a ladder formed of a notched log, I found myself perched on the favorite resort of the Indian for rest and relaxation, a vantage-ground for a complete survey of the village. The ancient stockade had disappeared, fallen timbers choked the maze of narrow passages constructed to confuse an invading stranger, and yawning chasms disclosed the former secret depositories of corn and valued possessions. Two years before, the village must have been as dense and compact as a New York tenement. Now only a few withered hags and superannuated bucks, wrapped in their summer blankets of dirty white cloth, glided silently in and out like ghosts of the past, and the laughter of a group of children, playing among the uncovered and empty* cache *holes, alone broke the dreary silence* (Curtis, op. cit., p. 246).

In addition to the evidences of change preserved in writing, there is the information provided by the dwellings and structures and by the artifacts of native and white origin uncovered in excavations in the village area. These material evidences of historic trends within the native culture will now be described, followed by those of the trading establishments near the village. Although the latter are less significant, they nonetheless indicate a way of life as far removed from the present as is the aboriginal culture itself.

THE SITE AND ITS SETTING

Like most of the earth-lodge villages of the upper Missouri Valley, prehistoric as well as historic, Like-a-Fishhook Village and its trading posts were located near the main channel of the river. The site, now inundated by the Garrison Reservoir, lay on the first terrace above the flood plain, along the left or northerly bank, near the meeting point of sec. 25 and sec. 36, T. 147 N., R. 88 W., and sec. 30 and sec. 31, T. 147 N., R. 87 W., 11th guide meridian, in McLean County, North Dakota (figs. 1 and 2). The elevation of the site was approximately 1,750 feet and that of the river channel near the site approximately 1,710 feet above sea level.

The geographic setting of the village as it appeared in 1881, near the end of its existence, was described by Hoffman (1882, p. 397) as follows: *Immediately above and below the village are extensive bottomlands, covered with an indifferent growth of willows and young cottonwoods. The point of land upon which the village is located forms the southern extremity of the second* [i.e., first] *terrace or "bench," which extends back toward the bluffs of the prairie proper for a distance of two miles or more. This terrace is perfectly flat and is covered with a dense growth of flowering vegetation, interspersed with patches of grass. The eastern portion of this plain has been successfully worked by the Indians and agency employees, yielding very good crops of corn, wheat and oats.*

The Missouri River in this part of its course flows in an easterly direction and, following the abandonment of the settlement, the main channel had become separated from the site by a wide sandy flood plain, upon which a heavy growth of cottonwood, ash, and willow had again sprung up. A century ago the main channel described a large curve

Figure 1. Air view of Site 32ML2 (Like-a-Fishhook Village, Fort Berthold I, and Fort Berthold II), during excavation in 1954; looking northwest.

at this point, which carried the stream to the foot of the terrace, affording a landing place for native bull-boats as well as for the steamboats that supplied the trading posts. The earlier appearance of the topography at this place is revealed in drawings made in 1867 (Trobriand, 1951, facing pp. 68 and 100).

The double curve of the former channel of the river gave rise to the native name of the village, Like-a-Fishhook, which was situated near the southwestwardly edge of the terrace, on a peninsula formed by the channel. On April 10, 1805, Lewis and Clark (Thwaites, 1904, vol. 1, p. 293) noted the "remarkable bend" here, calling it the "little bason."

The history of geographic changes here, even after 1845, is far from clear. Dr. Elliott Coues, who on a visit in 1874 had been able to "run his boat snug under the bluff," noted that great sandbars enclosing a wooded island and other "made woods" on the mainland around the bluff had later pushed the main channel of the river 1 mile or more southward. "The geographic vicissitudes of the place," he remarked, "have not been less marked than the ethnographic" (Coues in Larpenteur, 1898, vol. 2, p. 388 n.). Of the remarkable river bend, or little basin, Coues stated that this had "filled up flush," except for a small pond marking the former river channel, adding that what had been the basin was known as Dancing Bear Valley. To confuse the student of geography and ethnohistory, at least two different creeks in this vicinity, both on the same side of the river, had been called Dancing Bear, according to the same witness.

Changes in the vegetative cover of the Missouri Valley during the occupation of the village and its posts, and following abandonment, are also noteworthy. While the settlement was in use, timber in the immediate vicinity appears to have been almost wholly stripped off in order to supply fuel and construction needs of the Indians and their neighbors, and the prairies were doubtless overgrazed as well. Portions of the valley visible in photographs of the 1870's appear to have been completely bare of vegetation at that period (figs. 61–63). Eighty years later it was difficult to obtain a glimpse of the Missouri from any point on the site, so dense was the growth of trees and underbrush on bottom lands separating the river from the terrace. With the natural replacement of the

vegetation, wildlife must also have been replaced to a considerable degree. Deer, for example, were frequently seen in the 1950's despite the fact that they could be taken by Indians on the reservation at any time of the year. Both upland game birds and waterfowl were also abundant.

Changes on the surface of the site after the abandonment seem to have been slight, aside from the removal of materials for building elsewhere or for fuel. Erosion of the edge of the terrace, however, altered the topography somewhat, by cutting back sufficiently to expose, in 1951, the fireplace of one earth lodge in vertical section. Inasmuch as fireplaces were customarily located at the center of the lodges, which were often as much as 60 feet in diameter, some notion may be gained of the extent of bank erosion in this part of the site.

In the excavation of lodges, thin deposits of sterile soil, probably wind deposited, were sometimes seen, and only along certain roadways crossing the site in various directions was there evidence of lowering of the original ground surface. It seems probable that, following abandonment of the site, the elevation of the surface was actually somewhat increased, and its irregularities slightly smoothed, as a result of the presence of good grass cover during most growing seasons, which caught moisture and wind-deposited soil, and thus helped to counteract erosion.

North and east of the village and cemetery the open terrace widened to a flat plain extending for several miles to a range of low hills. East of the site the terrace declined slightly in elevation and in recent years, as noted, was screened from the river.

The terrace upon which the village and the posts stood, a postglacial alluvial deposit, is underlain by the Tongue River member of the Fort Union formation, of Paleocene age, made up of non-marine sand, silt, and clay, and containing lignite (Dingman and Gordon, 1954, pl. 1). Of rocks locally available, a soft gray-green limy shale outcropping nearby was used by the villagers for pipes. Bits of natural clinker or scoria were used for abrading and for sharpening implements, and alluvial gravels provided quartzite, chalcedony, and other materials suitable for flaking or grinding, as well as for use unaltered. Relatively few chunks of sedimentary rocks or hard prairie boulders were found in excavations in any part of the site.

Outcrops of soft rock and lignite along the "arid prairie-terrace" upon which the village and trading posts were located were mentioned by Matthews (1877, p. 3). Few outcrops of rock were visible in the immediate vicinity, until rising waters of the reservoir during the summer of 1954 undercut the edge of the terrace, exposing thin lignite seams. Lignite deposits apparently were not com-

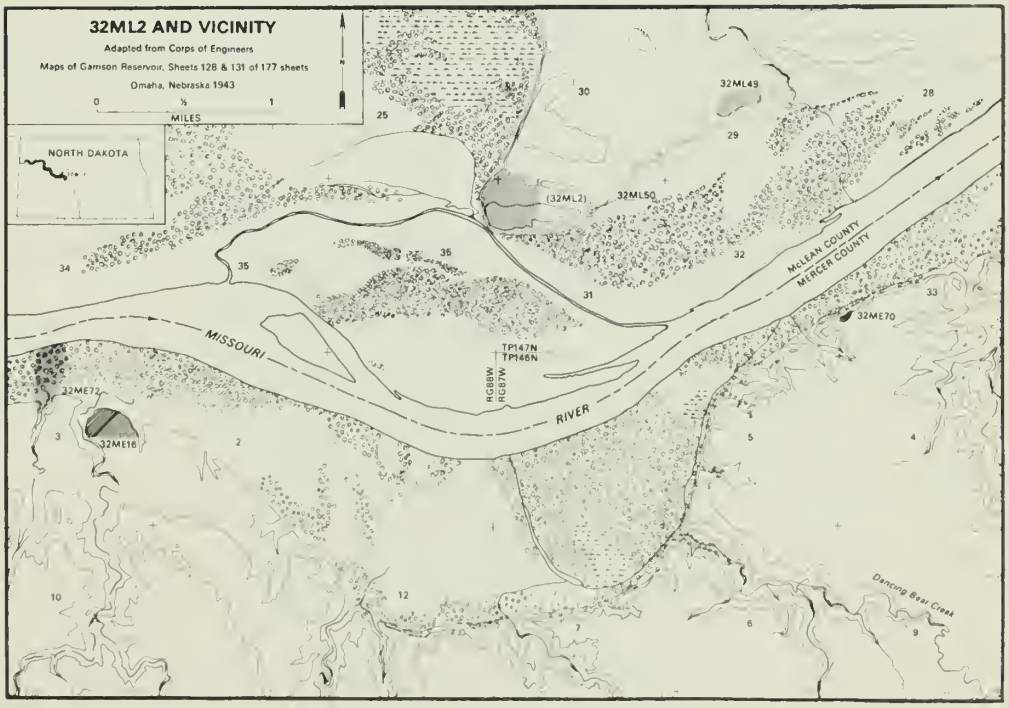


Figure 2. Map of Site 32ML2 and vicinity.

monly used for fuel at the village, although fragments of unburnt lignite and lignite clinkers were found in and near some of the excavated lodges. Though little evidence of the use of lignite was found in the excavation of Fort Berthold II, it is known that it was used there in the 1870's (Van Ostrand, 1943, pp. 84 ff.). Whereas ash, clinkers, or similar waste from coal fires were conspicuously absent, ash and charcoal derived from wood fires were frequently found there and in excavated lodges of the village. It is probable that as long as it was available, wood was preferred by Indians and Whites for fuel. At nearby Fort Stevenson (Site 32ML1), experiments had been made with lignite for heating in the late 1860's, and some skill was said to have been required in order to use it effectively, along with wood, in stoves (Trobriand, 1951, pp. 159, 160).

Although the immediate area of the site of Like-a-Fishhook Village and its posts had never been put under cultivation, probably in part because of the irregularity of the surface resulting from the presence of collapsed lodges or timbered structures and storage pits, native grasses had been largely replaced by European varieties. After the abandonment of the village, the area was used for grazing, particularly by herds of horses. In ravines near the site, native varieties of grasses and shrubs survived to a greater extent. Among the latter, of particular importance in aboriginal culture, were currant, wild rose, juneberry, red haw, chokecherry, wild grape, wild plum, two varieties of cactus, sunflower, and red-osier dogwood. The cactus and *Yucca glauca* found there are evidence of the semiarid climate of the region.

The average annual precipitation at Elbowoods, approximately 20 miles upstream, was 15.45 inches in recent years, though varying over an observation period of 58 years from 27.86 inches in 1889 to 4.94 inches in 1934 (Dingman and Gordon, 1954, p. 9). Eighty-one percent of the annual total in the area falls from April to September. It is to be noted that the gardens of the villagers were customarily located on bottom lands, where abundant subsurface moisture minimized hazards in producing basic crops such as corn, beans, and squashes (Matthews, 1877, p. 11).

Water was obtained by the villagers from the Missouri itself, and present residents of the reservation still prefer water hauled from the river for domestic use. The ready availability of water, live wood for construction and driftwood for fuel, ample game and wild food plants, together with the nearby fertile bottom lands for the growing of staple crops, made the site well suited for village life.

The great variability in the climate of the region, and hence in its productivity, nevertheless suggests that village life required a continuous struggle with the elements. The variability in the weather was sometimes commented on by white visitors. Not only are intense heat and bitter cold mentioned, together with frost, blizzard, rain, and other dramatic Plains phenomena, but the occasional strong winds as well. Thus, on October 11, 1871, a clerk at Fort Berthold II recorded in his diary: *Pleasant morning but a devil of a wind this afternoon much to our disgust. On one of the logs at the end of the row of buildings we inhabit—some one has engraved in plain English "Fort Blow-hard" and we give witness to the fact that it is no misnomer* (Van Ostrand, 1943, p. 86).

Elsewhere in the same diary, on a cold February day, and perhaps recalling some favorite literary passage, the diarist wrote: *The desolate winds from the North whistle through forests of frost-creaking boughs and shout in the air the weird crys of northern bergs and ice resounding oceans* (Van Ostrand, op. cit., p. 103).

COMPOSITION AND SIZE OF THE COMMUNITY

Like-a-Fishhook Village and its trading posts covered on area of approximately 40 acres. This area of continuous occupation by Indians and Whites was roughly circular in plan, the first major post lying immediately upstream, the second downstream, from the oldest section of the village, used from about 1845 by the Hidatsa and the Mandan (fig. 3). The village eventually came to have two parts, the second an extension of the original part northward (superimposed upon the site of the first trading post) and used by the Arikara from late 1862.

Each of the two major parts of the village had an open area used as a ceremonial dance ground, with a ceremonial lodge facing on it. Though from the traditional Hidatsa account of the planning and construction of the older section of the community, previously cited, it is apparent that the concentric arrangement of dwellings of this part was intended to be (or was later thought of as having been) regular and orderly. Visitors observed that, as the community grew, the dwellings were very close to one another and seemed to have been located without any attempt at regularity of position (Matthews, 1877, p. 4; cf. Trobriand, 1951, p. 88). Entrances to the lodges were said to have faced in all directions, and because of the similarity in the appearance of these structures it was difficult for visitors to find their way among them.

Some students have asserted that consistent differences characterized the plans of historic (and probably prehistoric) villages of the sedentary tribes. Typical Hidatsa villages, it has been said, lacked a central open space and orderly arrangement of the lodges, whereas Mandan villages customarily had a large open space and a ceremonial lodge, differing

somewhat from the others but forming a part of a circle of lodges about this open space and facing on a sacred plank enclosure centrally located in the ceremonial area. Perspective drawings of Hidatsa and Mandan villages, made early in the present century by Sitting Rabbit, a young Mandan, in consultation with older Mandan males, seem to provide evidence of such divergent tribal traditions.

On the evidence of the Hidatsa account cited, the original plan of Like-a-Fishhook Village provided for a symmetrical arrangement of lodges about an open space. This account does not, however, specifically refer to a ceremonial lodge or to its location. Matthews (1877, pp. 9–10) stated that there were but two ceremonial areas at the village, belonging respectively to the Mandan and to the Arikara, each with its ceremonial lodge, adding that the Hidatsa had no similar lodge devoted specially to ceremonial use. It is thus possible that the traditional account of the arrangement of the first section of the village, though from Hidatsa informants, was as much Mandan as it was Hidatsa in origin. The presence of the Mandan ceremonial lodge in the community may, however, have obviated the need for a separate structure of the kind for the closely affiliated Hidatsa. Matthews stated further that certain minor Hidatsa rites were performed in ordinary dwellings, in temporary houses, or in the open air, and that the most important Hidatsa ceremony was held in a temporary structure of willows.

The appearance of the entire community as it developed, as well as of certain structures in it, is recorded in photographs taken about 1870 by S. J. Morrow. One group of these views forms a panorama of the major parts of the village. Sketch maps of the original Hidatsa-Mandan settlement obtained by Wilson with the reminiscent account of the village, and a perspective drawing in color by the Hidatsa, Martin Bear's Arm, also made after the abandonment of the village, provide some details of the general appearance of the older portion. This drawing identifies individual dwellings by male heads of families, but their arrangement is too symmetrical to permit precise identification of the excavated lodges. Similar identifications of specific dwellings have more recently been obtained from native informants. A map of the Arikara portion of the village, showing 120 dwellings

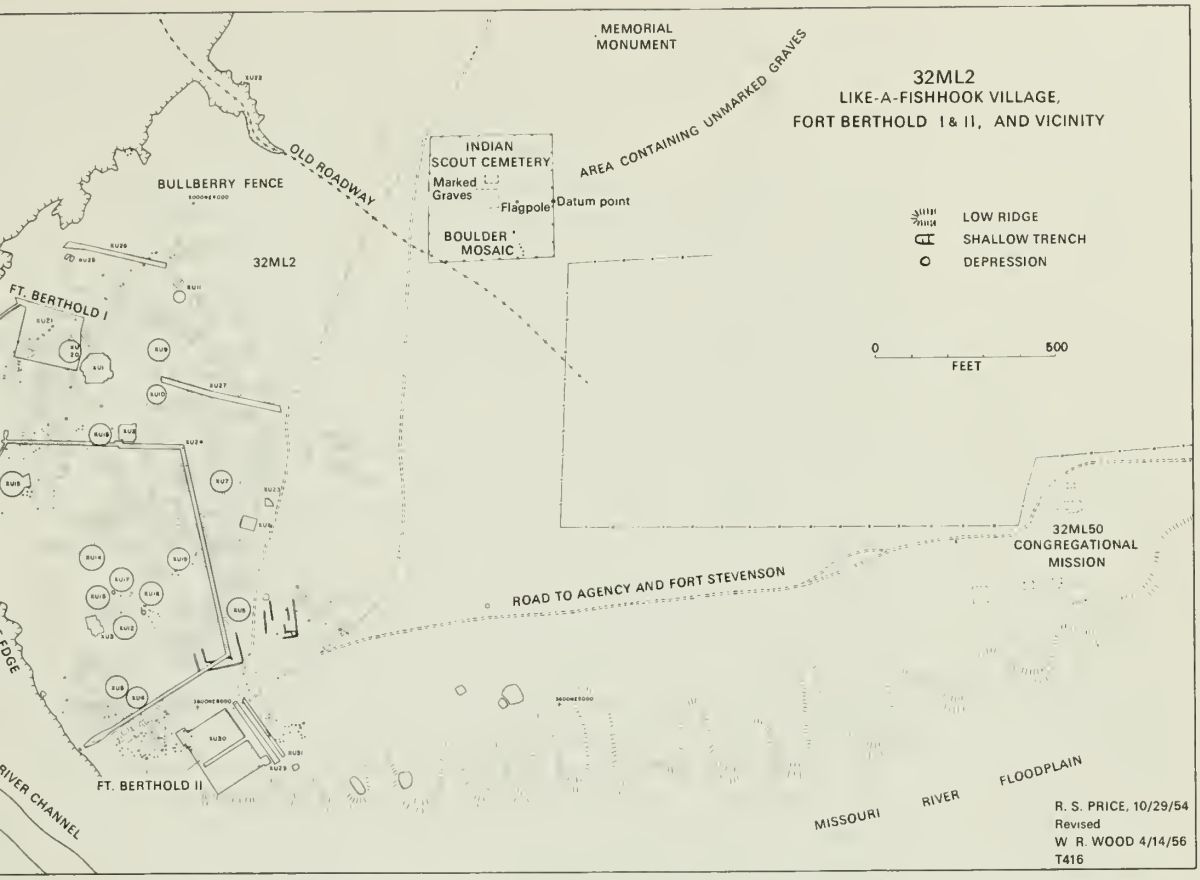
Figure 3. Map of Site 32ML2, showing excavation units and observed features.

sites and the names of individual occupants of each dwelling during the 1880's, was prepared in 1938 by Preston Holder and John W. Ross from data provided by survivors (photocopy in River Basin Surveys' files). Only occasionally can excavated dwellings be correlated with these more recent ethnographic data because of the relatively small number of lodges investigated.

One other photographic view, part of a set of eight said to have been made in 1887 by Abram J. Gifford, then agent (copies of which are in the American Museum of Natural History), records the striking change in native dwellings, from earth lodges to log cabins, that had taken place by that date (information from Bella S. Weitzner, American Museum of Natural History, Dec. 3, 1952; the view mentioned is reproduced in Wilson, 1924, p. 143, there dated 1879).

At the center of the ceremonial ground of the Hidatsa-Mandan section of the village a sacred object once stood. According to an account of 1860, this was an enclosure of slabs, having a height of 10 or 12 feet and a diameter of about 4 feet, known as the "big canoe" (Maynadier in Raynolds, 1868, p. 149). Matthews (1877, pp. 9–10) later described this structure as a small circular palisade, about 6 feet in height and 4 feet in diameter, made of neatly hewn puncheons of wood set close together. He stated that the object had somewhat the appearance of a large barrel, and that it was "emblematic of the ark in which, according to Mandan mythology, the sole survivor of the deluge was saved." This shrine may have been a Mandan contribution, directly comparable to objects mentioned in accounts of previous Mandan settlements elsewhere. As late as the 1950's, Mandan Indians of the Little Missouri community of Nuita, or Charging Eagle, opposite Elbowoods, still maintained such a shrine (Mattison, 1955, p. 43, photograph). Search for the shrine that had stood at Like-a-Fishhook Village was without result.

Directly north of the Arikara section of the village lay the burial ground of that tribe, east of which were located Mandan and Hidatsa burials and the area subsequently occupied in part by the Indian Scout Cemetery. A boulder mosaic was present in this



area. The Arikara burial ground is said to have held only inhumations, whereas that used by the Hidatsa and Mandan originally contained only scaffolds for the exposure of remains, and subsequently interments also (Matthews, 1877, p. 9). East of the Hidatsa-Mandan section was an area said to have been used for sun dances, and east of the Arikara section was an area used for similar purposes. No physical features distinguishing these dance areas survived the abandonment of the community.

The older section of the village, occupied by the Hidatsa and Mandan, was enclosed at an early date by a palisade or stockade, remains of which were traced in excavations (fig. 3; XU24). Evidence of another structure beyond the village area proper, a low earth embankment, was identified by an informant as the remains of a horse corral of bullberry brush that had been built by Strikes Enemy, an Arikara (XU25 and XU26).

Several groups of structures were erected at different times by Whites for trading purposes. The earliest of these, the first Fort Berthold (XU21), used from 1845 until 1862, lay immediately north of the older village area and adjacent to the earlier channel of the river. Its site was taken over by the Arikara in constructing their own settlement. On the southerly side of the village, also convenient to the former river channel downstream, was an area used by other traders at an early date, in opposing the first post. Here another major post, larger than the first, and built in 1858, became in time Fort Berthold II (XU30). This later establishment was used throughout the remainder of the life of the village, though greatly damaged by fire in 1874. Soon after it was built, this post replaced Fort Berthold I as the chief center for trade, and also served for a time as a military base and as an Indian agency.

In addition to these two more important trading posts, which were investigated by excavation, certain lesser posts and trading houses existed near the village. These minor structures appear to have been headquarters for various persons and small groups operating as private traders following the withdrawal from the field of the Chouteau firm, probably about 1870. The scanty details of the business history of these various ventures are confusing and sometimes contradictory, and no attempt was made to trace their individual histories or to investigate the remains of

structures attributable to them.

Estimates of the population of the Three Tribes at various periods have been given in several places, but it is difficult to determine their accuracy or to reconcile them. In 1850, it was reported that the Hidatsa at Fort Berthold had 85 lodges and 700 persons; the Mandan, residing 5 miles above Fort Clark, were said to have 30 lodges and 150 persons; and the Arikara, also at Fort Clark, 200 lodges and 1,500 persons (Culbertson, 1952, p. 137). Five years later, when the Mandan and the Arikara were still residing at or near Fort Clark, the numbers of the separate tribes were again estimated by a visiting agent. The Hidatsa counted 40 lodges, averaging 19 persons each, making a total of 760 persons; the Mandan had 21 lodges, with 12 persons each, totaling 252 persons; and the Arikara had 60 lodges, with 14 persons to a lodge, making a total of 840 persons (U.S. Comm. Ind. Aff., 1856, p. 73, report of Vaughan, Sept. 12, 1855). The estimates appear to have been made with some care, and they suggest that there was some variation, at least at that particular time, in the size of lodges or lodge groups, tribe by tribe.

In 1862, the number of persons in each of these groups was again officially reported as follows: Arikara, about 1,000; Hidatsa and Mandan, 1,120 (U.S. Comm. Ind. Aff., 1863, p. 193; report of Latta, Aug. 27, 1862). When this report was rendered, the latter two tribes were residing together at Like-a-Fishhook Village, while the Arikara were building opposite them, at Star Village. Four years later, when all three groups were residing together, they were reported to number 1,500, 400, and 400 persons, respectively (U.S. Comm. Ind. Aff., 1867, p. 175, report of Northwestern Treaty Commissioners, Apr. 25, 1866). Still later, in 1871, the respective figures were reported as 1,650, 600, and 450, a total of 2,700 (U.S. Comm. Ind. Aff., 1872, p. 520, report of John E. Tappan, Sept. 10, 1871, cited by Matthews, 1877, p. 17).

Pointing to the great variation in these estimates, Matthews offered the opinion that the estimate of 1862 approached the truth most closely, in view of the results of a careful tabulation of separate dwellings at the village itemizing both earth lodges and log cabins, which was prepared in the autumn of 1872 by Dr. Charles E. McChesney, then agency physician. This record showed that 71 dwellings were occupied by the Arikara and 104 dwellings were inhabited by the Hidatsa and Mandan (Matthews, 1877, pp. 4, 17). In August of 1860, Maynadier (in Raynolds, 1868, p. 147) estimated the number of lodges in the village to be 200 or 300. But this estimate is clearly excessive.

Matthews believed that during the decade preceding 1877 the "proper population" of the village had never been greater than 2,500 and that it was much less in that year. In evaluating the estimates, Matthews alluded to the difficulties encountered by those who had attempted such enumerations, particularly a resistance on the part of the villagers to being counted and the frequent absence of residents of the town, such as the enlisted scouts of the Army and their families and of certain Hidatsa who had recently departed "to live with the Crows." These absentees constituted a large proportion of the village (Matthews, 1877, pp. 16–17).

Hayden, who had consulted well-informed traders and whose data refer to a period during the 1850's, prior to the consolidation of the Mandan with the Hidatsa and before the removal to their settlement of the Arikara, stated that the village of the Hidatsa was composed of about 80 huts which were "tolerably well filled with occupants" (Hayden, 1862, p. 420). As has been seen, by the year 1862 the majority of the Mandan were residing at this place with the Hidatsa. Morgan, who briefly visited the village of these two peoples during the summer of 1862, as he did that of the Arikara opposite it, noted that the Mandan had moved from their "small summer village" 2 miles above Fort Clark, that they numbered about 200, and that they still preserved their "nationality and separate government" (Morgan, 1871, p. 28).

In 1862, it was reported that among the earth lodges of the Hidatsa and Mandan, the

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Figure 4. The site of the ceremonial lodge in the Hidatsa-Mandan section was identified by local informants in 1952, and it was then excavated (see House 13, below). The appearance of the lodge during its use was recorded in this photograph by Morrow, about 1870. The picture shows details such as poles with objects of ceremonial or religious significance attached. Archeological evidence indicates that this lodge was similar to those used solely as dwellings.

principal dwelling type of the village at the time, there was "now and then a log cabin, well built, with fireplaces and chimneys, after the western style" (U.S. Comm. Ind. Aff., 1863, p. 194, report of Latta, Aug. 27, 1862; cf. Morgan, 1959, p. 196). McChesney's tabulation of 1872, preserved by Matthews (1877, p. 4 n.), provides some measure of the extent of culture change at the village by that year, as reflected in the relative proportion of earth lodges still in use, but being supplemented or replaced by log cabins. For the Arikara, he counted 43 lodges, or about 60 percent of the 71 dwellings, whereas for the Hidatsa and Mandan he counted only 35 lodges, or about 33 percent of the 104 dwellings. He also noted that he had been unable to count the dwellings of the latter two tribes separately, and that the total number of dwellings counted was, if anything, short of the actual total. Matthews added that some five or six houses occupied by white men who had Indian families were not included in McChesney's tabulation. The recorded figures suggest that the Arikara at the time may have been somewhat slower than the other two tribes to adopt the new style of log dwelling, which was eventually to replace the earth lodge among all three.

According to Hoffman (1886, p. 294), the village in 1881 contained 134 lodges. He made no mention of any other dwellings in use, although log structures would undoubtedly have been added, following the tabulation of 1872, very probably at a faster rate than earth lodges. Hoffman also stated that in the year 1881 the "eastern half" of the village was occupied solely by the Arikara, numbering about 750, while three-quarters of the other half was occupied by the Hidatsa, and the remaining part by the Mandan. The population of the entire village in 1881 was estimated by him to be about 1,500 persons. Hoffman omitted separate population figures for the Hidatsa and the Mandan, but according to his estimate the former would then have been about 562 and the latter about 187 persons.

Even apart from the Arikara increment in late 1862, Like-a-Fishhook Village probably increased in population during its existence. Factors favoring population growth were doubtless balanced, and sometimes overbalanced, by adverse ones. But the some-

Figure 5. In the Arikara section of the village, the ceremonial lodge (House 1, below) was marked by a cedar tree planted at its entrance—a sacred or ceremonial symbol comparable to the shrine in the other section. It was noted in 1867 that the tree was dead and that it may have died before taking root because of careless planting (Trobriand, 1951, p. 93). This photograph of the ceremonial lodge, taken by Morrow about 1870, shows the tree, then either flourishing or newly planted.

what improved relationships between villagers and other native tribes, particularly after the 1860's, the availability through the traders of supplies, weapons, and the like, and through the agents of rations in time of extremity, the efforts of certain Whites to improve the health and welfare of the community, and the abundance of natural resources of the region during much of the period of occupation, must all have operated to favor its numerical growth. The village persisted over a remarkable length of time considering its size and composition, and since comparable villages elsewhere, in historic and probably in prehistoric times, tended to quickly exhaust the natural resources of their immediate neighborhoods.

No detailed plan of the entire community is known, but certain parts of it, as noted elsewhere, were recorded at various times, in differing detail, and in various media. One small sketch map of the general vicinity of the village and the trading posts, prepared during the occupation of the community, may also be mentioned. It is entitled "Improved Plot of Fort Berthold Agency, indicating proposed changes and site of School House," and is dated March 17, 1877 (original in the National Archives). The sketch shows portions of the river terrace, extending from the village eastward as far as the then new agency buildings (Site 32ML49), and parts of the adjacent bottom land subsequently altered by the Missouri River as its course changed. Though the map is on too small a scale to provide specific detail of the village and the posts, it is of interest in depicting irregular areas of the bottom land used by the villagers for garden plots, more regular cultivated areas, and other features then being officially introduced for the purpose of altering former patterns of residence and subsistence.

Although archeological investigations were carried on during several seasons in various parts of Site 32ML2, no evidence was seen of prehistoric occupation at this place, or of any historic occupation earlier than about 1845. Test excavations made in the village and trading post areas occasionally reached well below levels pertaining to the historic occupation beginning about 1845, but these tests were negative. The allusions to the place name "Dancing Bear," which seem to refer to the immediate area and perhaps to the terrace on which the village was built, suggest that the site had had a ceremonial significance long before 1845. But it was not possible, under the emergency conditions, to undertake an extended search for evidence of occupation preceding the full historic period.

EXCAVATION METHODS

Field methods employed in investigating the several parts of Site 32ML2 differed with the nature of the remains and the circumstances at the time of excavation. Dwellings in the village area were uncovered entirely by hand labor. The first three lodges were opened according to a grid of 5-foot squares. Such small excavation units were later discontinued and house depressions were divided into quadrants. Each quadrant was dug by horizontal stripping, and vertical profiles were left temporarily in narrow balks. The palisade that had enclosed the older part of the village was first observed and partially exposed in 1952; it was further explored by hand-stripping in 1954. Thereafter, a road patrol was used for exposing the entire course of the palisade, and this was followed by hand excavation.

Remains of Fort Berthold I were first exposed in a section of its stockade alinement in 1952, during the excavation of a lodge (House 20, below) in the Arikara section of the village. Two years later, the whole area occupied by this post was stripped by machinery, and structural details were then explored by hand labor. Beginning with the previously exposed remains of the stockade, in a section near its southeasterly corner, the entire alinement of the enclosure was bladed, earth being removed in thin layers and carried well beyond it to the east. The north alinement and the northeast corner having been located, earth was thereafter moved to the west by successive cuts of the machine across the site and beyond the westerly stockade alinement.

The area was relatively free of masonry, large rocks, or other heavy objects, and the blading quickly exposed the post remains in a relatively flat and level plane. After this establishment had been destroyed by fire, its site

was used for earth lodges and related minor structures—an unusual instance of native occupation succeeding white occupation. Mechanical stripping of the site removed much of this evidence of later expansion of the village without proper study, but the stripping was deemed justified in view of the fact that though much was now known concerning the village and its dwellings, little was known of the appearance of this post. Indeed, its exact location had been forgotten. The mechanical work offered hope of obtaining specific information expeditiously, on the eve of terminating all archeological work at Site 32ML2.

At the site of Fort Berthold II, most of the excavation was performed in 1952 by hand labor. Following the topographic survey of the area, begun that year and extended to include all of Site 32ML2 not fully recorded previously, initial excavations at this second of the two major trading sites were made according to a grid of 5-foot squares extending northward from the terrace edge. The work exposed remaining sections of the southeasterly alinement of the stockade of this post. Larger sections of the enclosed area were then stripped by hand. These sections were oriented with the stockade alinement rather than with the initial grid.

When the complete circuit of the stockade of Fort Berthold II had been exposed, in broad shallow trenches paralleling the stockade remains, sections of the interior were stripped in large blocks, and the work progressed toward a midline running approximately northeast-southwest across the entire site of the post. Excavated earth was first moved by hand beyond the enclosure. Later, it was moved toward the midline, from which it was finally removed by machinery beyond the southwest alinement of the stockade. Two narrow balks of earth, temporarily left for reference, were oriented with the original excavation grid and extended northward nearly across the area of the original enclosure.

Several smaller excavation units at Site 32ML2 were opened by hand, as in the case of a human burial (XU22), or by machine work, as at sections of an outlying feature of the village, previously explored by hand, which was remembered as the remains of a corral (XU25 and XU26).

In almost all parts of this site, excavations revealed the incomplete preservation of evidence of its material past that might have been expected in view of the intensive use of the site. Inventories at contemporary posts elsewhere, covering trade goods on hand, staple foods, livestock, and furnishings and equipment in use, list countless articles and commodities which were not found here yet had unquestionably been available at one time or another. By contrast, many other aspects of life at the village and its posts, not recorded at the time so far as is known, are now illustrated in concrete form as a result of the archeological excavations.

LIKE-A-FISHHOOK VILLAGE

DWELLINGS

Two kinds of dwellings are known to have been used at Like-a-Fishhook Village. These were the earth lodge, of native origin, and the log cabin, undoubtedly modeled on those built by Whites and familiar to the villagers even before 1845. As time passed, log dwellings replaced earth-and-timber lodges, and after the abandonment of the village only a few lodges were ever built elsewhere.

Earth lodges excavated in the older Hidatsa-Mandan section of the village (approximately the area enclosed by the village palisade, indicated in fig. 3) conformed to types known in the Plains. The floor plan ordinarily showed four primary center posts arranged in a square about a central fireplace, an inner ring of 12 to 15 secondary supporting posts, and an outer ring of "leaner" posts. Plans of lodges excavated did not permit further classification based on the number of posts of the primary and secondary rings of supports. With respect to the exterior appearance of these earth-covered dwellings while in use, it is known that both flattened and conical shapes existed in this part of the village.

Lodges excavated in the Arikara section were of a somewhat different plan. The center posts were set farther from the center of the lodge than was the case with dwellings of the older part of the village, and the secondary posts were less regularly placed, possibly because at the time this settlement was built it had become difficult to obtain straight timbers near the village.

Entrances to lodges of the Hidatsa-Mandan section of the village are said to have faced the ceremonial ground of that section, except for those built at a distance from it, which are said to have faced the river. The

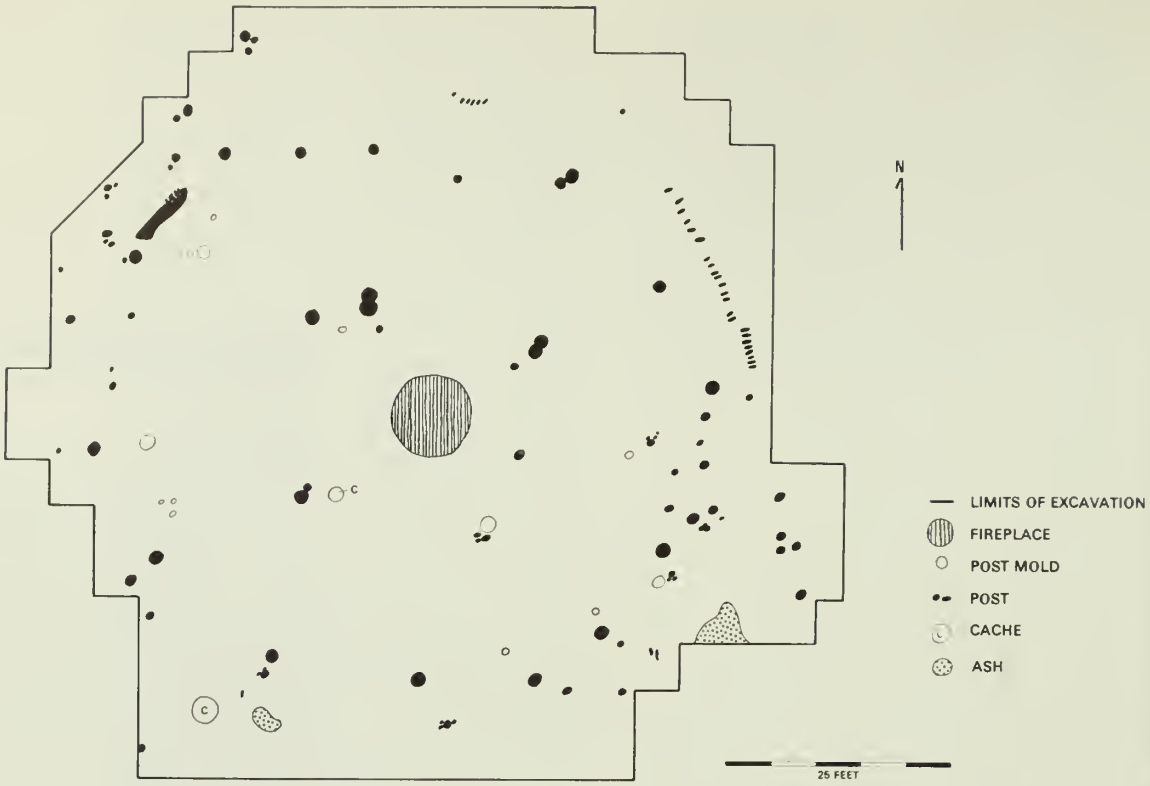

Figure 6. House 1 (XU1). Although no large storage pit or cache was found inside the lodge, one small pit, 1.25 feet deep, with a mouth diameter of 0.5 foot and a base diameter of 1.1 feet, was situated near the fireplace. In the lower part of the pit lay a fragment of red or purple cloth, folded several times. Inasmuch as the lodge was ceremonial in character, the cloth may have had a religious significance.

entrances of the Arikara lodges, on the other hand, are said to have faced almost invariably upon their own ceremonial lodge.

Only eight of the 20 houses excavated were found to preserve evidence of covered entrance passages, and they were conventional in design. In three instances (Houses 5, 16, and 17, in the older section), puncheons had been employed in the entrances. In five other cases (Houses 4, 7, 8, 15, and 20, all but the last of which were also in the older section), round posts had been used.

Two of the excavated lodges—House 1 (Arikara) and House 13 (Hidatsa-Mandan)—are of special interest because of their use for ceremonial purposes. The ethnic affiliation of the individual dwellings is believed to have been as follows: *Arikara:* Houses 1, 2, 9–11, 18, and 20 (total: 7); and *Hidatsa-Mandan:* Houses, 3–8, 12–17, and 19 (total: 13). Houses 3 and 6 may have been log cabins. Such structures in the village were said to have resembled the log cabins of Whites, except that they frequently lacked windows.

Observations made during the excavation of individual houses in the village are summarized below. Of the 20 house-excavation units, the first three were dug in 1950 under the supervision of Kleinsasser, and the re-

mainder were excavated in 1951 and 1952 under the supervision of Howard.

HOUSE 1 (XU1)

This structure, the ceremonial lodge of the Arikara, lay at the approximate center of the Arikara section of the village, and it is known to have opened southeastward upon their ceremonial area. Marked by a circular depression approximately 80 feet in diameter and a ring of earth rising as much as 1.5 feet above the surrounding surface, it was considerably larger and more prominent than any other feature in the village area.

Excavation showed that this lodge had originally been built of large posts and had subsequently been rebuilt. At its approximate center was a fireplace, a basin-shaped pit 9.0 feet in maximum diameter, containing a layer of ash 1.75 feet deep at the center. The blade of a metal knife and other metal fragments were obtained from this ash deposit.

The overburden of soil varied from less than 0.1 foot at the center of the lodge to 1.75 feet near its outer margin. The few objects lying directly upon the floor consisted of a catlinite pipe, a finger ring, a cartridge, a lead bullet, a wooden stopper, a fragment of mirror, flakes of worked flint, blue and white glass beads, the teeth of a comb, a fragment of knife blade, two iron fishhooks, iron staples and other bits of metal, and a number of fragments of lignite.

Above the floor level, the fill that had accumulated after the abandonment of the structure—lighter colored, less compact soil—yielded more abundant cultural remains, including fragments of metal, glass, and other objects of white origin, and also items of native origin.

Outside the lodge was a single bell-shaped cache. It was first observed at the original ground level, 1.0 foot below the surface at this point, being clearly marked by the contrast between the light buff-colored soil within it and the darker soil surrounding it. The neck of the cache, 1.75 feet in diameter, contained a concentration of refuse bone, which extended to a depth of 0.9 foot. The pit was 3.9 feet deep and 3.6 feet in maximum diameter. Its contents included ash and charcoal, small broken rocks, several varieties of seeds, glass beads, fragments of leather strap, a comb having red ochre lodged in the teeth, a catlinite pipe, iron projectile points, bits of glazed earthenware and iron, and other objects.

This ceremonial lodge had been photographed by Morrow during its use (fig. 5). This view shows the sacred cedar that had stood near its entrance. A photograph taken by Rev. Charles L. Hall after the lodge had been abandoned but before its timbers had suffered extensive decay and a view of the interior of the lodge were published by Matthews (1902, pl. III, pp. 3–4). According to Matthews, this ceremonial lodge was a "superior specimen" of this type.

HOUSE 2 (XU2)

This house, identified by a well-informed Arikara, Byron Wilde, as the lodge of Bullhead, also an Arikara, was less clearly defined by surface indications, but numerous deep depressions were visible, which on excavation proved to be partially refilled caches. The house depression measured about 45 feet in diameter, with the outer margin sloping toward the center.

The floor of the dwelling lay 0.6 foot below the original surface, but nothing was seen to suggest that the floor had been excavated below the level of the original surface. The post-mold pattern was irregular, conforming only approximately to the outer margin of the house depression. The excavated house measured approximately 40 feet in diameter.

Two ash pits were also found in the floor. One was cylindrical, 1.3 feet in diameter and 0.75 foot deep, and the other was basin-shaped, 3.7 feet in diameter and 1.25 feet deep. The ash contained plum pits, squash seeds, bits of iron, and fragments of burlap.

Four bell-shaped storage caches, filled with refuse, were excavated in XU2. Three of these were inside the house. They measured, respectively, 2.1 feet, 2.3 feet, and 2.8 feet in mouth diameter; 2.5 feet, 3.25 feet, and 2.1 feet in depth; and 4.2 feet, 4.5 feet, and 3.6 feet in maximum diameter. One of these caches yielded ash, charcoal, bison bone, squash seeds, beans, coffee beans, iron projectile points, glass beads, and bits of iron, glass, and glazed earthenware. The upper part of the fill of another contained 161 fire-fractured stones (largely sedimentary, with a few of granite), which suggested that the pit may have been used as a sweat lodge. The upper fill also produced a section of brass pipe and two fragments of cast-iron stove. The lower 1 foot of fill yielded a table knife, a few bits of glass and earthenware, nails, and tin containers. The other cache inside the dwelling

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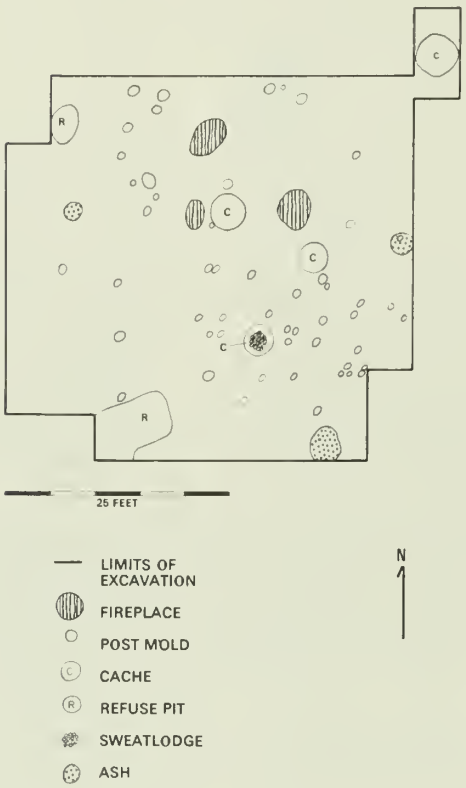
Figure 7. House 2 (XU2). The house lacked a central fireplace, the four central supporting posts, and an entryway, and thus departed from the plan of other earth lodges. It had three shallow, basin-shaped hearths filled with ash. These unlined, fire-reddened pits measured 2.75 feet, 2.5 feet, and 3.25 feet in diameter, and approximately 0.25, 0.75, and 0.2 foot in depth, respectively.



contained fewer specimens—small stones, a table fork, a military button, a cartridge, pieces of metal, and refuse bones.

The fourth cache, outside the house, was cylindrical, measuring 5.4 feet in diameter and 2.6 feet deep. Its unstratified contents consisted of squash seeds, various refuse bones, bison horn, glass bottles, and three labeled, metal food-containers.

Two refuse pits outside the house were also excavated. One of these, on the northwest, was 5.0 feet in maximum length, 3.6 feet in breadth, and 1.75 feet in depth. It yielded ash, bits of bark and wood, plum pits, squash seeds, two charred corncobs, a steel ax head, cartridges, parts of spoons, a knife handle, the sole of a leather shoe and other pieces of leather, buckles, metal buttons, and glass beads. The second refuse pit, irregular in shape, situated at the southwest edge of the house, measured 8.25 feet in maximum length, 6.8 feet in breadth, and 2.2 feet in depth. It contained artifacts similar to those found in the other pit, and also a full-grooved stone maul.

HOUSE 3 (XU3)

This structure, in the Hidatsa-Mandan section of the village, was marked by low earthen embankments outlining an area measuring approximately 30 by 50 feet.

Ten caches were excavated in XU3. The cache just mentioned was cylindrical, 5.9 feet in diameter and 4.25 in depth, and penetrated undisturbed gravel. Its contents, pertaining to a relatively late period, included a military canteen, part of a frying pan, the iron cover for a kettle, a tin pail and plate, a measuring can and other metal containers, a copper wash boiler, the zinc surface of a washboard, the blade of a spade, a steel ax head, iron rods, a brass sleigh bell, six small glass bottles, and a steel file. The last, perforated at the base and curved back at the tip, may have served as a door bolt.

The only object of native manufacture found was the cantle of a saddle frame made of elk antler.

A second cache was straight-sided and oval in plan, measuring 3.25 by 4.0 feet at the mouth and having a depth of 2.4 feet. The pit contained a small quantity of ash mixed with light-brown soil containing horse dung.

The other caches afforded further information. A cylindrical cache, 3.1 feet in diameter and 2.2 feet in depth, produced three

Figure 8. House 3 (XU3). Excavation revealed a maze of post molds lacking recognizable arrangement. A central fireplace and central supporting posts were also lacking. It is possible that the structure was a log cabin rather than an earth lodge. Though no chimney was found, one of the caches contained parts of a stove. This cache adjoined the single fireplace, an elliptical, basin-shaped depression measuring 3.6 feet in maximum length, 2.5 feet in breadth, and 0.3 foot in depth, which was filled with ash.

native potsherds, several rocks, bark, and bison bone. A bell-shaped pit, with a neck measuring 0.5 by 0.7 foot at the mouth and 1.75 feet in height, filled with ash, had a total depth of 2.7 feet and a maximum diameter of 2.3 feet at the base. Yielding 35 stones, some as large as 0.5 foot in diameter, bits of bark, refuse bone, and a clay-pipe fragment, the pit was probably used as a sweat lodge. Nearby was another cache, with an opening 0.5 by 0.8 foot. The neck was 1.25 feet in height. The total depth was 2.6 feet and the maximum diameter was 1.1 feet at the base. The contents of this pit included ash, charcoal, stones, and refuse bone.

Another bell-shaped cache had a mouth diameter of 3.3 feet and a neck 1.1 feet in height. The total depth was 3.3 feet and the maximum diameter was 4.8 feet. Its contents consisted of only a few bones and some dark brown material, probably horse dung. A post had intruded into the pit.

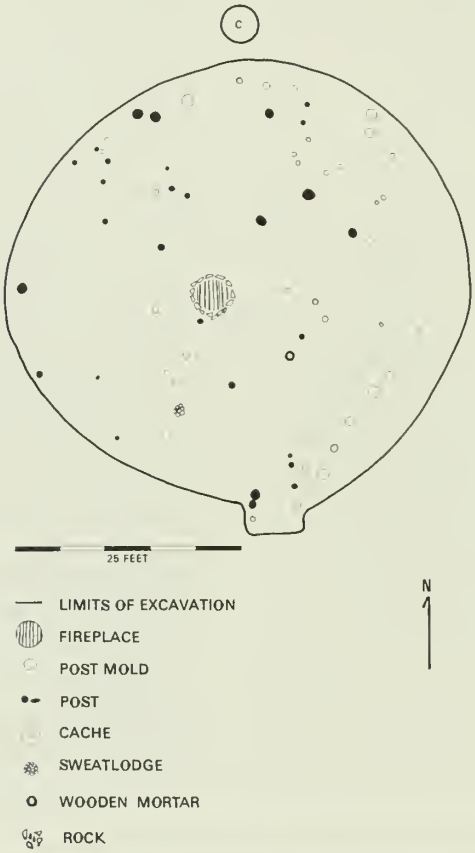
Another cache had an opening 4.7 feet by 3.8 feet and a neck 0.7 foot in height. Below the neck, the pit flared to maximum dimensions of 4.9 feet by 4.7 feet. The contents of this pit were also limited: a smooth stone, a fragment of cut antler tine, glass beads, and an iron blade. Just below the neck was a layer of willow sticks.

Still another cache, also bell-shaped, had a mouth with a diameter of 2.1 feet and a neck 0.3 foot in height. The pit had a total depth of 4.1 feet and flared to a maximum diameter of 5.0 feet at the bottom. Its contents were limited to fragments of wood, refuse bone, and a clam shell.

Lastly, a smaller cache, with a mouth diameter of 0.8 foot, a maximum diameter of 1.2 feet, and a depth of 0.9 foot, contained only ash and charred corncobs.

Several groups of fire-fractured stones, interpreted as the remains of sweat lodges, were also uncovered in XU3. Three of these lay in depressions in the floor of House 3. One of them, made up of 14 stones lying in a basin-shaped depression, 1.8 feet in diameter and 0.4 foot in depth, was lined with flat rocks—the only such example seen. The second, consisting of 83 small stones mingled with ash and charcoal, occurred in a cylindrical pit 1.9 feet in diameter and 0.7 foot in depth. The third group, composed of 25 stones, covered an area 1.5 feet in diameter. Two other groups—one composed of 62 stones in a cylindrical pit hav-

Figure 9. House 4 (XU4). The center posts did not form a true rectangle, perhaps because of a lack of adequate timbers near the village at the time the lodge was built. The shortage of wood during the later years of occupation of the village had become acute, and in this instance the builders presumably used one crooked center post, the butt of which, found on excavation, must have been considerably out of line with the top.



ing a diameter of 1.5 feet and a depth of 0.7 foot, and the other consisting of 17 stones covering an area 2.1 feet by 1.1 feet—lay outside the house.

One basin-shaped refuse pit was excavated in XU3. Measuring 4.5 feet in diameter and 0.9 foot deep, it contained stones and ash, fragments of native pottery, abundant refuse bone, a snail shell, bits of glazed earthenware, glass beads, several lead bullets, and some cartridge cases.

HOUSE 4 (XU4)

This lodge was also located in the Hidatsa-Mandan section of the village. It had four center posts, a secondary ring of supporting posts, and a covered entranceway. No outer ring of leaner posts could be located, but their former presence was indicated by a poorly defined ring of loose earth and decayed wood, approximately 2.0 feet beyond the secondary ring of posts. The maximum diameter of the lodge was approximately 56 feet.

Figure 10. House 4 (XU4). At the left of the fireplace, as the lodge was entered, was a small pit, the remains of a sweat lodge, 0.7 foot in diameter and 0.5 foot in depth, containing 35 small stones that had been subjected to heat. There were no post molds beyond the pit, such as would have marked the use of a frame for its cover, and individuals using the sweat bath must have merely covered themselves with robes.

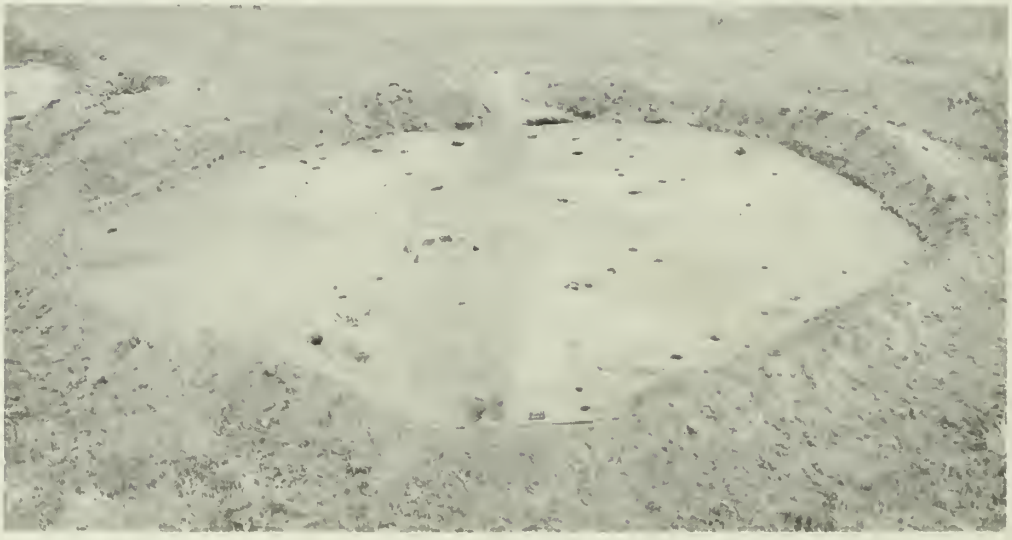
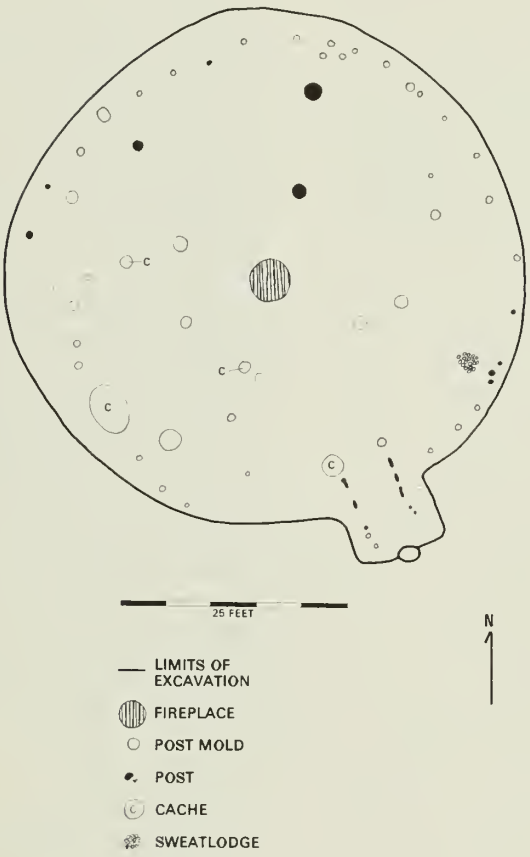


Figure 11. House 5 (XU5). The entrance opened slightly east of south, or directly on the river rather than on the ceremonial area. The lodge was probably oriented in this fashion so that the entry would face away from prevailing northwesterly winds.



The floor, slightly saucer-shaped, was readily distinguishable by its texture and color, and by the presence of debris above it and embedded in it. Lying at an average depth of 0.8 foot below the surface, the floor was well packed near the center but less so toward the outer edges. It was approximately 0.25 foot thick.

The entranceway, opening slightly east of south, overlooked the river, but the posts marking the entry were too few to indicate its construction. Directly inward from the entranceway, and centrally located, was the fireplace, which extended to a depth of 0.7 foot below the floor level and had a diameter of approximately 5.0 feet. Lined with flat pieces of shale and with pieces of a cast-iron stove set on edge, the fireplace contained a deposit of ash, 0.4 foot deep and compacted at the bottom.

To the right of the door, near the southeast center post, was a hollow section of wood, probably the remains of a corn mortar. Measuring 0.8 foot in diameter, it was set into the floor to a depth of approximately 1.5 feet. The cavity in the wood had a diameter of 0.7 foot, and its sides were well polished as a result of use.

No caches were found in the interior of this lodge, but one bell-shaped cache lay 2.0 feet outside it, to the north. Measuring 5.0 feet deep, 5.5 feet in diameter at the mouth, and 6.5 feet in diameter at the bottom, this pit contained an iron pail, an enamel teakettle, and refuse bone.

HOUSE 5 (XU5)

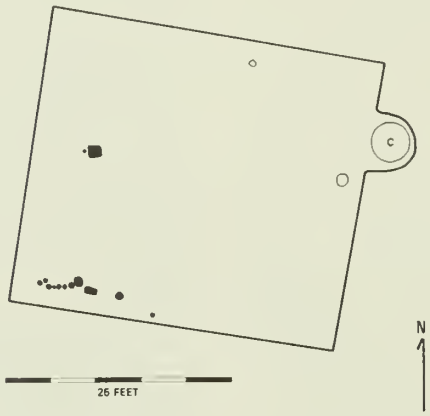
This lodge, in the Hidatsa-Mandan section of the village, had a central fireplace, four well-spaced center posts, a regular ring of secondary posts, and a well-defined entrance marked by puncheons.

The floor, varying from 0.7 to 0.8 foot below the surface, averaged 0.3 foot in thickness. This fact sugggests that House 5 was occupied for a slightly longer time than was House 4. The fireplace here, unlike the one in House 4, was unlined, being merely a saucer-like depression, 5.0 feet in diameter and 0.75 foot deep at the center, which sloped up to meet the floor. It contained a deposit of fine ash averaging 0.4 foot in depth.

A sweat lodge similar to the one found in House 4 lay in the southeast quadrant of the lodge, near its margin. It was 0.5 foot in

Figure 12. House 6 (XU6). Excavation revealed a rather well-defined, rectangular structure, 35 feet long by 30 feet wide, probably a log cabin.

Figure 13. House 7 (XU7). No large caches were found inside or outside the dwelling but several small pits and irregularities had been filled with earth and occupational refuse.



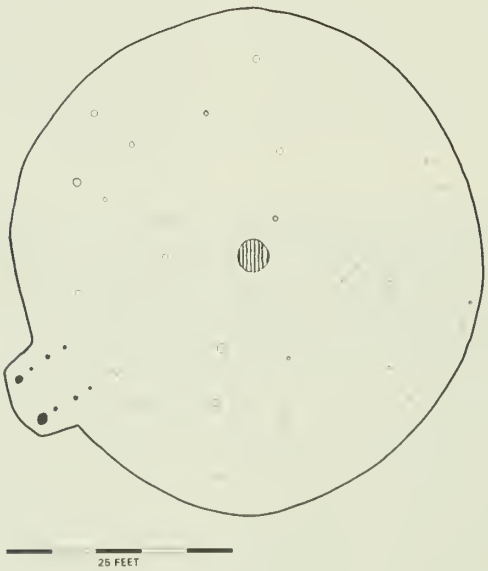
HOUSE 6

— LIMITS OF EXCAVATION

○ POST MOLD

●▬ POST

Ⓒ CACHE



HOUSE 7

— LIMITS OF EXCAVATION

▨ FIREPLACE

○ POST MOLD

●▬ POST

diameter and depth, and it contained 20 stones.

There were several caches and smaller pits in the floor. Since their openings had not been covered with floor deposits, they were probably in use during the occupation of the dwelling. The largest cache, lying in the southwest part of the floor, had an oval opening 5.5 feet by 3.0 feet and a depth of 2.5 feet. The fill below a thin layer of ash contained fragments of glass bottles, a sleigh bell, bits of metal, and refuse bone.

A smaller cache, 1.1 feet in diameter and 2.0 feet deep, on the west side of the innermost entranceway post, contained bits of broken glass, metal, and bone fragments. Another cache, near the southwest center post, measuring 1.5 feet in diameter and 2.2 feet deep, yielded glass and metal fragments and animal bone. This pit may originally have been made to receive a center post and was filled with refuse when the post was removed.

Another pit, probably also used for storage, was located near the northwest center post. It was 3.0 feet deep, 1.4 feet in diameter at floor level, and 2.2 feet in diameter at the bottom. A brass bracelet, glass beads, flint chips, and animal bone were recovered from the fill. Other small pits encountered in the floor may have been mere irregularities in the original floor which were leveled by filling with refuse and earth.

HOUSE 6 (XU6)

This feature, also located in the Hidatsa-Mandan section, showed up as a shallow circular depression.

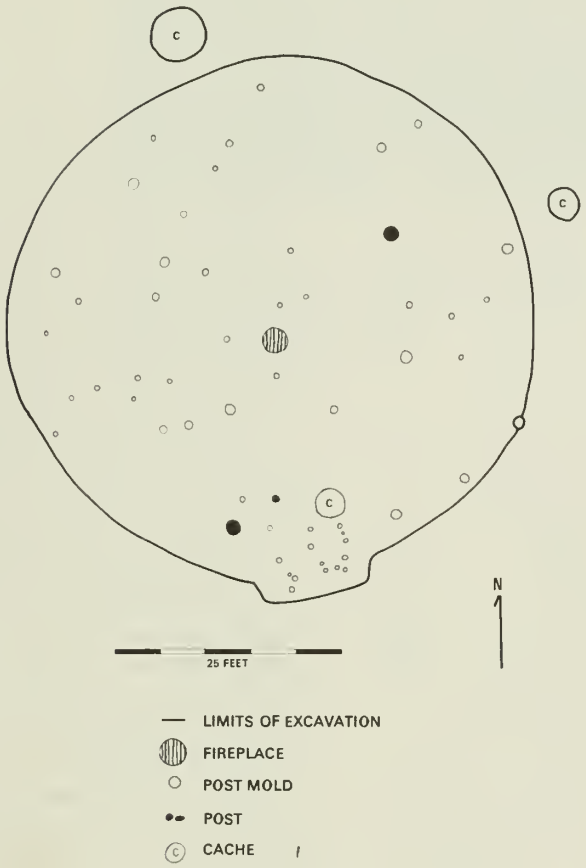
The floor, 0.6 foot below the surface, was less well packed than the floor of the excavated lodges. Near the southwest corner lay the end of a log, into which a deep notch had been cut, and a short row of post molds, the significance of which was not apparent. Other wood remains and post molds, near the margins of the house, were probably braces for walls or roof.

A shallow cache, 1.0 foot deep and 4.3 feet in diameter, lay just east of the dwelling. In the fill were found several iron nails, sherds of glazed earthenware, beads, and animal bone.

HOUSE 7 (XU7)

Excavation showed that this earth lodge had an entrance facing southwest, toward the ceremonial area of the Hidatsa-Mandan sec-

Figure 14. House 8 (XU8). The three rows of posts at the entrance suggested that the entry, or perhaps the lodge itself, had been rebuilt during its use. Between the two westerly rows of posts was a flat piece of wood, 2.5 by 1.7 feet by 0.1 to 0.2 foot. This was probably part of a lintel or door fitting.



tion. The lodge was approximately 53 feet in diameter and similar to others excavated in the village area except that posts of a secondary ring could not be located. The entranceway employed round posts rather than puncheons, as in House 5. The floor, at an average depth of 0.75 foot below the surface, was especially well packed near the center of the lodge. It averaged 0.25 foot in thickness.

The basin-shaped fireplace, measuring 4.0 feet in diameter and 0.6 foot deep at the center, lacked a lining. It contained 0.3 foot of compact ash. A post mold near the fireplace probably represents a post used as a fire crane.

HOUSE 8 (XU8)

This lodge, adjacent to House 4, had an incomplete post pattern. The four center posts found—if indeed they were center posts—would have provided an inadequate supporting frame for the dwelling. In the secondary ring of post molds there was a large gap west of the entranceway.

The lodge was approximately 58 feet in diameter. The floor, varying from 0.7 to 0.9 foot below the surface, had an average thickness of 0.3 foot. The fireplace, saucer-shaped and lacking a lining, measured 3.0 feet in diameter and 0.5 foot deep at its center. It seemed rather small for a lodge of this size.

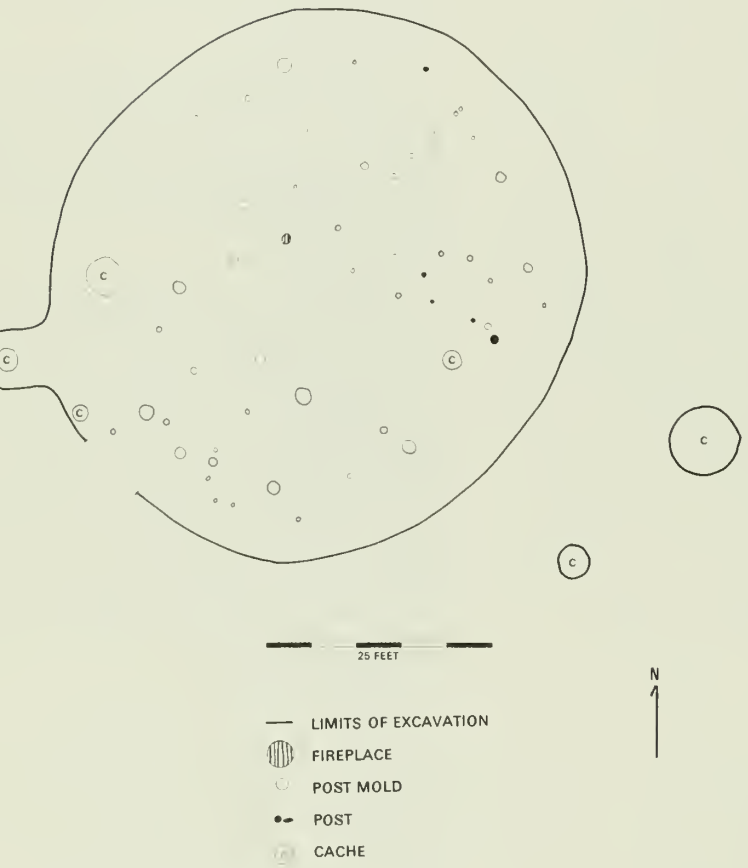
At the right of the entrance, as the lodge was entered, was a bell-shaped cache, 5.0 feet deep, 2.0 feet in diameter at the neck, and 5.0 feet in diameter at the bottom. The fill produced native potsherds, rawhide, and fragments of animal bone.

Two caches were excavated outside the lodge. One of these, to the east, was bell-shaped and measured 4.5 feet deep, 4.0 feet in diameter at the neck, and 5.0 feet at the bottom. The fill contained fragments of decayed wood and nails. The other cache, north of the lodge, was also bell-shaped. It was 5.2 feet deep, 7.0 feet in diameter at the neck, and 9.0 feet in diameter at the bottom. This pit, dug to undisturbed gravel, yielded native potsherds, the blade of a scythe, parts of a stove, and abundant animal bone.

HOUSE 9 (XU9)

This lodge, in the Arikara section of the village, was identified by Byron Wilde as the dwelling of an Arikara who bore the Dakota name *Opa*. Satisfactory patterns of center posts and secondary posts were found, but no evidence of an entry was discovered, al-

Figure 15. House 9 (XU9). The fireplace, slightly to one side of the center, was small and poorly defined. Irregular in outline, it had not been dug below the floor level and resembled an ash heap rather than a true fireplace. Byron Wilde and Ralph Wells, former inhabitants of the village, stated that during the last years of village occupation, stoves replaced fireplaces in nearly all the lodges, and this fact may explain the character of the fireplace here.



though its former location was pointed out by Wilde. It is probable that covered entranceways of certain lodges were replaced with doors during the later occupation of the village.

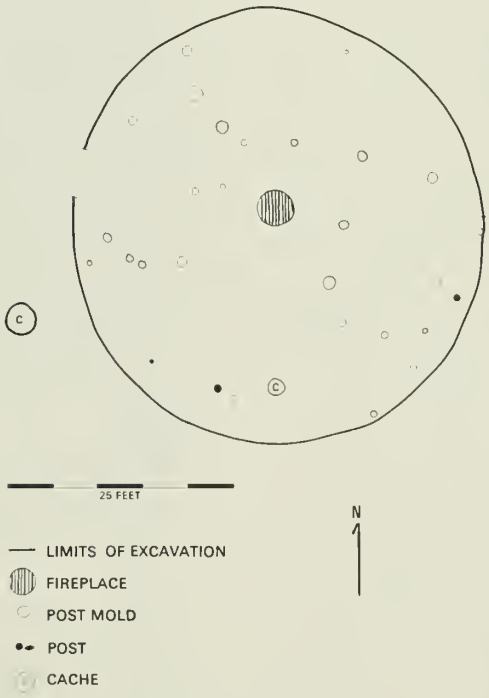
The lodge measured 57 feet in diameter. The floor lay 0.6 foot below the surface and was 0.25 foot thick. As in the case of other dwellings excavated in the Arikara section, the floor of this lodge appeared to be less saucer-shaped than those in the Hidatsa-Mandan quarter.

In this and other Arikara lodges, center posts were found to have been placed farther from the center than was the case with Hidatsa and Mandan lodges or with those known elsewhere in the Plains. This arrangement was probably a late development, reflecting white influence. Extra posts, found between the four main posts, had probably been added as braces and their presence suggests that earth-lodge construction had greatly changed by the time this lodge was built.

Several caches were found within the lodge. One was bell-shaped, and measured 5.0 feet deep, 2.0 feet in neck diameter, and 5.0 feet in diameter at the bottom. It contained sherds of glazed earthenware, beads, bits of hide, and bone fragments. Another cache, also bell-shaped, was 4.3 feet deep, 2.0 feet in diameter at the neck, and 4.0 feet in diameter at the bottom. It had a lining of boughs at the bottom, sides, and top. The fill was devoid of artifacts. A third cache, larger and cylindrical in shape, measured 6.0 feet deep and 4.0 feet in diameter, with the bottom penetrating undisturbed gravels. On the gravel bottom rested a layer of willow boughs, 0.25 foot thick. Above this were a layer of well-packed, dark earth about 0.3 foot thick, a deposit of organic material mixed with clay, 0.25 foot thick, and earthfill yielding many squash and pumpkin seeds, a glass bottle containing what is probably an expectorant or cough syrup, and a stone maul. At the bottom of the pit, below the layer of boughs, was the blade of an iron spade.

West of the lodge, another cache was excavated. It was also bell-shaped, and measured 6.0 feet deep, 3.2 feet in neck diameter, and 4.7 feet in diameter at the bottom. The cache contained a fragment of catlinite, an iron hoe, fragments of turtle carapace, and numerous beads.

Figures 16 and 17. House 10 (XU10). This dwelling was said to have been used frequently for ceremonies and dances not of sufficient importance to warrant the use of the large ceremonial lodge itself.



HOUSE 10 (XU10)

According to Byron Wilde, this lodge belonged to Lumpface, an Arikara, and was next to the Arikara ceremonial area, almost directly opposite its ceremonial lodge.

Four center posts and most of the secondary ring of posts were found. As in the case of House 9, evidence of the entrance was lacking, despite the fact that its location, opening to the west, had been pointed out. Here, also, bracing posts were used between the center posts. The lodge measured only 45 feet in maximum diameter. The floor, at a depth of 0.6 foot below the surface, was approximately 0.25 foot in thickness.

The fireplace was saucer-shaped and lacked a lining. Measuring 4.2 foot in diameter and 0.3 foot deep at the center, it contained a deposit of densely compacted ash.

Two caches were found. One, inside the lodge, south of the fireplace, was bell-shaped, 4.25 feet deep, 2.3 feet in diameter at the neck, and 4.3 feet in diameter at the bottom. A knife blade and animal bone were recovered from the fill. The second cache, west of the lodge, was also bell-shaped. It measured 3.4 feet in depth, 3.25 feet in diameter at the mouth, and 4.1 feet in diameter at the bottom. The fill contained iron stove parts and animal bone.

HOUSE 11 (XU11)

The site of this structure, appearing as a shallow subrectangular depression, did not yield information as to its original plan or identity on excavation. The structure may have been a log cabin, the timbers of which had been removed or burned after only brief use. A group of post molds may represent a

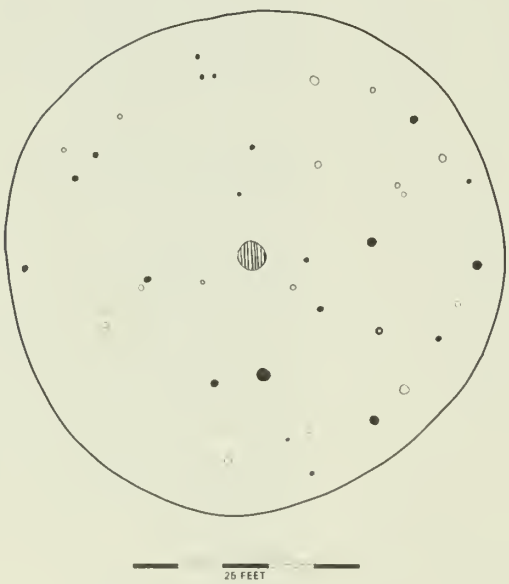
Figure 18. House 11 (XU11). The circular outline shown as the limit of the excavation does not indicate the shape of the structure.

Figure 19. House 12 (XU12). The entrance was not found, but in view of the location of the lodge, in the Hidatsa-Mandan part of the village, it probably opened to the southwest, upon that ceremonial area.

HOUSE 11

— LIMITS OF EXCAVATION

○ POST MOLD



HOUSE 12

— LIMITS OF EXCAVATION

FIREPLACE

POST MOLD

POST

WOODEN MORTAR

drying rack which antedated the use of the area for a dwelling.

HOUSE 12 (XU12)

Evidence of this lodge consisted of four center posts, a bracing post between the southerly and easterly center posts, and a secondary ring of posts. The lodge was 57 feet in maximum diameter. The floor lay at a depth of 0.75 foot below the surface and was 0.3 foot thick.

The fireplace, saucer-shaped and lacking a lining, was 2.5 feet in diameter and 0.7 foot deep. Within it was a compacted deposit of ash, 0.5 foot deep.

Part of a corn mortar made from a hollowed log lay in the southeast quarter of the lodge. Cut to a dull point at the base, the log had been set into earth to a depth of approximately 1.0 foot below the floor.

When in use, the mortar probably rose about 0.4 foot above the floor level; most of the upper part of it had been destroyed by decay. The mortar measured 0.7 foot in exterior diameter, and its concavity was 0.6 foot in diameter. No caches were found.

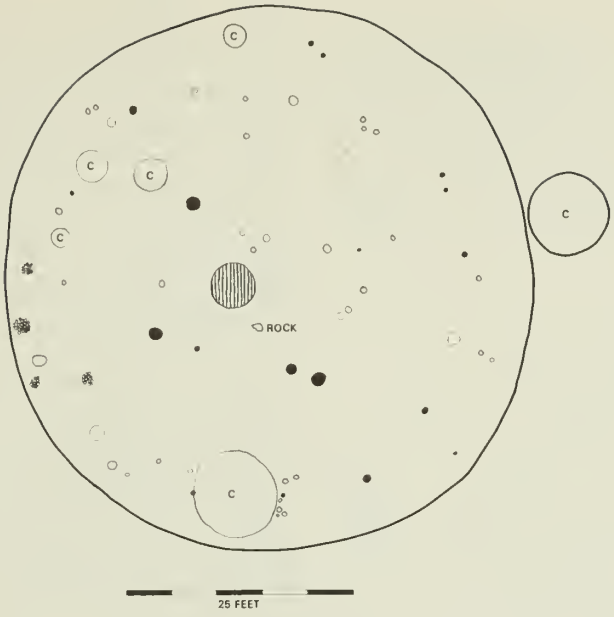
HOUSE 13 (XU13)

This lodge, identified by Wilde and Wells as the ceremonial lodge of the Hidatsa, afforded little evidence to distinguish it from other lodges of the Hidatsa-Mandan section. Its size, 58 feet in diameter, is not exceptional. The floor, slightly saucer-shaped, lay at an average depth of 0.8 foot and averaged 0.3 foot thick. No evidence of the entrance was found, but the informants stated that it opened south of west, overlooking the ceremonial area.

Four sweat-lodge features, small groups of rocks, were found near the westerly edge of the lodge. They ranged from 1.0 foot to 1.5 feet in diameter and averaged 0.7 foot in height.

Five caches were present inside the lodge. One of these, bell-shaped, was 6.0 feet deep, 3.5 feet in diameter at the neck, and 5.5 feet in diameter at the bottom. Many glass beads were distributed throughout the pit fill. Another cache was 5.75 feet deep, 10.0 feet in diameter at the mouth, and 8.0 feet in diameter at the bottom. The fill contained only a few refuse bones.

A third cache, also bell-shaped, measuring 6.75 feet deep, 3.0 feet in diameter at the neck, and 4.5 feet in diameter at the bottom, had been excavated to gravel. Lining



HOUSE 13

— LIMITS OF EXCAVATION

FIREPLACE

POST MOLD

POST

CACHE

SWEATLODGE

N

Figure 20. House 13 (XU13). The only feature in any way unusual was the central fireplace, an unlined basin approximately 5.0 feet in diameter, containing an ash deposit at the center which was only 2.0 feet in diameter. Set into the floor of the house near the fireplace was a black rock, bearing the marks of the blows of sharp-edged metal implements.

HOUSE 14

— LIMITS OF EXCAVATION

FIREPLACE

POST MOLD

POST

WOOD

CACHE

N

Figure 21. House 14 (XU14). Excavation exposed four center posts, a partial ring of secondary posts, and a post mold containing wood remains, near the southwesterly center post, probably representing an extra roof-support post. The entrance could not be found. The floor, at a depth of from 0.7 to 0.9 foot below the surface, was 0.25 foot thick.

the bottom was a layer of branches, 0.2 foot in thickness. The fill contained beads, cartridge cases, a scapula hoe, a knife sheath of leather, glass bottles, refuse bone, and stones. Another cache, also bell-shaped, measuring 4.6 feet deep, 2.0 feet in diameter at the mouth, and 4.4 feet in diameter at the bottom, yielded refuse bone and metal food containers. The fifth pit in the interior of the lodge, also bell-shaped, measured 6.0 feet deep, 4.5 feet in diameter at the neck, and 5.25 feet in diameter at the bottom. It had penetrated an earlier midden deposit. Abundant native potsherds were recovered from an irregularity in the side of the pit, 1.0 foot below the mouth.

One large cache was excavated outside the lodge. Cylindrical in shape, it was 5.0 feet deep and 8.0 feet in diameter. The fill was devoid of artifacts and refuse.

HOUSE 14 (XU14)

This lodge, which lay immediately north of House 13, had probably been destroyed by fire, to judge from the number of charred timbers present.

The saucer-shaped fireplace measured 7.0 feet in diameter and 0.7 foot deep at the center. The deposit of ash remaining in it was only 4.0 feet in diameter. A post mold at one side probably marked the position of a fire crane.

One cache was found in the lodge. It was bell-shaped and measured 3.8 feet deep, 2.25 feet in diameter at the neck, and 5.9 feet in diameter at the bottom. A wine bottle and wood and metal fragments were recovered from the fill.

Figure 22. House 15 (XU15). From the floor of the lodge were recovered two chunkcystones of granite (one of them fragmentary), a bone roach-spreader, and part of a gun barrel. The westerly section of the lodge appeared to rest on an earlier midden deposit, and abundant refuse, ash, and wood remains were found here.

HOUSE 15 (XU15)

This lodge revealed, on excavation, four center posts, numerous secondary posts, an entrance, and a well-defined fireplace. The lodge was approximately 65 feet in diameter. The fireplace was lined with stove iron and flat rocks, and was 5.5 feet in diameter and 0.8 foot in depth. The floor, ranging from 0.5 foot to 1.25 feet below the surface, was approximately 0.3 foot thick.

Evidence was also found of a fire screen between the entrance and the fireplace. Set in a trench 0.8 foot deep, it extended for a distance of 14 feet. Screens such as this kept drafts from blowing ash about the lodge and afforded greater privacy to the occupants. A shallow trench lay between the two innermost posts of the doorway, and a group of stones directly west of the entrance marked a sweat lodge.

A cache and a small pit were excavated inside the lodge, respectively northeast and east of the fireplace. The cache, cylindrical in shape and measuring 3.5 feet deep and 4.0 feet in diameter, contained few artifacts and may have antedated the lodge itself.

The possibility that a poorly defined rectangular feature immediately east of the lodge might be the remains of a log structure led to its excavation, but the results were uninformative. The few post molds uncovered formed no recognizable pattern and may have been the remains of corn-drying scaffolds, sacrificial poles, or other structural frameworks.

Beyond the lodge, four bell-shaped caches were excavated. One cache was 6.0 feet deep, 4.8 feet in diameter at the neck, and 6.0 feet in diameter at the bottom, Few artifacts were obtained from the fill, but a layer of ash was encountered near the mouth of the pit and gravel was observed at a depth of approximately 4.0 feet. Another cache measured 4.0 feet deep, 4.0 feet across at the neck, and approximately 5.4 feet across at the base. At a depth of about 1.2 feet below the mouth, and at one side of the cache, was a lens-shaped deposit of ash. The fill contained abundant bone, several beads, and an iron pothook.

Another pit, irregular in surface outline, measured 3.4 feet deep, 4.7 feet east-west and 3.25 feet north-south at the neck, and approximately 6.0 feet in diameter at the bottom. It yielded abundant bone. The fourth cache was 5.6 feet deep, 4.0 feet in diameter at the neck, and 5.0 feet in diameter at the bottom. Abun-

Figure 23. House 16 (XU16). The diameter of the lodge (or lodges) was 60 feet, and excavation exposed a maze of post molds, trenches, refuse pits, and stalls or compartments.

dant ash and several refuse bones were found in the fill.

HOUSE 16 (XU16)

When the depression marking this feature had been stripped of sod, it was evident that the westerly half was a midden that had been thrown into an abandoned lodge, and that another lodge had been built on top of it.

The fireplace at the center was oval in outline, measuring 4.75 feet north-south and 3.66 feet east-west. The pit contained a heavy ash deposit and had a partial lining of small stones. Near the southerly margin was an iron grill set on edge to provide a flat surface for cooking.

A fire-screen trench, longer and wider than others seen at the village, was approximately 11.0 feet west of the center of the fireplace and was oriented north-south. The trench measured 15.75 feet in length, 1.2 feet in average width, and approximately 1.0 foot in average depth. It contained a few fragments of decayed wood and an object of worked stone. Formerly, it had probably held posts or wickerwork.

The entrance, opening to the west, was marked by shallow trenches containing remnants of puncheons and split logs approximately 0.4 foot in diameter. The distance from the center of the fireplace to the inner margin of the entrance was approximately 24 feet. At this point were remains of two larger posts, which probably supported a lintel. A small trench connecting the posts may have drained off water entering the passage. Three small posts (not shown on the accompanying plan, but located approximately 1.0 foot west of the drainage trench) probably served as a screen or door.

The refuse in the earlier lodge contained ash, artifacts, and disturbed earth. This fact made the assignment of post molds, caches, and artifacts to one or the other lodge virtually impossible.

Two caches appeared to pertain to the later lodge, inasmuch as their outlines were observed at the beginning of excavation. The first cache, perhaps a refuse pit rather than a storage pit, was oval in plan and measured 1.6 feet deep, 9.0 feet in diameter north-south, and 6.0 feet in diameter east-west. From it a few bone fragments and a hard-rubber syringe were recovered. The second cache, very nearly cylindrical in shape, measuring 3.0 feet in diameter and 5.3 feet deep, contained parts

of stoves, metal food containers, an ink bottle retaining part of its label, a bison skull, and horse skulls.

Several sweat lodges, probably belonging mainly to the later lodge, were uncovered. These were small pits, approximately 1.5 feet in diameter and approximately 0.5 foot in depth, filled with small fire-fractured stones, 0.2 to 0.3 foot in diameter. A sweat-lodge feature in the southwesterly part of the lodge contained battered iron axheads, which had been used in place of stones.

Two groups of center posts, found near the center of the excavation, pertained to the two lodges. Approximately 1.0 foot in diameter, these posts had been set at an average depth of 1.5 feet below the floor level. The orientation of the two groups of posts differed, the upper set being offset and forming an angle of approximately 30° from the center posts of the earlier lodge.

Excavation near the later fireplace revealed an earlier deposit of ash approximately 3.0 feet to the southeast. The ash covered a fireplace approximately 0.5 foot below the later floor and fireplace. The earlier fireplace, measuring 5.4 feet in diameter and 0.6 foot deep, lacked a lining. It contained ash, stones, iron fragments, and sherds of glazed earthenware.

Two other excavated caches probably also pertained to the earlier lodge, inasmuch as their openings were not clearly visible in the floor of the later lodge. The first was bell-shaped and measured 5.0 feet deep, 3.5 feet in diameter at the mouth, and 5.5 feet in diameter at the bottom. It yielded numerous specimens, including part of the elk-antler frame of a saddle, a group of stones of unusual shapes, a wooden chair leg, and wood fragments.

The second cache, though showing on the floor of the later lodge as a disturbed area of flaky soil, probably antedated the later dwelling, since the earth over its opening had been compacted to a depth of approximately 0.5 foot below the later floor. The cache was subrectangular in outline; it measured 1.25 feet deep, 2.5 feet north-south and 4.0 feet east-west at the mouth, and 3.5 feet north-south and 4.0 feet east-west at the bottom. Two layers of bark, 0.75 foot and 1.25 feet below the opening, probably represent upper and lower linings of the original pit. The fill yielded a few native potsherds, several glass beads, a portion of a steel projectile point, a few flint chips, and numerous refuse bones.

Because of the disturbed condition of the soil in the westerly half of this site, clear evidence of the entrance to the earlier lodge could not be found. Two parallel trenches, approximately 10.0 feet south of the entrance of the later lodge, probably mark the location of the earlier entryway. Another trench in the same part of the site suggests the remains of a stall or compartment in which a prized horse had been kept.

HOUSE 17 (XU17)

Excavation at this site revealed evidence of two or more lodges. The latest, measuring about 60 feet in diameter, was marked by a fireplace, center posts, a secondary ring of posts, and an entrance.

The fireplace, in the approximate center, was 5.5 feet north-south and 5.7 feet east-west, and averaged 0.4 foot deep. The west side of the pit was lined with numerous stones, six steel axheads, and many iron fragments. One of the last was an inverted skillet which provided a working surface. The east side of the pit lacked a lining but contained a large quantity of ash.

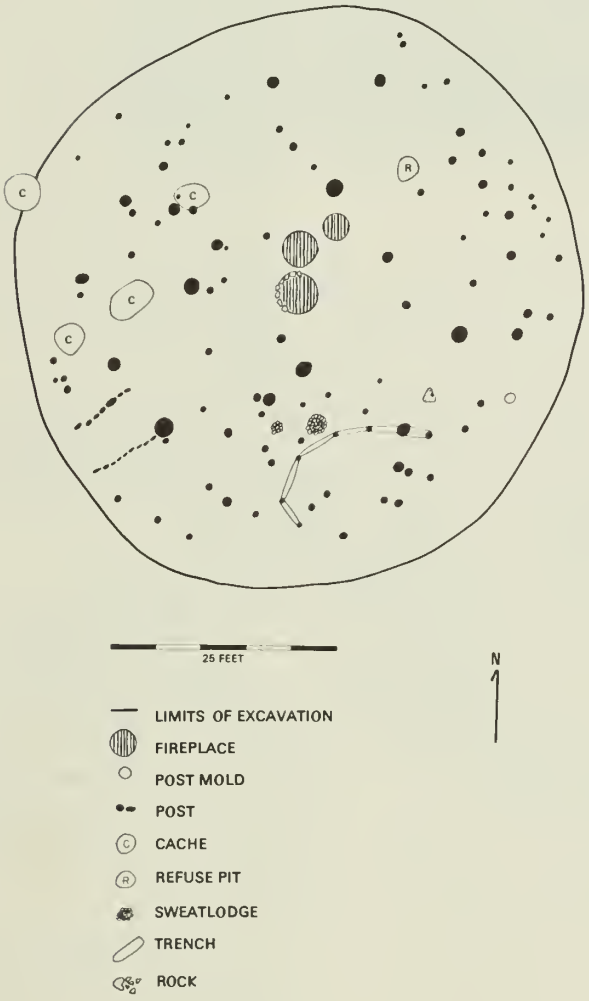
The entrance faced the southwest, overlooking the adjacent ceremonial area of the Hidatsa and Mandan. It was 10.7 feet in length and 3.3 feet in width. Remains of a large post, one of two originally supporting a lintel, were found at the inner end of the south side of the entrance. Its companion was not located and had probably been removed.

Two excavated caches probably pertain to this lodge. The first, located approximately 19.0 feet west of the fireplace, was bell-shaped, though somewhat irregular in outline. Measuring 4.0 feet deep and 5.5 feet in maximum diameter, it contained a stove part, several fired bricks, part of an axhead, metal food containers, two leather shoes, and animal bones.

The second cache, northwest of the fireplace, was nearly cylindrical, and measured 5.0 feet deep and 4.7 feet in maximum diameter. The fill produced a large quantity of bison bone, including skulls, jaws, and fragments of extremities, together with three native potsherds, a flint scraper, a worked rib bone, and metal pails and food containers.

Immediately adjacent to, and north of, the fireplace was another fireplace measuring about 4.4 feet in diameter and containing

Figure 24. House 17 (XU17). A noteworthy feature was a stone, 1.0 by 0.75 foot, set into the floor in the southeasterly segment of the interior. Its surface had been scarified, possibly by edged metal tools used in working bone or metal. Another feature of the lodge was a curved trench in the southerly part of the interior. It contained small post butts, suggesting a horse stall.



abundant ash. It lay 0.3 foot below the upper floor level and probably also pertained to the later lodge.

Excavation showed that the later lodge had been built on the remains of a previous dwelling. It was difficult to assign post molds to the earlier or later lodge. A line of post butts (not shown on the plan) crossing the eastern half of XU17 proved to be a fence constructed after the later dwelling had been abandoned.

Another cache, showing on the floor of the upper lodge as a stain having the appearance of a post mold, was found on excavation to have been covered with a layer of sterile earth to a depth of 0.5 foot. This pit and a third fireplace probably pertained to the lower lodge. The cache was 3.0 feet deep, 3.3 feet in mouth diameter, and 4.0 feet in maximum diameter at the bottom. The fill included part of a leather case for a rifle and wood fragments.

The third fireplace, 1.0 feet below the floor of the upper lodge, was oval in outline. Measuring 5.0 feet in maximum diameter and 0.1 foot deep, it contained a large quantity of ash.

HOUSE 18 (XU18)

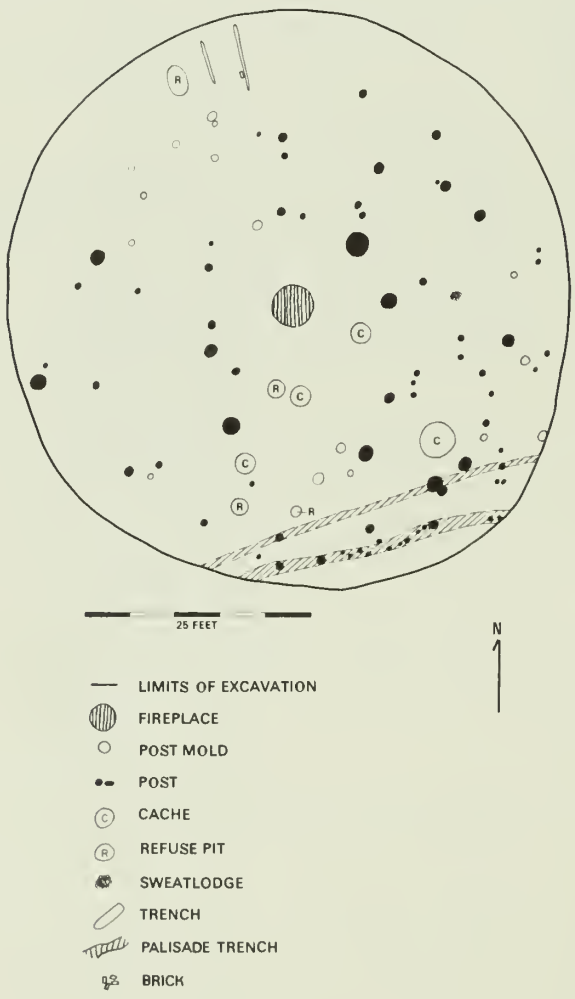
This lodge, in the Arikara section, was marked by a circular enclosure with a raised margin, approximately 60 feet in diameter. Excavation was carried some 4.0 feet beyond the margin to make certain that all surviving features of the dwelling were uncovered.

The floor of the lodge lay 0.7 to 0.8 foot below the surface. Four center posts of unequal size were located. Abundant refuse in the west half of the lodge probably represents accumulations following abandonment.

The central fireplace, about 4.5 feet in diameter, differed from the others opened in this part of the village. It was a mound of compact ash, approximately 0.5 foot thick, rather than a deep, lined pit.

Four interior caches were excavated. One of these, near the southeasterly center post, was bell-shaped and measured 3.1 feet in depth, 3.7 feet in diameter at the mouth, and 5.0 feet in diameter at the bottom. The fill contained nothing of significance. Another cache, 3.2 feet deep, 2.75 feet in diameter at the mouth, and 4.2 feet in diameter at the bottom, yielded a fragment of iron pipe, but little else. The third pit, 2.75 feet deep, 3.25 feet in diameter at the mouth, and 3.25 feet in diameter at the bottom, produced nothing

Figure 25. House 18(XU18). Two straight, roughly parallel trenches, oriented approximately east-west, were found near the southern edge of the lodge. The first of these (marked "palisade trench" on the accompanying plan) was about 1.0 foot wide and 1.5 to 2.0 feet deep. Numerous post molds were observed within it, and it had clearly been filled prior to the construction of the superimposed lodge. This trench, which antedated the lodge, was traced in a westerly direction across the lodge, and beyond it, for a distance of approximately 100 feet. It was recognized as a section of the palisade that had enclosed the earlier Hidatsa-Mandan area of the village.



of significance. The fourth cache, located 8.0 feet from the fireplace, was bell-shaped and measured 3.7 feet deep, about 3.0 feet in diameter at the mouth, and 4.0 feet in diameter at the bottom. From the fill several wooden net-floats were obtained.

Adjacent to the third of these caches was a small refuse pit, oval in outline and measuring 2.0 feet in depth and 3.0 feet in maximum diameter. It contained vegetal remains, including squash and pumpkin seeds, chokecherry and plum pits, and fragments of bark.

The entrance faced north, toward the Arikara ceremonial area. Narrow trenches, approximately 6.0 feet in length and 6.0 feet apart, marked its location. At the inner end of the northeasterly trench was a fired brick.

To the right of the entrance, in the northeasterly part of the lodge, was a compacted deposit of horse dung or decayed bark (often used as fodder), about 15.0 feet in diameter, which suggested that horses had been stabled here.

The second trench, less than 1.0 foot in width, lay 3.0 to 5.0 feet from the first one. This trench apparently did not extend beyond the limits of the lodge, and its purpose is not known.

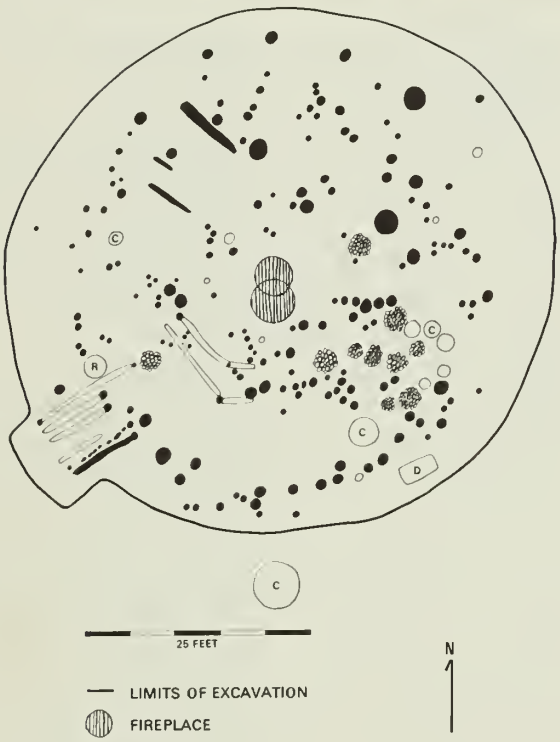
HOUSE 19 (XU19)

The circular depression with raised margin marking this feature, in the older part of the village, was almost 50 feet in diameter. Excavation revealed the remains of two lodges, one superimposed on the other (fig. 27). The upper floor level was reached at approximately 1.0 foot below the surface. The refuse accumulation over this feature was not as great as that noted at several other excavated lodges.

The later lodge had four center posts arranged in a rectangle, 15.0 by 17.0 feet. The posts, ranging from 1.0 foot to 1.5 feet in diameter, had been set in the floor to depths of 2.0 to 3.0 feet. Three fragmentary roof timbers were found in the northerly half of the lodge.

The entrance of this lodge faced southwest, toward the adjacent ceremonial area. Evidence of two entranceways was found. In each case, puncheons or split logs, approximately 0.25 by 0.4 foot, had been set in a trench on each side of the passage.

The central fireplace of the later lodge was a basin-shaped pit, partly lined with stones and filled with ash, measuring abou



Figures 26 and 27. House 19 (XU19). Remains of an earlier lodge lay beneath those of the later one. It is probable that the second lodge was actually a reconstruction of the first, since they correspond very closely both in size and structural details. Clean earth had been spread and compacted over the older floor, to fill depressions and soft places and to provide a fresh surface. The fireplace of the earlier lodge, partly covered by the later one, was about 4.0 feet in diameter and lay at 0.5 foot below the later floor. Like the later fireplace, it was basin-shaped; though lacking any lining, it contained abundant ash.

4.5 feet in diameter and approximately 0.3 foot in depth.

Numerous sweat-lodge remains were found, particularly in the area southeast of the fireplace. Varying from 1.5 to 2.3 feet in diameter and from 0.4 to 0.9 foot in depth below the upper floor level, these pits were filled with small, fire-fractured stones. Several of the pits were bell-shaped. Some of these, with mouths lying approximately 0.4 foot below the upper floor level, probably pertained to the earlier lodge.

Two fire screens were uncovered. The first of these, visible in the floor of the later lodge, was marked by an angular trench, 12.0 feet long and 0.5 foot wide, which extended to a depth of 0.4 foot below the floor. In this trench were small post molds, approximately 0.25 foot in diameter, spaced at intervals averaging 1.5 feet. Extending below the bottom of the trench, the posts probably supported a screen of wicker or branches.

The second of the two fire screens, pertaining to the earlier lodge, was approxi-

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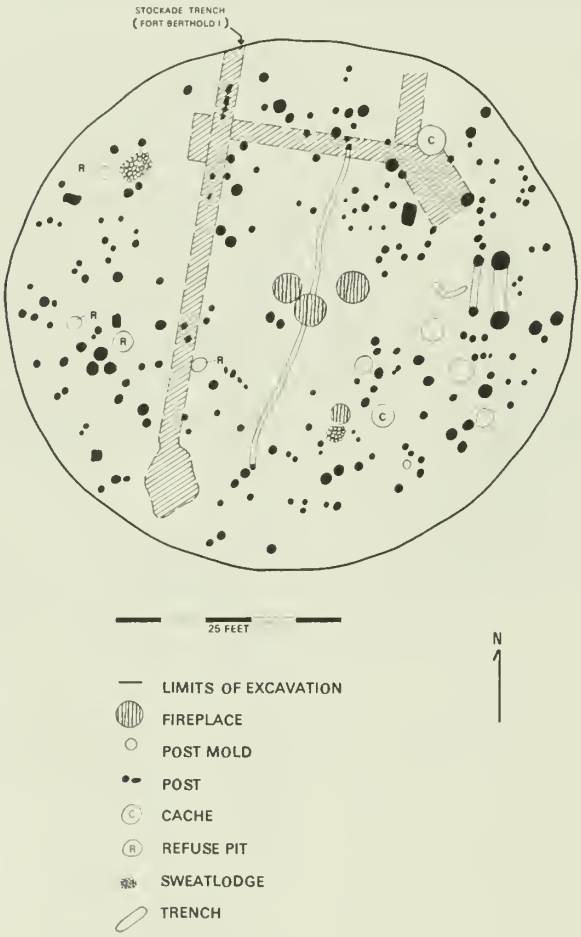


Figures 28 and 29. House 20 (XU20). Excavation exposed two earth lodges, one superimposed on the other and both overlying a complex of straight trenches, square post molds, cellars, and rectangular pits of the first trading post, Fort Berthold I.

mately 0.2 foot beneath the upper floor level and 2.0 to 4.0 feet from the first. The trench was 14.0 feet long, 0.6 foot in average width, and 0.5 foot in average depth. Small post molds, spaced at intervals of 2.0 feet in the trench, indicate the positions of posts that probably supported a screen of branches or wicker.

Three interior, bell-shaped caches, not visible in the upper floor level, probably pertained to the earlier lodge. They measured, respectively, 3.0 feet, 3.0 feet, and 4.3 feet in depth; 2.3 feet, 2.1 feet, and 3.5 feet in maximum diameter at the mouth; and 3.4 feet, 2.1 feet, and 5.0 feet in maximum diameter at the bottom. The third cache had a depression in the bottom measuring 1.0 foot in diameter and 1.0 foot in depth. This may have been provided for proper drainage or for hiding some object of special value.

A rectangular pit near the southerly edge of the later lodge, measuring 3.0 by 1.5 feet across and about 1.0 foot in depth, was found to contain a dog skeleton in extended position. There was no evidence to indicate whether or not this had been a ceremonial burial.

South of the lodges, one cache was excavated. This pit measured 5.8 feet deep, approximately 6.0 feet in diameter at the mouth, and 4.0 feet in diameter at the bottom. Its conoidal shape differed from those of most of the caches opened elsewhere in the village.

Several remarkable specimens obtained in the excavation of these lodges probably

pertain to the period of the later lodge. One of these, a regulation U.S. Cavalry saber, was found in the fill of the northeast part of the later lodge.

HOUSE 20 (XU20)

Prior to investigation, the lodge remains here, in the Arikara section, rose to a height of about 0.7 foot above the surrounding surface, with the center being nearly level with the rim. They were among the most prominent and distinct in the whole village area.

The entrances of these lodges faced east, toward the Arikara ceremonial ground. At each end of the drainage trenches denoting the entrances were clearly defined post molds. The posts that had stood in these positions probably supported door lintels.

Near the centers of the lodges were several large post molds. Some of the posts probably served as center supports for each lodge. Other posts were not searched for, since exploration would have destroyed part of the north-south trench crossing the lodges.

The first fireplace encountered, 3.7 feet in diameter and about 0.4 foot below the surface, was lined with fragments of shale and contained ash fill in a slight depression.

One interior cache, 4.0 feet deep, 3.0 feet in diameter at the mouth, and 4.5 feet in diameter at the base, produced numerous articles of white manufacture, including glass bottles, parts of a McClellan (U.S. Army) saddle, and a hide flesher fashioned from a gun barrel.

A second interior cache penetrated a refilled trench of white origin and was therefore not completely excavated. It was bell-shaped and measured 4.2 feet deep, 3.0 feet in diameter at the mouth, and 4.0 feet in diameter at the base. Abundant trade goods recovered from the pit included parts of saddles, glass bottles, and cartridge cases.

A fire-screen trench extended 38 feet across the later lodge, leaving about 10.0 feet between the ends of the trench and the margins of the lodge. The trench cut through a second fireplace and intersected earlier remains of white origin. The fire screen was of exceptional length and was unusual in being located near the edge of the uppermost fireplace. Possibly the screen had one or more openings in it. The trench contained the molds of small posts that probably supported the screen.

The upper lodge had been superimposed on an earlier one. A second fireplace, about 4.0 feet in diameter, lying 0.4 foot below the floor of the later dwelling, probably belonged to the earlier lodge. A third fireplace may pertain to the still earlier time of the first trading post.

FORTIFICATION

As previously stated, Like-a-Fishhook Village was provided with pickets at least as early as September 1846 (U.S. Comm. Ind. Aff., 1847, p. 78). The contemporary reference was immediately followed by mention of the "perpetual war" between the villagers and the Dakota, and hence this first protective measure may have proven inadequate. Nor was the additional security afforded by nearby Fort Berthold I sufficient to prevent raids. During late September of 1849, a war party, said to have included as many as 800 Dakota, attacked the village and trading establishment; and it was repulsed only after cannon were fired upon them from a blockhouse of the post (U.S. Comm. Ind. Aff., 1850, p. 135). The total number of Hidatsa and Mandan available would not have been sufficient to meet such large parties on anything like an equal footing. One solution to the problem was more adequate fortification of the village, and this was now undertaken.

In mid-June of 1850, a visitor found the Indians at work picketing the entire settlement. The logs were "well prepared" and, except on the "west" (*i.e.*, north) side, they were already in place and there was a bastion with loopholes in the middle of each side (Culbertson, 1952, p. 100). The following year, Kurz noted the "white palisades" of weathered timbers surrounding the village, and stated that in return for 100 buffalo hides Kipp had enclosed the town in order that its inhabitants might be secure, at least against surprise attacks (Kurz, 1937, p. 74). Kurz added that, with the palisading, the lodges were no longer visible until one had passed through the entrance to the compound. In 1858, Boller observed, on first arriving at the place, that the village was protected on one side by the swift current of the river and on the other sides by the pickets, which he mistakenly thought "made it perfectly secure against attack" (Boller, 1959, p. 33).

On his brief visit in 1862, Morgan noted the "wall of wooden pickets" then enclosing the village. The upright timbers were set close together and rose to a height of 10 to 12 feet,

and the wall was provided with two or three gateways or openings (Morgan, 1871, p. 45). Morgan made no mention of blockhouses or bastions. It is possible that by this time these had fallen into disrepair or had been used for fuel in the nearby lodges.

Matthews, who first visited here in 1865, stated that the palisade had recently been cut down for firewood (Matthews, 1877, pp. 10–11). He believed that this had been done because of the presence in the neighborhood of military troops and because of the decreasing strength of the Dakota. It is also possible that an increase in the village population and overcrowding of the enclosed area by the year 1865 made the removal of the old palisade desirable. According to recent native informants, when the Arikara joined the Hidatsa and Mandan here in 1862, they also removed some of the palisade in the course of erecting their own lodges. One visitor of 1865—perhaps Matthews himself—mentioned that the "rude stockade of cottonwood logs" surrounding the village had afforded "slight protection" from attacks by hostile Indians ("Medicus," 1951, p. 6).

At a still later period, the recollections of some Hidatsa who had lived at the village were recorded by Wilson, together with plans of the community (Wilson, 1934, pp. 350–355, and figs. 1 and 2). Although it is not possible to verify these recollections in all respects, they are of value in describing certain details which would otherwise not be known.

These Hidatsa villagers recalled that the palisade (which they remembered as circular) was about 8 feet high and had been constructed of tree trunks or logs, some round, some split, set upright and as close as possible in a trench, which was then filled with earth. Earth was thrown against the palisade to a height of about 3.0 feet, and there was a "ditch" about 3.0 feet deep on the inner side. The palisade had loopholes for the use of "muskets and arrows." Bastions, illustrated diagrammatically by Wilson (1934, p. 354 and fig. 4), projecting outward from the "fence" or palisade, were said to have been provided with platforms resting on four forked posts "of no great height." Reached by small, notched-log ladders, they resembled the "stages" used by the garden-watchers in their fields. Gates supported by hinges were said to have been on the "east" and "west" (*i.e.*, south and north) sides of the palisade. Two "forts" stood outside the enclosure, on the "east and west," where sentries were "constantly on duty."

Excavations in the northerly part of the village site exposed a section of straight trench, lying beneath the floor of a lodge (House 18) and enclosing large post butts. Exploration westward from the lodge indicated that the trench was part of a major feature of the village—the palisade known to have been erected in 1850 and used until 1865. The palisade trench was further traced in a southwesterly direction to the eroded edge of the terrace.

A road patrol was employed in 1954 to strip overburden from remaining sections of the refilled palisade trench. Crew members walked behind the machine and made occasional shovel cuts. At points where the trench changed direction, the machine was maneuvered to follow the alinement. It was sometimes necessary to make several cuts in order to expose the trench clearly in horizontal plan. The time left for study of the site was then rapidly running out, and the operation produced new data quickly and in a highly satisfactory manner.

When the complete alinement of the palisade trench had thus been exposed by machine and hand work, it was seen that, beginning at the terrace edge, the trench extended northeasterly for a distance of 175 feet (fig. 3). Here the alinement changed direction, running eastward for a distance of 500 feet and passing little more than 200 feet away from the site of Fort Berthold I. At this point, with another change in direction, the trench extended 590 feet in a southeasterly direction. From this point, near the site of an early opposition post and the later Fort Atkinson (which in 1860 was to become Fort Berthold II), the trench ran southwesterly for a distance of 500 feet, ending once more at the edge of the terrace. The total length of the trench was approximately 1,765 feet.

The palisade trench was sectioned and measured at intervals along its course. It varied from 1.2 to 2.4 feet in width and from 1.9 to 3.2 feet in depth below the original ground surface. The observed depth of the trench may be misleading in view of the tradition that earth had been banked against the palisade. The earth fill within the trench was dark in color and contained the remains

of abundant post butts ranging from 0.5 to 1.0 foot in diameter. No evidence was seen of a ditch inside the palisade, such as that recalled by Wilson's informants. Though such a feature may have been obliterated along most of its alinement by the innumerable pits and random deposits of refuse adjacent to or intruded into the trench, it may be noted that Matthews specifically mentioned the absence of a ditch in 1865. At many points along the trench, structures had been superimposed upon previous deposits, and these may also have caused obliteration of any traces of a ditch. Lack of time forestalled attempts to locate the "forts" beyond the enclosure.

Other data obtained in the excavation of the palisade trench should be mentioned. A small trench, intersecting the main trench at the northwest corner, may be evidence of a corral adjacent to the palisade, but, in view of Wilson's sketch maps (1934, figs. 1 and 2), it is possible that this area was the site of an entrance through the palisade. Directly east of House 18, a rectangular projection, or extension of the line of the palisade, may represent one of the two bastions described by Wilson's informants. Projecting for a distance of 8.0 feet, at right angles to the main trench, this feature was 11.6 feet wide. The filled trench marking this feature averaged 1.0 foot in width and about 1.0 foot in depth. No evidence was found of a scaffold base, to confirm Wilson's information concerning such features, but post molds or post remains may have been destroyed here also.

At the southwesterly end of the palisade trench were the remains of an entrance, consisting of short sections of a curtain trench arranged so that the timbers would cover the opening. People entering the enclosure would thus have to move through a narrow passage which could be defended easily by a guard stationed here. No evidence was found of large gates hung on hinges and of several other features described to Wilson. Such elements may have been obliterated by alterations and by changes following demolition of the palisade.

The erection of the fortification could have been accomplished only by enormous labor. No contemporary record is known of the work involved in digging the trench and in obtaining, preparing, and placing all the timbers required for this great palisade.

Kurz's statement to the effect that Kipp received 100 buffalo hides in return for enclosing the village merits comment. It is improbable that Kipp could have commanded sufficient manpower to accomplish the work, and it is logical to suppose that he laid out the enclosure, possibly furnished the necessary tools and even carts and oxen to the villagers, and perhaps assisted in installing the timbers. In any event, the plan and construction of the enclosure is clearly non-native in character.

It is to be noted that remains of large, quadrangular buildings of a later period were found near the junction of the southerly and easterly alinements of the palisade (fig. 3). Time did not permit excavation of these buildings, but it is probable that they were the remains of Gerard's trading post of about 1870. A view of this post, looking northeasterly and probably obtained from the upper level of the northwest blockhouse of Fort Berthold II, appears in Taylor (1932, p. 56).

Mention should also be made of a later defensive feature of Like-a-Fishhook Village, referred to by some recent informants. They stated that news of the decisive battle at the Little Big Horn River, in June 1876, led the villagers to fear that they might again be victims of Dakota aggression and impelled them to enclose their village once more with whatever could be accumulated for the purpose. Maj. James McLaughlin, then agent of the Fort Totten (Dakota) Indian Reservation, visited the village in June 1878, and in later reminiscences mentioned the "stockaded village," just above the new agency (Site 32ML49) of the Fort Berthold Indian Reservation (McLaughlin, 1910, pp. 251–252). His allusion to a stockade may, however, refer to that of the trading post (and former agency) of Fort Berthold II, which had been considerably damaged by fire in 1874, rather than to a palisade around the village.

In attempting to obtain evidence of such a later enclosure of the village, a trench (XU27) was cut with the road patrol for a distance of approximately 300 feet northeast of the earlier palisade line. No pertinent evidence of any kind was discovered.

Near the site of Fort Berthold I (XU21), a trench, 0.8 foot in width and 1.0 foot in depth, was found to extend from the northwest corner of that site southwesterly for a distance of approximately 250 feet, to the terrace edge. The trench appeared to have

been excavated hurriedly, and the post remains within it were small. It is possible that this feature was evidence of the supposed village "stockade" of 1876. Unfortunately, lack of time prevented thorough investigation of it.

BOULDER OUTLINE

Adjacent to the village was a memorial consisting of marks "formed by the complete excavation of the sod in the figure of a horse's hoof" (Will, 1924, pp. 296–297). These marks are said to have made up a trail starting near the village and extending about 150 yards to a large excavation, from which they returned about the same distance toward the village, "on a more southerly line." In the 1950's, only a portion of the memorial, then marked by prairie boulders, was visible near the fence enclosing the Indian Scout Cemetery (fig. 3).

Prior to 1919, several Mandan, Hidatsa, and Arikara told M. R. Gilmore that the trail of hoof marks commemorated an incident during a raid on the village made by the Dakota in 1853 or thereabouts. Gilmore added that the hoof marks, then plainly evident, were "renewed whenever they tend to become obliterated by weathering and by advancing vegetation" (Gilmore in Will, 1924, p. 297).

Neither Gilmore nor Will mentions the use of boulders to outline the hoof marks. It is probable that the boulders seen in the 1950's had been added at a relatively recent time to insure the permanence of the memorial. This feature seems to belong to the broad category of boulder outlines once numerous in the Plains.

OTHER STRUCTURES

A prominent surface feature near the Arikara section of the village was a large, shallow enclosure, locally referred to as a bullberry-fence corral. This enclosure, approximately 600 feet in circumference and marked by a ridge approximately 2.5 feet in height and 15.0 feet in width, was said by Wilde and Wells to have been a horse corral, built of bullberry brush by Strikes-enemy, an Arikara, near his own lodge. A test excavation (XU25) in 1951 exposed remnants of small posts along this ridge.

Further examination was later made of this feature, using the motor road-patrol to cut a trench section (XU26) approximately 300 feet in length and following this up with hand tools. Random post molds and small trenches probably associated with the corral were found on the floor of this section. Buried humus, undoubtedly the original surface of the ground, was found at a depth of about 2.5 feet below the crest of the ridge. On this humus lay compact, light-colored, sandy soil, 0.5 foot thick, above which was less well-compacted, sandy soil. These sandy soils were probably loosened within the enclosure by the hooves of horses and were then piled against the fence by the wind. A few small posts with cut ends, probably remains of the original fence, were found in the ridge at a depth of about 2.0 feet. A cache was excavated in the wind-deposited soils, but it was uninformative.

HUMAN BURIAL

The "field of scaffolds" for the dead, noted by Morgan in 1862, lay on the prairie about one-half mile behind the village (Morgan, 1871, p. 45). The scaffolds were at that time "thickly studded together"; they numbered about 200, and some of them held more than one group of remains. Each scaffold, as described by Morgan, consisted of four poles or posts set in the ground and rising to a height of 8.0 feet. On stringers and cross-pieces, resting in forks, a floor of smaller poles was placed. All the members were secured with rawhide strings. Morgan also discussed in general terms the custom of exposing the dead, well known elsewhere in the Plains. Briefer notes on the scaffolds at this village were later provided by Matthews (1877, p. 9). From these sources, it seems unlikely that the scaffolds, though built for a specialized purpose, differed materially from the drying racks used in the town.

Excavation of burial areas in the village was not possible, and contemporary records are the chief source of information concerning methods of final disposal of the dead. In the 1870's, the Mandan and Hidatsa were still practicing scaffold burial, but the Arikara had taken up the white custom of interment (Matthews, 1877, p. 9). In the course of the salvage excavations, one human burial was found near the Arikara section of the village.

This burial (XU22) was on the south-facing slope of a small ravine, in an area on which cultural debris had been deposited to a depth of approximately 1.0 foot. Covering

the upper portion of the skeleton were small slabs of sawed lumber. The body had been laid in a pit, in a fully flexed position on the left side, with the head to the west. The pit measured approximately 3.0 feet east-west by 1.8 feet north-south, and was about 1.3 feet deep.

Parts of the body were covered with fragments of rough brown fabric, probably of wool, and the lower extremities were enveloped in much decayed leggings of the same material. A number of objects of white manufacture, including an iron spoon and fragments of glazed earthenware and glass, were recovered from the excavation. Owing to the accumulation of refuse above the shallow pit, it was impossible to determine whether these objects were associated with the burial.

The skeleton was complete except for the bones of the left arm and hand, but the poor condition of the pelvis did not permit positive determination of sex. The remains appeared to be those of a woman of about 25 years of age. The absence of the left arm and hand may have been due to partial decomposition of the body prior to burial, or to disturbance after interment. It is even possible that this individual had been killed by enemy people, who then removed part of the body as a trophy. There were numerous instances of this practice.

VEGETAL AND ANIMAL REMAINS

Agricultural crops provided the basic foods at Like-a-Fishhook Village, with wild game affording a secondary source of sustenance. Several varieties of corn, the principal crop, as well as varieties of pumpkins, squashes, and beans were grown by the Three Tribes (Will and Hyde, 1917, p. 284 ff.). A small watermelon, thought to be native, was also raised. Culbertson stated in 1850 that the Arikara, then still near Fort Clark, grew large quantities of corn, which differed greatly from that of Whites, but that "none of our vegetables" had yet reached them (Culbertson, 1952, p. 133).

In several lodges and caches, kernels of native corn and cobs (sometimes used for smoking hides), and also squash and pumpkin seeds and rinds, were found together with agricultural implements, including the scapula hoe and various iron hoes, spades, and scythe blades, described hereafter.

Wild plants and fruits were another source of food. Peelings from *tipsina* or prairie turnip (*Psoralea esculenta*) were found throughout excavations, along with seeds of goosefoot (*Chenopodium*) and pits of wild plum (*Prunus americana*). Pieces of the inner bark of red-osier dogwood (*Cornus stolonifera*), used in the smoking mixture kinnikinick, were recovered from a midden (XU28). The propagation of tobacco has been described by Wilson (1917, p. 121 ff.). Other resources, known to have been used whenever available though not represented in the excavated refuse, include chokecherries, June berries, and buffalo berries.

The hunting of game furnished materials for many needs in addition to those of subsistence. To judge from the proportions of worked and unworked animal bones, bison was most important, followed by antelope, deer, moose (probably obtained in the Turtle Mountains region), elk, and grizzly bear. That smaller creatures were not ignored is clear from the presence of beaver, cottontail, jackrabbit, prairie dog, eagle, duck, goose, swan, wild turkey, and other birds. Eagles were also trapped for ceremonial feathers, claws, and wings. The many species of animals and birds indicate the wide array of game available to the Indians, probably largely in the immediate vicinity of the village.

That horses were kept in large numbers is attested by historical accounts as well as by the finding of numerous horse bones in the lodges. Dog remains also occurred in great numbers. The charred condition of some of the bones suggests that dogs were used in ritual feasts of the Grass Dance and other ceremonies. The eating of dog flesh is said to have been uncommon among the Hidatsa and Mandan before the introduction of the Grass Dance about 1874 (Wilson, 1924, p. 230), though it had figured earlier in some Arikara ceremonies. Louis Sears, an employee at the opposition post in 1855–56, later recalled the very large number of dogs at the village, "made necessary" by the lack of horses as a result of Dakota raids on the Hidatsa (Sears, 1906, p. 349). A stranger entering the village, he said, was likely to be attacked by a score of fierce curs. The traders would wrap themselves in Indian robes or blankets, and thus were able to pass the dogs with impunity. Other domestic animals represented by bones are swine and domestic cats. A visitor to the village in 1853 mentions seeing cattle and

chickens, as well as horses and dogs (Saxton, 1855, pp. 264–265), but no evidence of domestic fowl was found in the excavated refuse bone.

Fishing appears to have been of minor importance. The meager evidence consists of bones, mostly catfish, eight steel fishhooks, and six wooden net-floats. It is known that fishing was done by means of weirs and traps of willow and sinew, hook and line, and nets. The last method was undoubtedly learned from Whites. Shells of *Unio* were found in the excavations, but in the absence of concentrations of them it is probable that gathering of fresh-water mussels was of little consequence.

New sources of subsistence, available from the traders and by issue from the agency, are illustrated by wood or metal containers for processed foods—beef, pork, lard, and other commodities—and by bottles for spirits, beer, and wines. Another processed food was bread, a hard bread still esteemed by the Three Tribes and important in their ceremonial feasts.

The importance of dressed hides and pelts is illustrated mainly by excavated tools of stone, bone, and metal used for working them. The few specimens of such products recovered include fragments of soles and uppers of moccasins of the Plains two-piece, hard-sole type. The measurable sole of a child's moccasin is about 14.0 cm. in length and 5.5 cm. in width.

ARTIFACTS

The following account of artifacts obtained in excavations at the village and housed at the State Historical Society of North Dakota illustrates the range and variety of the lesser material culture of the community and draws attention to certain noteworthy specimens and groups of artifacts. These objects fall naturally into two classes: those of native manufacture, representative of traditional forms, and those of alien manufacture, obtained by the villagers chiefly through barter with the resident traders. It will be noted that certain artifacts of the second class had been adapted to uses other than those originally intended. These artifacts of alien origin and materials were additions to the native material culture, or served as substitutes for cultural equipment previously available.

Measurements of objects of native manufacture recovered from the village, and also from Fort Berthold I and Fort Berthold II, are given in centimeters, in accordance with the convention generally followed by archeologists concerned with such materials. Dimensions of objects of alien manufacture found at the three sites, excepting glass beads and certain small metal items, are given in inches and fractions, because these objects were doubtless so measured by their makers.

POTTERY

Relatively few potsherds were obtained in excavations at the village, and only one restorable miniature jar was recovered from the machine excavation of the palisade (fig. 30). Thus it is clear that the manufacture of such ware was little practiced during the occupation of the village and had been almost abandoned prior to, or shortly after, its establishment. That these sherds were derived from pots brought from previous settlements, or from vessels made here soon afterward, seems probable, since the sherds obtained were mainly from lodge sites and caches opened in the older section of the village occupied by the Hidatsa and Mandan.

The 38 rim sherds in the collection appear to represent approximately 25 separate vessels. Although the sherds have a general similarity, some exhibit a greater degree of smoothing of the exterior surface than others. In some cases, evidence of original compacting of the clay, probably by paddle and anvil, had been completely smoothed away; in others, traces of original surface treatment can be plainly seen. Using the presence or absence of final smoothing of the exterior as the determinant, the sherds have been grouped into two types, named Fishhook A (unsmoothed) and Fishhook B (smoothed). All but a few examples fall into one or the other type. The sherds vary in thickness from 0.5 to 0.75 cm. Tempering materials for both types are coarse grit, and when broken the sherds show a rather rough fracture. Color of the exterior varies from buff to dark reddish-brown. Large bilobed ears or spouts are found in both types.

A wedge-shape rim, having a design of chevrons and triangles formed by cord impressions, sometimes with added punctations, is associated with the unsmoothed body treatment (Fishhook A). The lip of one of these sherds is also decorated with punctations.

Plain braced or wedge-shaped rims, slightly thickened straight rims, and horned or

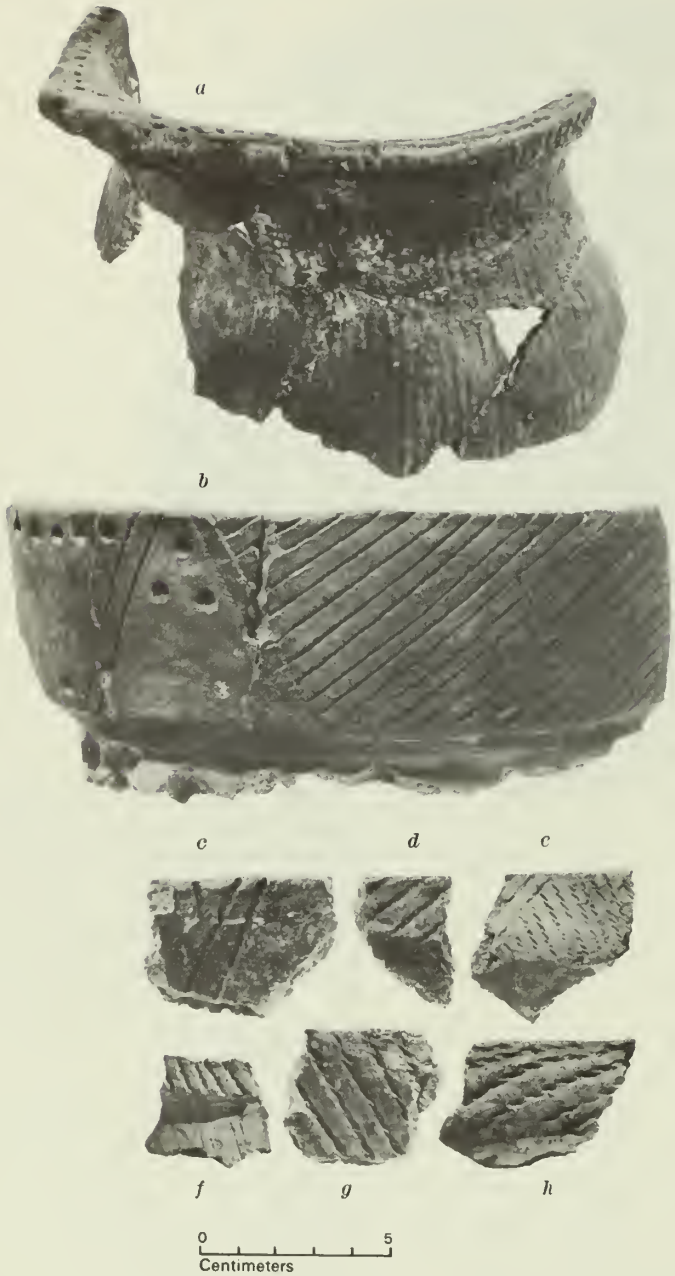
Figure 30. Miniature pottery jar from the palisade of Like-a-Fishhook Village.

castellated rims occur on the smooth-surface vessels (Fishhook B). One sherd in this group has a deep scallop, made with the finger, on the lip. Two others, one with a braced and one with a wedge-shaped rim, have designs of parallel, oblique, incised lines on the exterior of the neck, and another has both the scallop on the lip and the oblique, parallel neck-decoration.

A few sherds have cord-impressed decoration in oblique, parallel lines on the exterior of the neck and horizontal, cord-impressed decoration on the interior near the lip. Another has curved indentations, probably made with the fingernail, on the interior and the oblique, parallel, cord-impressed decoration on the exterior.

All the sherds appear to be derived from vessels molded from lumps of clay, shaped and compacted by using a thong-wrapped paddle, the potter's hand on the interior serving as an anvil during the shaping of the pot. The surface was then smoothed over the whole exterior (Fishhook B), or on the neck and rim only (Fishhook A), which was to be decorated. Rim and neck decoration was accomplished by impressing twisted cord or by pressing a round stick into the damp clay.

Figure 31. Fishhook A potsherds from Like-a-Fishhook Village.



Vessels having wedge-shaped rims appear to have had a globular body. Those having bilobed ears or spouts were probably more conoidal, with the orifice oval in outline. Vessels of other forms of rim probably also had a conoidal body.

The pottery obtained from the village generally resembles that made by the Mandan, Hidatsa, and other sedentary peoples known from prehistoric and historic sites on the upper Missouri. The decorative designs present are to be found on vessels and sherds of periods that have been designated "Middle Mandan" and "Heart River Mandan" (cf. Will and Hecker, 1944, p. 55 ff.).

A recent study by Waldo R. Wedel of a group of complete pottery vesels said to have been obtained from the Mandan and Arikara during the past century—some at Like-a-Fishhook Village—sheds further light on the late pottery of these two peoples. The vessels suggest "a steadily degenerating native craftsmanship" throughout the 19th century among the pottery makers of these tribes, though as late as the 1860's some potters were capable of producing "highly serviceable, if not very ornamental, potteryware" (Wedel, 1957, p. 111). In 1862, Morgan noted that the Arikara then residing at Star Village (Site 32ME16) still used pottery of their own manufacture for drawing water from the river; one vessel had a capacity of about six quarts and was provided with a string about the neck (Morgan, 1871, p. 40).

The pottery from Like-a-Fishhook is described in detail below in terms of two types based upon differing body treatment, and one group of unclassified sherds consisting of split body sherds and rims lacking any portion of neck or body.

TYPE: FISHHOOK A (fig. 31)

(SAMPLE: 11 RIM SHERDS AND 93 BODY SHERDS)

Paste:

Method of manufacture: Probably paddle and anvil.

Tempering: Coarse grit, with occasional finer particles; medium quantity.

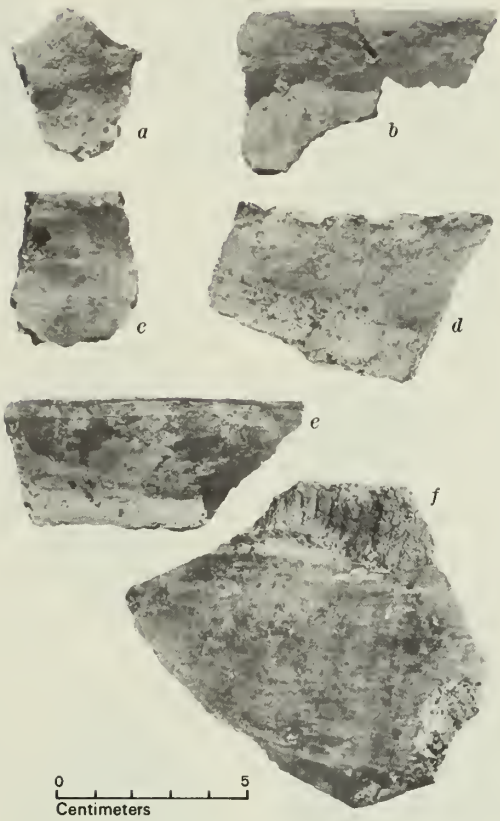
Texture: Medium to coarse; slight tendency to develop internal cleavages parallel to vessel wall.

Thickness: 0.5 to 0.75 cm.

Hardness: 3 to 5.

Color: Light buff to dark reddish-brown, the

Figure 32. Fishhook B potsherds from Like-a-Fishhook Village.



latter predominant, the mass having the same color as the surface; or the exterior and interior surfaces a light buff, the mass dark. Firing clouds visible on both interior and exterior surfaces, but more commonly on the exterior.

Form:

Rim:	*Subtype*	*No.*	*Description*
	FA1	5	Braced or wedge-shaped.
	FA2	3	Bilobed ear or spout, rim slightly thickened.
	FA3	3	Straight and slightly outcurved.

Lip: FA1 and FA3 rounded; FA2 flattened.

Body: FA1 is globular below the decorated rim and smoothed neck; FA2 is conoidal, with an oval orifice; FA3 probably conoidal. Rims and necks of FA2 and FA3 are unsmoothed and undecorated.

Surface finish: Exterior of body roughened by vertical paddling, then slightly smoothed. Rims and necks smoothed before decoration.

Decoration: Lacking on body, except for initial surface treatment. Rims and some necks of FA1 decorated with parallel, oblique impressions of twisted cords in lines or triangles, with punctations added in one instance (fig. 31b). Rims and necks of FA2 undecorated except for punctations on the flattened lip (fig. 31a).

Fishhook A is similar to the "decadent" Mandan pottery discussed by Will and Hecker (1944, p. 69 ff.). In shape, treatment, and decoration, it is clearly related to late Mandan and Hidatsa ware. All rim forms and design elements represented occur in pottery of the "Middle Mandan" and "Heart River Mandan" periods.

TYPE: FISHHOOK B (fig. 32)
(SAMPLE: 22 RIM SHERDS AND 171 BODY SHERDS)

Paste:

Method of manufacture: Probably paddle and anvil.

Tempering: Coarse grit, in medium to abundant quantity.

Texture: Medium to coarse, slightly more friable than Fishhook A and having a slightly greater tendency to develop cleavages parallel to vessel wall.

Thickness: 0.5 to 0.75 cm.

Hardness: 3 to 5.

Color: Reddish buff. Firing clouds visible on both interior and exterior surfaces, but more common on the latter.

Form:

Rim: *Subtype*	*No.*	*Description*
FB1	10	Straight and slightly thickened.
FB2	1	Bilobed ear or spout, with slightly thickened rim (possibly from same vessel as sherds of FB1).
FB3	6	Braced or wedge-shaped, undecorated.
FB4	1	Horned or castellated, undecorated.
FB5	1	Slightly flared, with scallop on lip.
FB6	1	Straight and slightly thickened, with oblique, cord-impressed lines on exterior.
FB7	1	Wedge-shaped, with oblique, cord-impressed lines on exterior.
FB8	1	Slightly flaring, with scallop on lip and oblique, cord-impressed lines on exterior.

Lip: FB1 either rounded or flattened; others rounded.

Surface finish: Smoothed.

Decoration: Lacking on body. Rims of subtypes listed are sometimes decorated with impressed cord in parallel, oblique lines and triangles.

This type is similar to the "decadent" Mandan ware of Will and Hecker, but it has a slightly greater tendency to develop cleavages parallel to the vessel wall.

TYPE: UNCLASSIFIED
(SAMPLE: 4 RIM SHERDS AND 12 BODY SHERDS)

This group includes body sherds which have split in planes parallel to the vessel wall, leaving only the inner surface, and rim sherds which lack any part of the neck or body. One rim appears to be similar to Subtype FA1, and another differs only in having deep curved marks, possibly of a fingernail, on the interior. The third rim is wedged-shaped in profile and has a single, horizontal, cord-impressed line on the interior. The last is straight and slightly thickened, with the parallel, oblique design on the exterior and three parallel, horizontal, cord-impressed lines on the interior.

STONE

In three seasons of excavation, only 17 chipped stone implements clearly of native styles were obtained from the village. Some 33 gunflints were also found. They are of interest, since 28 of them are of alien (probably European) material and manufacture, and five are crudely fashioned from local flints. Four of these are made of dark brown, semitranslucent chalcedony found in the upper Missouri region and known as "Knife River flint." The short inventory of chipped stone tools suggests that flint working was a moribund craft among the villagers. Flintlocks were rapidly replacing native weapons, and the flints for these weapons were coming largely through trade.

Of the seven *projectile points* in the collection, five are of Knife River flint, one is of gray flint, and one is of quartzite. The four types of points recognized are classified according to the scheme devised by Strong (1935, p. 88), which emphasizes the shapes of these objects in plan view. Comparisons are made with named point types described in the literature.

1—*(fig. 33d and e) Lanceolate, with notched base (NAb3; identifiable as McKean points, Wheeler, 1952). Two specimens of Knife River flint. Nearly complete point measures about 6.0 cm. in length, 2.5 cm. in maximum width, and 0.4 cm. in maximum thickness. The other specimen (midsection) is 1.9 cm. in maximum width and 0.4 cm. in maximum thickness.*

2—*(fig. 33g) Insloping, slightly barbed shoulders and expanding stem with shallowly notched, thinned base (SCa3; identifiable as a Hanna point, Wheeler, 1954). The single proximal fragment is of Knife River flint, and measures 2.5 cm. in maximum width and 0.6 cm. in maximum thickness.*

3—*(fig. 33c and h) Side-notched triangular, with straight base (NBa1). Two specimens. One specimen, of quartzite, measures 2.5 cm. in maximum width and 0.5 cm. in maximum thickness. The other, of Knife River flint, is 2.1 cm. in maximum width and 0.4 cm. in maximum thickness. Points of this style*

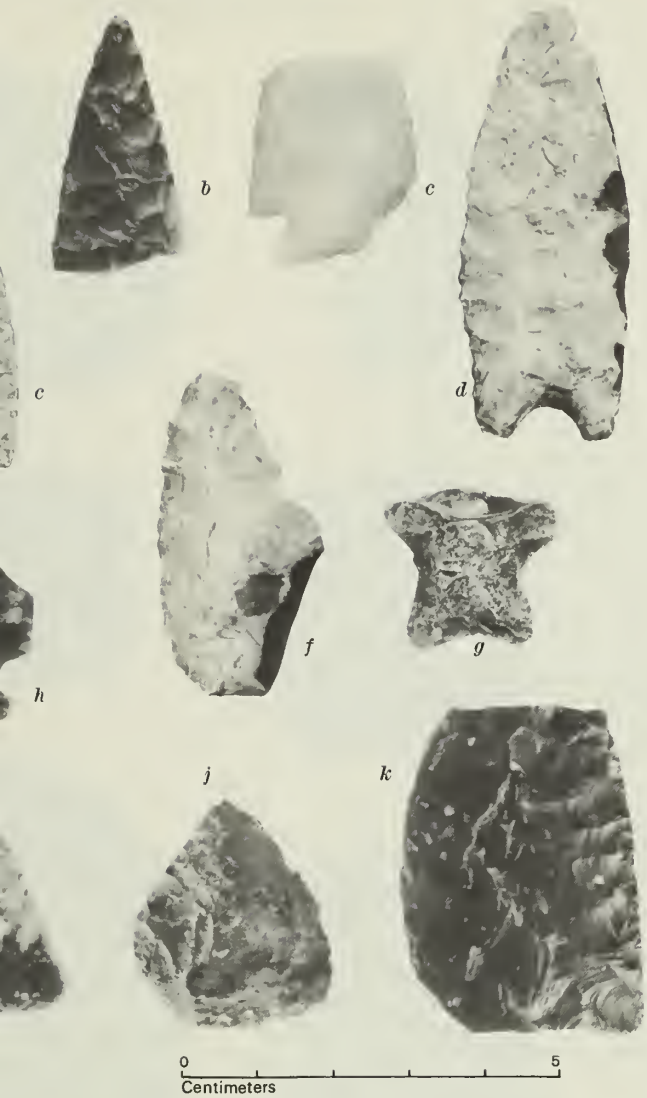


Figure 33. Chipped stone artifacts from Like-a-Fishhook Village.

were made and used by the Mandan, Hidatsa, and Arikara during historic times.

4—*(fig. 33a) Side-notched triangular, with slightly concave base (NBb1). One specimen of gray flint; length 2.2 cm., maximum width 1.1 cm., and maximum thickness 0.3 cm. Points of this style were also made and used by the Three Affiliated Tribes in historic times.*

Three thumbnail-size *end-scrapers* (fig. 33i), such as were used in dressing hides, are roughly triangular in outline. They are made of Knife River flint, and have a mean length of 3.0 cm., a mean maximum width of 3.0 cm., and a mean maximum thickness of 0.8 cm.

Three implements, tentatively identified as *drill-scrapers*, have a sharp point at one end and a slightly curved scraping edge. One of these (fig. 33f), of Knife River flint, has a length of 4.5 cm., a maximum width of 2.4 cm., and a maximum thickness of 0.6 cm. Another, of the same material (fig. 33j), is 3.0 cm. long, 2.5 cm. in width, and 0.5 cm. in maximum thickness. The third, of jasper, is 3.2 cm. long, 2.6 cm. in maximum width, and 0.5 cm. in maximum thickness.

Two fragmentary implements, also of Knife River flint, appear to be *knives*, probably once hafted in sections of bison rib. One of these (fig. 33k), exhibiting minute pressure-flaking on both edges and both faces, is incomplete and has a length of 4.5 cm., a maximum width of 3.2 cm., and a maximum thickness of 0.5 cm. The other, less skillfully flaked and worked on one face only, has a length of 5.5 cm., a maximum width of 4.5 cm., and a maximum thickness of 0.6 cm.

The two tabular stone *choppers* in the collection are completely percussion-flaked on each face. One, of granite, is 13.8 cm. in length, 9.2 cm. in maximum width, and 2.3 cm. in maximum thickness. The other, made of shale, measures 11.0 cm. in length, 8.0 cm. in maximum width, and 1.1 cm. in maximum thickness.

Seventy-eight implements or objects of pecked or pecked-and-ground stone, of native manufacture, were collected in the excavations at Like-a-Fishhook Village.

Twelve *mauls* are made of granite or other extremely hard stone. Nine of them have flattened ends and deeply pecked medial

grooves. They range in length from 13.0 to 18.0 cm. and in maximum diameter from 10.0 to 16.0 cm. (fig. 34f, g, and j). The three other specimens, rounded at each end and with only faintly pecked medial grooves, may be unfinished implements. They measure 9.0 cm. in mean maximum length and 6.0 cm. in mean maximum width.

Two fragmentary biconical *ceremonial "hammers"* were recovered. The more complete specimen, made of fine-grained sandstone, is 9.8 cm. long and has a maximum diameter of 4.0 cm. at the midline; here it has a perforation 1.0 cm. across. Two engraved, parallel grooves extend from the hole toward each end, on opposite faces (fig. 34b). A similar intact object, in the collections of the State Historical Society of North Dakota, has an engraved crescent and cross on opposite faces, and comparable symbols were probably present on the damaged specimen which was excavated. Stone objects of this sort were commonly coated with grease, exposed to the smoke of fires, and then polished. Finally, decorations were applied in red pigment.

The designation "hammers" is misleading, inasmuch as these objects were mounted on a slender wooden handle inserted in the hole near the midline. It has been suggested that they may be survivals of a type of atlatl weight. Their use by the Hidatsa Stone Hammer Society in historic times was purely ceremonial and, although the Society still survives, such objects are no longer used by this group.

Fifty-four complete or fragmentary polished stone tobacco pipes were collected. Most of them (39) are of catlinite (fig. 35b, d–f, h, and i). Fourteen others are made of a limy shale sometimes called blackstone, a material dull gray in its natural state (fig. 35a, c, and g). Pipes of this stone were coated with bison grease, exposed over a smoky fire, and polished to a glossy black. Measurable bowls range from 4.0 to 11.0 cm. in height and from 1.0 to 1.25 cm. in interior diameter, and have a mean exterior diameter of 2.5 cm. Except for two elbow pipes, the specimens are T-shaped, with an extension beyond the bowl opposite the smoker.

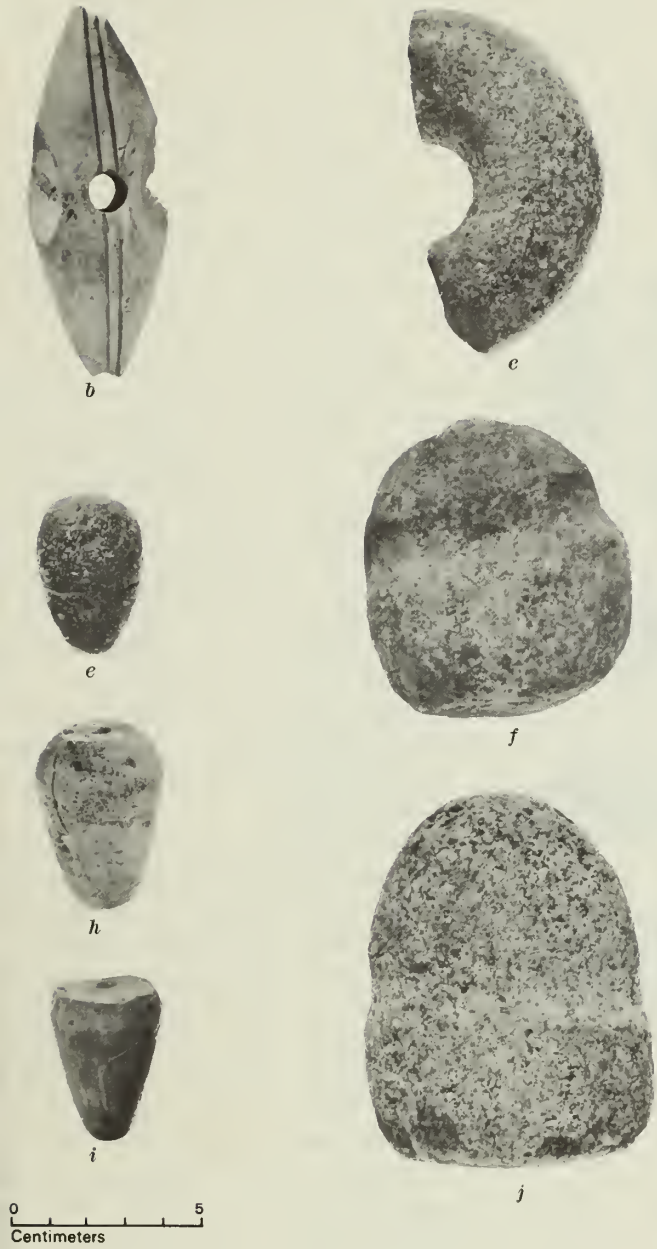
Three fragmentary catlinite pipes are inlaid with lead. Embellishment of this kind is said to have been done by preparing a sand mold of the bowl. The pipe was removed and designs were engraved on it. The pipe was

Figure 34. Pecked and ground stone artifacts from Like-a-Fishhook Village.

a

d

g



then replaced in the mold and the hot metal was poured in. After the pipe was finally removed from the mold, excess lead was cut away and the pipe was smoothed and polished all over.

The villagers are known to have supplied other tribes with catlinite and with other articles and commodities. Thus the Arikara and Mandan are said to have supplied the Pawnee with "red pipestone" and eagle feathers, receiving in return salt, from the plains of the upper Arkansas River, and horses (Dunbar, 1880, vol. 5, p. 322). It was also asserted that the Mandan received corn from the Pawnee. The latter statement appears to be doubtful, since there is no confirmation of such a trade in other historical sources, and it may have been based upon some vague tradition of exchange in prehistoric times (cf. Will and Hyde, 1917, p. 191).

Two *game pieces* are similar to chunky stones from other sites on the upper Missouri and elsewhere. Both specimens are made of granite. One, complete though perhaps unfinished in view of the small size of the perforation, has a maximum diameter of 8.3 cm. and a maximum thickness of 3.0 cm (fig. 34a). The other specimen is fragmentary; it has an estimated maximum diameter of 9.5 cm. and a maximum thickness of 3.5 cm. (fig. 34c). Objects of this kind were used in the widespread hoop-and-pole game, in which the stone was rolled and the players attempted to pierce the ring with long poles (Culin, 1907, pp. 461–462, 511–513). Each tribe in this village is known to have played such a game. Similar round, flat stones, lacking a perforation but sometimes having a concavity on each face, have also been found in the region (cf. Will and Spinden, 1906, p. 164 and pl. 32f and g; these authors refer to the Mandan game of *Skohpe*, in which stone "rings" were used).

There are seven *spinning tops* (fig. 34e, h, and i). Six of them are made of the limy shale also used for pipes; the seventh was pecked from a pebble. These tops have a mean length of 4.5 cm. and a mean maximum diameter of 3.0 cm. Such objects were used by boys, who spun them with thongs. Tops were also made of wood and bison horn.

The rim sherd of a *steatite vessel* is included in the collection. It measures 7.0 cm. in height, 4.7 cm. in maximum width, and 1.3 cm. in maximum thickness (fig. 34d). Steatite does not occur on the upper Missouri, but

Figure 35. Polished stone tobacco pipes from Like-a-Fishhook Village.

fragments of several steatite vessels have been recovered archeologically in the region. The material was probably obtained from deposits in Wyoming or other western areas (Wedel, 1954).

More than 250 implements of stone recovered in excavations in the village area were modified by use alone.

Thirty-six *hammerstones*, made of granite and other hard materials, exhibit varying amounts of battering on their edges. They measure 9.0 cm. in mean maximum length and 4.0 cm. in mean maximum width.

More than 200 *whetstones*, predominantly of fossil wood or shale, have a mean length of 14.0 cm. and a mean width of 2.0 cm. Six other objects may also be whetstones, though they are of slightly different shape and may have been used specifically as pestles or mullers; all are flattened at one end and rounded at the other. Made of sandstone (4) and of shale (2), they have a mean length of 17.0 cm. and a mean maximum width of 5.0 cm.

Nine *arrowshaft smoothers* are of natural clinker. They have a mean maximum length of 5.5 cm. and a mean maximum width of 3.0 cm.

Lastly, among the stone objects of native origin obtained from the village, there are eight items that show no evidence of having been shaped by intention or by use.

An object with a depression in one surface measures 8.5 cm. in length and 3.0 cm. in maximum thickness. Though the depression appears to be natural in origin, the object may have been used for grinding or crushing herbs and similar substances.

Three flat pebbles, tentatively identified as game pieces, are comparable to objects used in a Mandan woman's game (cf. Libby, 1906, pp. 444–445). Other game pieces obtained at the site, made of bits of glazed earthenware and glass, are described elsewhere in this report.

Four unmodified stone objects, identified tentatively as "*medicine stones*," may have had magical significance. One is an elongated black stone, 9.0 cm. in maximum length and 3.5 cm. in maximum diameter, which resembles a "medicine stone" in the collections of the State Historical Society of North Dakota. Of the other three specimens, which have a mean diameter of 4.0 cm., one is a concretion having a high iron content, and

the others are smooth, spherical pebbles. The three stones resemble the *tunkan* (stones) used in the Dakota *Yuwipi* ceremony, a variant of which was practiced by the Mandan and Hidatsa (cf. Hurt and Howard, 1952). The ceremony was performed in order to cure disease or to find lost or stolen objects. The stones were thought to be manifestations of spirits, who entered the lodge during the ceremony, untied the conjurer, and gave him the information sought.

BONE AND ANTLER

Objects of bone and antler were obtained in sufficient numbers to illustrate certain native types still in use during the occupation of the village, as well as at least one type made in imitation of alien equivalents. Several bone objects are decorated, and some have been polished to a glossy smoothness. One incised bone object has red pigment worked into the ornamentation.

The single *bison-scapula hoe* in the collection was found in a cache in House 13, the Hidatsa ceremonial lodge. It measures 36.0 cm. in maximum length and 20.0 cm. in maximum width, and was prepared by removing parts of the acromial and post-scapular processes (fig. 36e). The Arikara are said to have retained scapula hoes for ceremonial use after they had been largely replaced by metal hoes for agricultural use, and the present specimen may have been preserved for a similar reason.

Of five L-shaped *scraper-hafts* or "beamers" of elk antler, three are represented by only small fragments and one is unfinished. The complete specimen is 33.0 cm. in total length and the handle has a maximum diameter of 4.2 cm. (fig. 36a). The use of a modified adz-like bone tool of this kind in preparing hides at the village, in the 1860's, was later recalled by the trader Larned (in Collins, 1925, p. 31 n.). The handle was said to have been approximately 14 inches long and the right-angle turn or bit approximately 4 inches. A strip of band iron, measuring 3 by 1½ inches, was tied with stout sinew cords to the tip of the bit. This metal tip was sharpened sufficiently to scratch or chop away dried flesh without cutting the hide.

Three bone *abraders*, made of the rough cancellous portion of the proximal condyles of bison femora, have shapes that fit the hand (fig. 36i). These tools were used much as sandpaper is used today, to thin and smooth the hides. The three specimens range from 9.0 to 10.0 cm. in length, 9.0 to 10.5 cm. in width, and 5.0 to 5.5 cm. in thickness.

Three *tanning implements* are roughly rectangular sections of the distal ends of bison scapulae from which the post-scapular process has been removed. The single measurable specimen is 12.5 cm. in maximum length, 17.0 cm. in maximum width, and 0.3 cm. in mean thickness (fig. 36j). Arikara informants stated that implements such as these were used for removing water from wet hides during their preparation.

Of two *arrowshaft wrenches*, made of sections of bison or beef ribs, only one is complete. It measures 27.0 cm. in length and 3.4 cm. in maximum width, and has a hole, 1.0 cm. in diameter, drilled near the midpoint (fig. 36h). The other specimen is an end fragment measuring 15.5 cm. in length and 3.0 cm. in maximum width. A hole, 0.9 cm. in diameter, is drilled near the broken end.

Over half of an *elk-antler bow* is represented by fragments having an estimated length of 52.0 cm., a mean width of 2.5 cm., and a mean thickness of 0.5 cm. (fig. 36d). Bows of this kind were commonly backed with sinew and glue, and this specimen was probably reinforced in this manner originally. Though elk-antler bows were never common in the Plains, they have been collected from many tribes of this region.

Parts of the frames of at least two *elk-antler saddles* are present (fig. 36b and c). One specimen, clearly a pommel, has a simple carved horn (fig. 36b). Connecting pieces, or sideboards, of such saddles were often made of wood, and this may explain why a complete frame was not found.

These parts of saddle frames appear to be similar to parts of so-called "prairie chicken snare saddles," described for the Blackfoot and other peoples by Ewers (1955, pp. 91–93; fig. 15 and pl. 3a). This variety had a low-arched pommel and cantle of elk or deer antler, and sideboards and girthing like those of the "wood saddle." Ewers notes that "prairie chicken snare saddles" do not appear in the works of artists such as Kurz, who interpreted the Plains Indians from personal observations. He also observes that if, as has been suggested, the type is a comparatively modern one, it must have been diffused rapidly over the Plains as well as deep into the Plateau. It has been

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a
b
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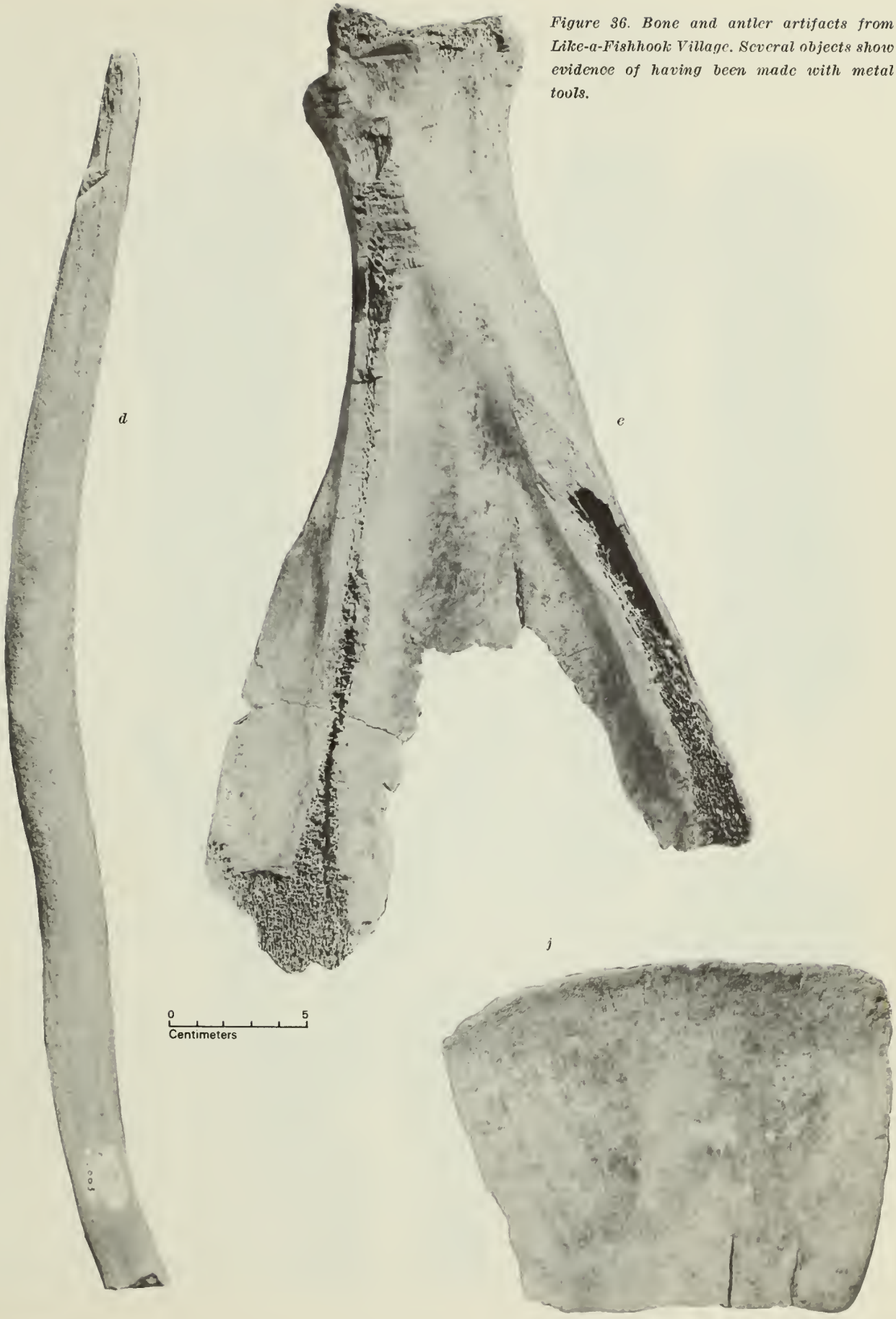


Figure 36. Bone and antler artifacts from Like-a-Fishhook Village. Several objects show evidence of having been made with metal tools.

reported for the Plains Cree and Teton Dakota (Ewers, op. cit., citing Mandelbaum, 1940, p. 196, and Densmore, 1948, p. 204), and there are specimens from the Crow, Northern and Southern Cheyenne, and Kiowa in the United States National Museum. Some data on the making of saddles by the Hidatsa have been reported by Wilson (1924, pp. 190–191 and figs. 34 and 35). The Hidatsa regarded the horn saddle as a "woman's saddle" or "pack saddle," distinguishing it from the pad or riding saddle. Wilson obtained a Hidatsa horn saddle, covered with painted parflèche (rawhide) for the American Museum of Natural History.

Five *roach spreaders* of bone attest the use of roach headdresses in such ceremonies as the Grass Dance and the Hot Dance. The specimens were made of scapulae or long bones altered beyond identification. The only restorable specimen measures 11.5 cm. in length, 3.0 cm. in width, and 0.15 cm. in thickness (fig. 37f). Red pigment is present in the incised decoration on the upper surface and, near the larger forward end, there is a hole through which a lock of the wearer's hair could be passed, to be held in place by a stick thrust through it. Eight smaller holes, in pairs along the axis of the object, provided for the attachment of holders for keeping eagle feathers in an erect position. Near the smaller end, which is cut in the shape of a swallowtail, is a small hole used for attaching an ornamental fur tail or colored ribbons. The other four fragmentary specimens are generally similar in shape and design (fig. 37d, e, j, and l).

One fragmentary specimen of bone may be a section of a roach spreader, but it differs somewhat from the others. It measures 8.0 cm. in length, 2.0 cm. in width, and 0.3 cm. in thickness (fig. 37h). Though it has the typical swallowtail shape and is skillfully carved and decorated with grooves and dots into which red pigment has been rubbed, this object is asymmetrical, and it lacks perforations for the attachment of plume holders.

Of the two *plume holders* present, only one is complete. Measuring 3.6 cm. in length and 1.7 cm. in diameter, it is cut obliquely at the base so that the feather held by it would slant backward (fig. 37k). The base has two perforations through which thongs were passed to hold the feather and to secure the plume holder to the roach spreader. The fragmentary specimen is 4.2 cm. in length and about 1.7 cm. in diameter (fig. 37a). The base of this holder is straight. There are pairs of perforations on opposite sides for tying the feather, plume holder, and roach spreader together.

Three cut ends of femora of *Canidae* may be bones from which such plume holders were made. Two of these are cut at the proximal end of the bone, and the third is cut at the distal end.

A somewhat different object of bone was identified by Joe and Ella Driver (Hidatsas) as an attachment for an *elk-antler headdress* used in the Elk Dance (fig. 37i). This object is made of a branching section of antler, and measures 15.0 cm. in height and 9.5 in breadth (maximum spread of the branches). It averages 0.6 cm. in thickness.

There are two *whistles* made of eagle humeri, one finished and one unfinished. The former is 20.0 cm. in length and about 1.5 cm. in diameter (fig. 36g). A triangular hole has been filed or sawed through it a point 3.0 cm. from the larger end, and the condyle at the opposite end is decorated with filed serrations. The unfinished specimen measures 19.6 cm. in length and 1.5 cm. in mean diameter (fig. 36f). Initial cuts for the hole are evident. Comparable specimens from the region occur in both ethnological collections (Densmore, 1923, pp. 9–10, and pl. 10) and in archeological assemblages (Lehmer, 1954, pp. 70–71).

Four *beads* are fashioned of small mammal or bird bones. Though none of the specimens is complete, the longest fragment is 9.0 cm. in length, and the three larger beads have a mean diameter of 0.8 cm. One specimen bears an incised zigzag ("mountain") design (fig. 37b); the others are undecorated (fig. 37g).

Part of an *ice-glider*, sometimes called a "snow snake," made of a section of bison or beef rib, is of a kind used in a game known to many Plains tribes (cf. Culin, 1907, pp. 400, 413, 415, 418; Fenenga, 1954). The present specimen, pointed in front and straight at the rear, is 9.2 cm. in length, 3.7 cm. in width, and 0.8 cm. in thickness. Two feathers, with wooden plugs (the decayed ends of which are still visible), were inserted in holes drilled in the base. These objects were thrown onto an icy mound, from which they bounded into the air. The feathers guided their flight.

Figure 37. Bone artifacts from Like-a-Fish-hook Village.

Figure 38. Shell artifacts from Like-a-Fish-hook Village. All shells are of marine origin.

There are five *handles* of antler. Four of these, made of deer antler tips, measure 2.5 cm. in maximum diameter and from 7.2 to 10.0 cm. in length. In each case, the center of the larger (cut) end is cored out for the insertion of an awl or file. The other handle, a highly polished section of elk antler, measures 11.0 cm. in length and varies from 3.0 to 4.0 cm. in diameter. The ends are cored out to depths of 6.0 cm. and 2.5 cm. This handle may have been used for holding an awl, a knife, or a quirt. Another possible handle is a section of bison or beef rib, measuring 20.7 cm. in length, 2.5 cm. in width, and 0.4 cm. in mean thickness. One pointed end has a hole drilled in it transversely.

Two *dominoes* of native manufacture suggest that the villagers had adopted this game from Whites. These pieces, both "three-three," are made of bison or beef rib (fig. 37c). They measure 4.0 and 4.5 cm. in length, 2.0 cm. in width, and 0.3 and 0.5 cm. in thickness. Comparable specimens found outside the village are described elsewhere in this report.

SHELL

Several finished and unfinished objects of shell and numerous shell fragments were found in excavations in the village area.

Two fragmentary *disks* are made of sections of a pink conch (fig. 38e and f). Measuring approximately 3.5 cm. in diameter and 0.2 cm. in thickness, they are comparable to the disks used today by native dancers at the front of the "choker" neckband and at the sides of the "Crow" necklace. A large, unfinished fragment of pink conch has a diameter of approximately 6.5 cm. and retains the rough exterior surface (fig. 38c).

Three *pendants* are made of abalone (*Haliotis* sp.), of Pacific coast origin. Each of these has a drilled perforation for suspension (fig. 38a and b). Two large fragments of the same variety of shell are cut but not otherwise worked (fig. 38d).

Hundreds of fragments of *Dentalium* sp., probably also of west coast origin, were taken from lodges and caches. These shells were specially favored by Plains peoples. They were worn by men in hair ornaments of hourglass shape and by women in long ear pendants, and were also used for decorating capes and other garments.

Specimens of abalone and dentalium from the nearby trading posts are described elsewhere in this report.

Figures 39 (below), 40, 41, 42, and 43. Metal objects from Like-a-Fishhook Village.

WOOD

Fragments of a carved wooden dish were found in House 19. Similar wooden vessels of early manufacture are in the collections of the State Historical Society of North Dakota. A wooden mortar from House 4 has already been mentioned. Members of the Three Tribes still make objects of wood, including whistles and mirror frames, used in the Grass Dance, and ornamental canes.

Evidence of the importance of wooden implements and furnishings, now lost, is to be seen in the many axes, knives, and rasps of iron and steel which were recovered from the village area and are described below.

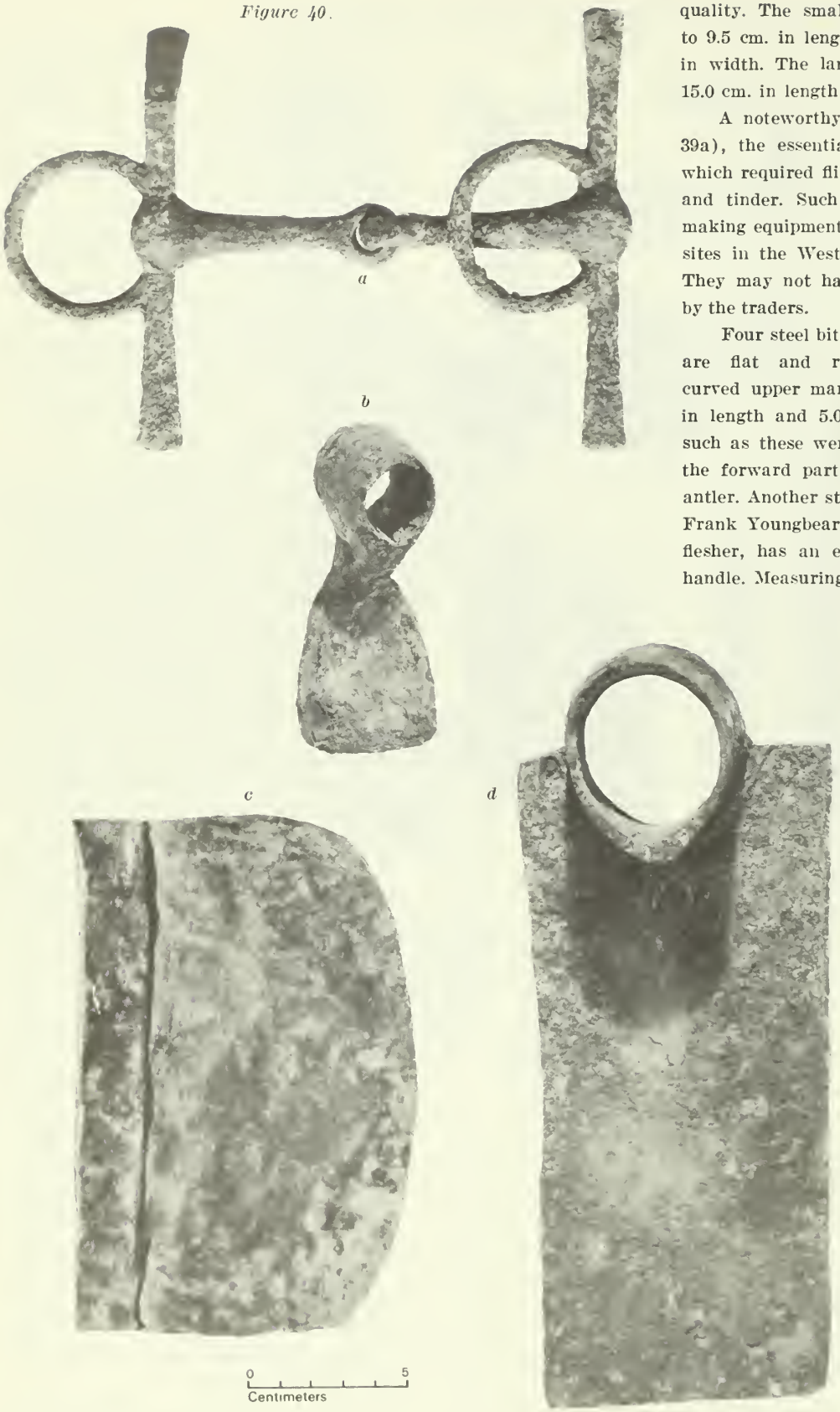
OBJECTS OF WHITE ORIGIN

The extent of acculturation of the Three Tribes before and during the occupation of Like-a-Fishhook Village is illustrated by many articles of non-native origin, design, and manufacture associated with purely native objects. Some of the foreign articles are complete or substantially so; others are fragmentary or worn, and occasionally exemplify secondary uses quite different from the purposes they originally served. Some specimens were substitutes for implements and equipment previously made by the Indians; for example, projectile points of metal instead of stone. Others, such as firearms and ammunition, were new additions to the indigenous material culture. Most of these objects had probably been obtained locally or at such nearby trading stations as Fort Clark and Fort Union, through Agency issues, or from gear brought in during the brief military occupation of Fort Berthold II in the 1860's.

Many of the specimens of alien origin lack historical interest. In the following discussion, emphasis is placed on those products that were modified or put to new uses in accord with native needs and customs, or differ in some respect from comparable specimens recovered from the trading posts. No attempt has been made to document these items fully. The references cited are but a small part of the published sources concerning machine-made articles of the past century. Certain information has been courteously provided by specialists.

Of the 47 triangular, stemmed *projectile points* of iron or steel in the collection (fig. 39e-g), 46 are arrow-size and one is lance-size. The sheet metal varies considerably in

Figure 40.



quality. The smaller points range from 4.5 to 9.5 cm. in length and from 2.0 to 3.0 cm. in width. The lance-size point (fig. 39e) is 15.0 cm. in length and 2.0 cm. in width.

A noteworthy article is a *fire-steel* (fig. 39a), the essential part of a strike-a-light, which required flint, or a suitable substitute, and tinder. Such articles of primitive fire-making equipment seem to be rare at historic sites in the West (cf. Wedel, 1955, p. 162). They may not have been commonly stocked by the traders.

Four steel bits are parts of *fleshers*. They are flat and roughly rectangular, with curved upper margins, and measure 7.0 cm. in length and 5.0 cm. in mean width. Bits such as these were bound with sinew below the forward part of the handle, usually of antler. Another steel implement, identified by Frank Youngbear (a Mandan) as part of a flesher, has an eye for hafting to a short handle. Measuring 11.0 cm. in length and 5.2

Figure 41.

cm. in width, it may have been fashioned from a small mattock (fig. 40b). Another appears to be made from a large hoe (fig. 40d).

Five other fleshers were made of sections of gun barrels. Four of these are flattened at one end (fig. 41a and b). In the fifth example, the barrel, perhaps from a shotgun, had been flattened at both ends, and one of these had then been split longitudinally for a short distance and spread open to make a wide working edge. The working edge of one specimen is serrate (fig. 41b). These specimens range from 28.0 to 34.5 cm. in length.

An implement of sheet brass is probably a *tanning tool* for pressing water from wet hides. It is roughly rectangular, with a curved working edge, and measures 10.7 cm. in length and 16.1 cm. in width (fig. 40c). The upper edge has been folded upon itself for a grip. Comparable tools fashioned from bison scapulae have been described previously.

Several large steel *knives* have serrations on the cutting edges. Doubtless the notches made the knives useful in preparing hides, as well as in sawing and cutting operations. Small knives are of pocket size and folding style (fig. 39h).

There are several *scythe blades*. Apart from their primary use, such blades were tied in upright position to a post, edge inward. Two women would draw a hide back and forth across the back of the blades until the grain had been broken down and the hide rendered soft and pliable. Rawhide ropes are said to have been used in a similar fashion before scythe blades became available.

The importance of horses at the village is indicated only dimly by a *snaffle bit*, with a jointed mouthpiece (fig. 40a). Evidence of the use of work animals at the nearby trading posts is also scanty.

A *whistle*, made of a section of metal tubing, probably zinc, and still retaining sinew bound around one end, is 20.0 cm. in length and 1.2 cm. in diameter (fig. 41d). This object, perhaps hand-rolled for the purpose, was probably once supplied with a reed. A flutelike musical instrument, fashioned from a gun barrel or iron tubing and provided with stops, was also recovered when the alinement of the village palisade was exposed. Use of gun barrels or metal tubing for whistles and flutes is to be seen in ethnological specimens from other parts of North America. For example, a war whistle of the Blackfoot, now in the Field Museum of

Figure 42.

Natural History, Chicago, is made of a gun barrel, as is a courting flute of the Winnebago (Quimby and Spoehr, 1951, pp. 135, 137).

Of two pairs of *tweezers* for removing beard hairs, one of sheet brass measures 5.4 cm. in length and 3.7 cm. in maximum width (fig. 39c). The other pair, of iron, is 5.7 cm. in length and 1.8 cm. in maximum width. There are also several fragmentary coils of brass and iron wire, which were used as tweezers (fig. 39b). The mean diameter of the coils is 2.0 cm.; the wire itself is 0.15 cm. in diameter. These objects, clipped into hair braids, sometimes served as ornaments. Other ornaments include four small, conical *tinklers* of tinned metal. One of two *thimbles* (fig. 42d), having a perforated top, may well have been used as an ornament. The second, with an open top (fig. 42c), is of the style used by tailors.

A flat *brooch*, cut from sheet brass die-stamped with a rosette decoration, has a diameter of approximately 4.3 cm. (fig. 42g). The object is similar in design to the "Scottish" brooch, and likewise has a bar across the midline. At opposite sides, near the bar, are small holes for fastening it to a garment.

Harness ornaments, both die-stamped and hand decorated, were also obtained (fig. 42h and i), as well as the frame of a small *purse*, similarly decorated (fig. 42f).

An unusual ornament is a brass and gilt *gorget*, crescent-shaped and convex in section, measuring 18.5 cm. in maximum width and 7.0 cm. in maximum length at the midline. The obverse has two bosses, 2.3 cm. in diameter and 0.6 cm. in height, near the ends (fig. 43b). The reverse has two loops for attachment to a neck cord. The gorget is undecorated and lacks a manufacturer's mark A decorated specimen from Fort Berthold II is described subsequently.

Other examples of jewelry include iron and brass *bracelets* with simple decorations (fig. 42a, b, and e). A large brass *sleigh bell* illustrates human adornment of another kind (fig. 39d).

Several lots of glass beads were found in the village area (fig. 44a–i). Two general classes are represented—the larger and showier beads, sometimes hand decorated and suitable for stringing on necklaces; and the smaller beads, sometimes referred to as seed or pound beads, which were frequently used singly or in short strands and sewed on hides or fabrics. Varieties named by the traders,

Figure 43.

such as pigeon egg, barleycorn, and others, are probably present, but only the first is clearly recognizable from its shape, little being known of the exact nature of others mentioned, such as wampum, snake, or agate beads (McDonnell, 1940, p. 185 ff.; and post inventories).

In general, all of these beads appear to be typical of varieties traded in the Plains at that time. Any refinement of this statement is impossible in view of the dearth of information documenting the history of glass beads in the Indian trade. The humble glass bead was a commodity of the first importance in the trade, here as elsewhere. It was a familiar kind of luxury goods that ultimately replaced native ornaments, including *Dentalium* shells, which were obtained through white traders as well as from other native peoples.

Bits of glass and glazed earthenware provided the villagers new materials for objects affording amusement. Eighteen *game pieces* (fig. 44j–q and s) are of a kind used in a game played by women, particularly among the Mandan (cf. Libby, 1906, pp. 444–445). One of these is of chipped glass; the others are bits of glazed earthenware ground to desired shapes. These pieces are direct parallels of worked bits of bison bone, shell, pottery, and other substances found at other native sites. Two specimens are reminiscent of perforated shell disks, commonly used on the Plains (fig. 44r and t). Even the head of a toy dog, of glazed ware, had survived to shed some light on children's playthings (fig. 44u). A different use of foreign materials is illustrated by a fragment of glass, pressure-flaked along one edge, probably used in cutting or scraping, and a splinter of glass whose edges have been dulled by use.

Clay *tobacco pipes*, factory-made and similar to specimens from outside the village, show that this trade article had begun to replace pipes of native manufacture (fig. 44v–z).

In the realm of personal items, the inhabitants of Like-a-Fishhook Village adopted many machine fabrics and articles from the Whites. Indeed, except for ceremonial use, garments of native materials, design, and fabrication had probably been largely displaced by goods of factory origin and foreign materials, frequently altered to suit native need or taste. Thus blankets were commonly used for clothing as well as bedding. Foot-

Figure 44. Glass beads and ceramic objects from Like-a-Fishhook Village.

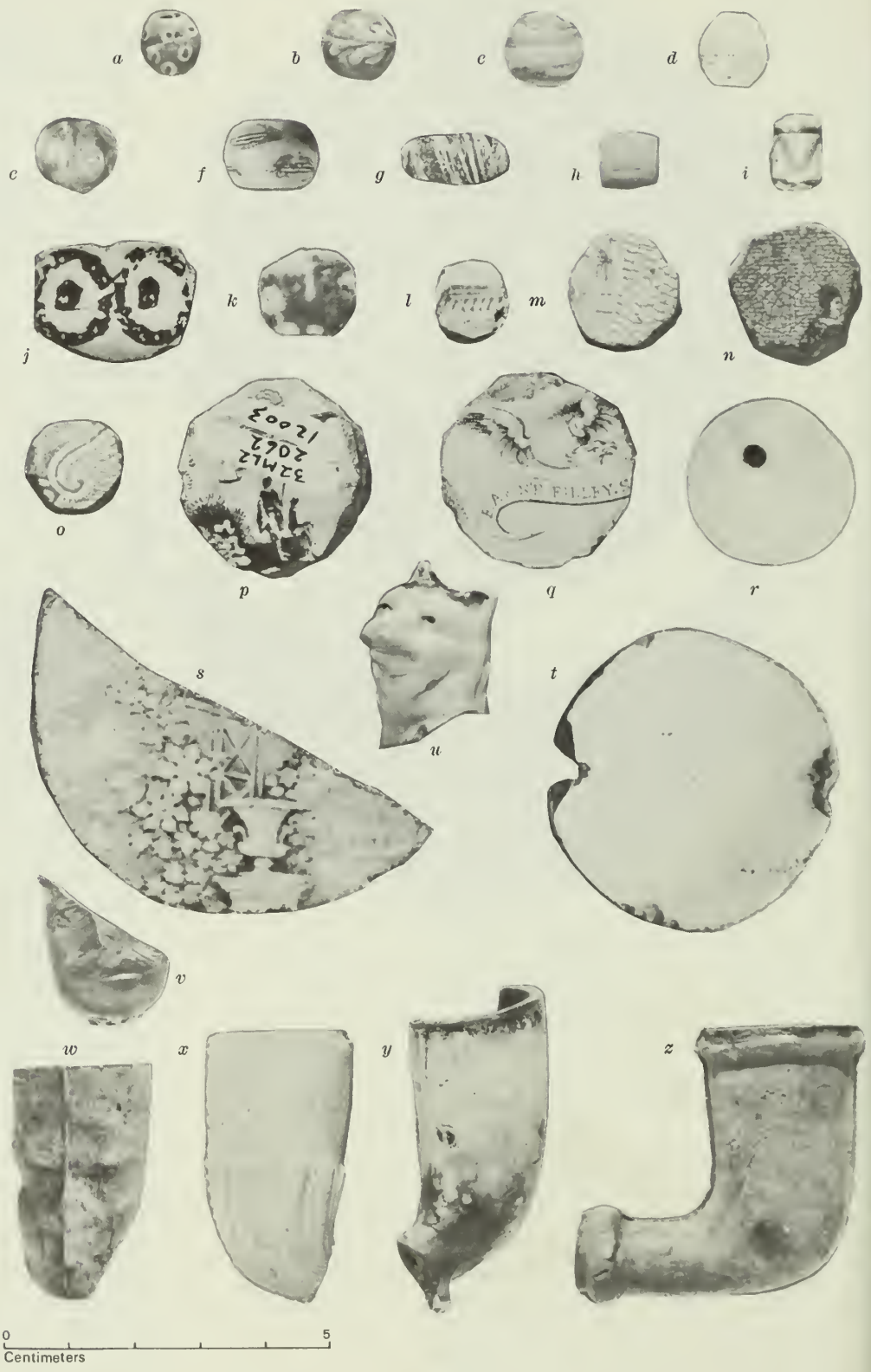


Figure 45. Miscellaneous objects from Like-a-Fishhook Village.

wear of tanned leather, factory-made or hand made, was available here, on the evidence of the large number of boot and shoe fragments found. There were finished garments also, as seen in glass and mother-of-pearl buttons and in a few bits of machine-made fabrics.

One small piece of woven fabric is of more than ordinary interest. It may have been part of a sash, or *ceinture flechée*, sometimes known as the "Canadian belt." Examination by the North Dakota State Laboratories showed that, though of animal origin, the fibers are not wool, or the hair of bison or other known wild or domestic animals of North America, but more nearly resemble alpaca or llama. Such South American fibers were in common use in North America before the end of the occupation of the village, and this fragment may be from a textile obtained by way of Canada, through British traders.

Domestic furnishings of alien origin and of varied kinds were also in use at the village (fig. 45a–i). Among these materials were many fragments of iron stoves and metal cooking utensils. Parts of iron coffee mills and of coffee pots and cups are evidence of the adoption of coffee, along with flour, sugar, spices, and other staple foods, available through trade and Agency issues. Yet objects of native origin, associated with those of alien origin, show that older traditions of food preparation and storage persisted. Thus sherds of native pottery, blackened with carbon, reveal the use of the original vessels for cooking. Parts of two wooden mortars (in Houses 4 and 12), and chopping stones set into the floors of lodges (in Houses 13 and 17), demonstrate the survival of aboriginal customs of preparing vegetal and animal foods. Corn, beans, squashes, and animal remains in caches testify to the durability of native methods for drying and storing comestibles.

FIREARMS, GUNFLINTS, AMMUNITION, AND MILITARY GEAR FROM LIKE-A-FISHHOOK VILLAGE

BY CARLYLE S. SMITH

Rather large lots of damaged or fragmentary firearms, gunflints, ammunition, and miscellaneous items of military gear were recovered in the excavations at Like-a-Fishhook Village. This account is a shortened and partially updated version of the report on these specimens which I drafted in 1953 (C. S. Smith, MS.).

Many of the specimens, such as lead balls, gunflints, and parts of flintlock guns, were made after the last quarter of the 18th century. However, the lock plate from one of the flintlocks bears the date 1858 and, as is known from the work of Russell (1944 and 1957), the flintlock trade gun was still being manufactured toward the close of the 19th century for use in northern North America.

The dating of many specimens suggests a minimum timespan from about 1860 to 1885. The earliest one to which a date can be assigned is the lower band from a Model 1842 U.S. military musket, made between 1844 and 1858. The latest specimens are cartridges made between 1880 and 1902. These could not have been made after 1902 because they are marked UMCCo instead of REM–UMC. Guns and cartridges furnish the following dates, on the basis of their being so marked or by assignment through documentation and typology: 1844–58; 1845–58; 1853–65; 1855–64; 1857–72; 1858; 1860–65; 1866–68; 1866–97; 1868–80; May to December 1871; 1873–81; 1876–97; May 1879; March 1880; 1880–1902; 1881–92; and May 1883. The extreme timespans for some of the cartridges are omitted because no late manufacturers' marks are present.

Some of the specimens could have been made after 1890, on the basis of known timespans of manufacture, but it is significant that not a single specimen can be definitely assigned to a date after 1890 for the start of manufacture.

Of interest in this regard is the absence of any cartridges designed especially for use in the Model 1886 Winchester and in high-power rifles using smokeless powder, which appeared after 1890. Were direct documentation lacking, it would be safe to assign the site to the last half of the 19th century.

FIREARMS

The following tabulation shows that 22 different types of firearms are identifiable—six from parts, eight from parts and cartridges or bullets, and eight from cartridges or bullets only. Thirteen types are classifiable as military in design and origin. Seven were made primarily for civilian use, and two were made for trade with the Indians. It is impossible to determine the actual number of guns excavated in the village area. A conservative estimate, on the basis of parts, is 43; and if

cartridges are added, for which no guns were found, the total is 52. However, these cartridges may have been sources of powder, lead, brass, and copper. Too few separate bullets were available to determine the number of guns in use.

Parts of long guns range from those belonging to flintlock and percussion lock muzzle-loaders to metallic cartridge breech-loaders, both single shot and repeating. Pistols range from revolvers using loose powder and ball to those using metallic cartridges.

Most of the flintlocks from Like-a-Fishhook Village are of the British trade type, utilizing some late 18th-century and early 19th-century parts. One is dated 1858. Percussion-lock muzzle-loaders came into use after about 1820 and gradually fell into disuse in the United States after 1865. Percussion-lock guns from the site belong to the period 1844–64. The American Civil War gave impetus to the development of satisfactory breech-loading guns. The breech-loaders from the site date from about 1860 to 1880.

British flintlock trade guns of the type described and illustrated by Russell (1944 and 1957) are represented by lock plates (fig. 46b and c), two frizzens, two frizzen springs, one sear, four barrels (fig. 41c), and a dragon side-plate. The barrel of one has been made into a hide flesher. One lock plate (fig. 46b) is of the style made for use on British muskets of the Napoleonic Wars (George, 1947, p. 173), and is marked "BARNETT/1858" behind the tumbler hole. The frizzens and springs are also typical of those found on British military flintlocks. The barrels are octagonal for approximately the first quarter of their length and round from that point to the muzzle. Rust has obliterated all marks. The dragon side-plate is a brass ornament which served also as support for the screws which held the lock in place. Russell (1944 and 1957) has established that this ornament denotes a gun made for the Indian trade. The side-plate found does not appear to differ significantly from other examples known. The guns from the site are 24 gage, or about .56 caliber, smooth bore. In all probability they came by way of Canada, although American trade cannot be eliminated.

Another form of muzzle-loading trade gun is a percussion-lock piece made in Belgium from British parts. This is represented by a barrel and three butt plates. The barrel originally formed part of a British Enfield rifle musket, Model 1853, .577 caliber, the manufacture of which terminated in 1865 (George, 1947, pp. 306–308, 326–327). This barrel has been shortened and equipped with different sights. On the left side, near the breech, is a mark made up of the letters "ELG" in an oval cartouche. This is the official Belgian proof-marking, signifying that

	Gun parts	*Cartridges*	*Bullets*
British flintlock trade gun, ca. 24 gage.	x		?
Belgian-British percussion rifle, .577 cal.	x		?
Kentucky flintlock rifle, ca. .40 cal.	x		?
U.S. Model 1842 musket, .69 cal.	x		
U.S. Model 1842 carbine, .69 cal.	x		
U.S. Models 1855–63 rifle musket, .58 cal.	x		x
U.S. Models 1866–70 rifle, .50 cal.		x	
U.S. Models 1873–88 rifle, .45 cal.	x	x	x
U.S. Model 1873 carbine, .45 cal.	x	x	
Sharps carbine, converted to .50 cal.		?	
Spencer carbine, .50 and .52 cal.	x	x	
Henry, or Winchester M1866, rifle, .44 cal.	x	x	
Winchester Model 1873 rifle, .44 cal.		x	
Winchester Model 1876 rifle, .45 and .50 cal.		x	
Winchester Single Shot Rifle, .45 and .50 cal.		x	
Colt Model 1855 pocket revolver, (?) cal.	x		
Colt Model 1860 Army revolver, .44 cal.	x		
Colt Model 1861 Navy revolver, .36 cal.	x		
Colt Patent 1872 Army revolver, .45 cal.		x	x
Whitney 1861–65 Navy revolver, .36 cal.	x		
Smith and Wesson Army revolver, .44 cal.		x	
Revolver, rim-fire, .22 and .38 cal.		x	

the barrel had been proved at Liège. Three brass butt plates also conform to the pattern used on the Model 1853 Enfield. One bears an anchor and the Letters "C D". A ramrod having a cup-shaped head may belong with these weapons.

Pennsylvania or Kentucky flintlock rifles are represented by one section of the heavy, octagonal barrel peculiar to this weapon (Dillon, 1924). The breech plug is intact but the other end of the barrel has been hammered in such a way that the caliber cannot be accurately measured. It is estimated to be about .40 caliber, typical for such guns.

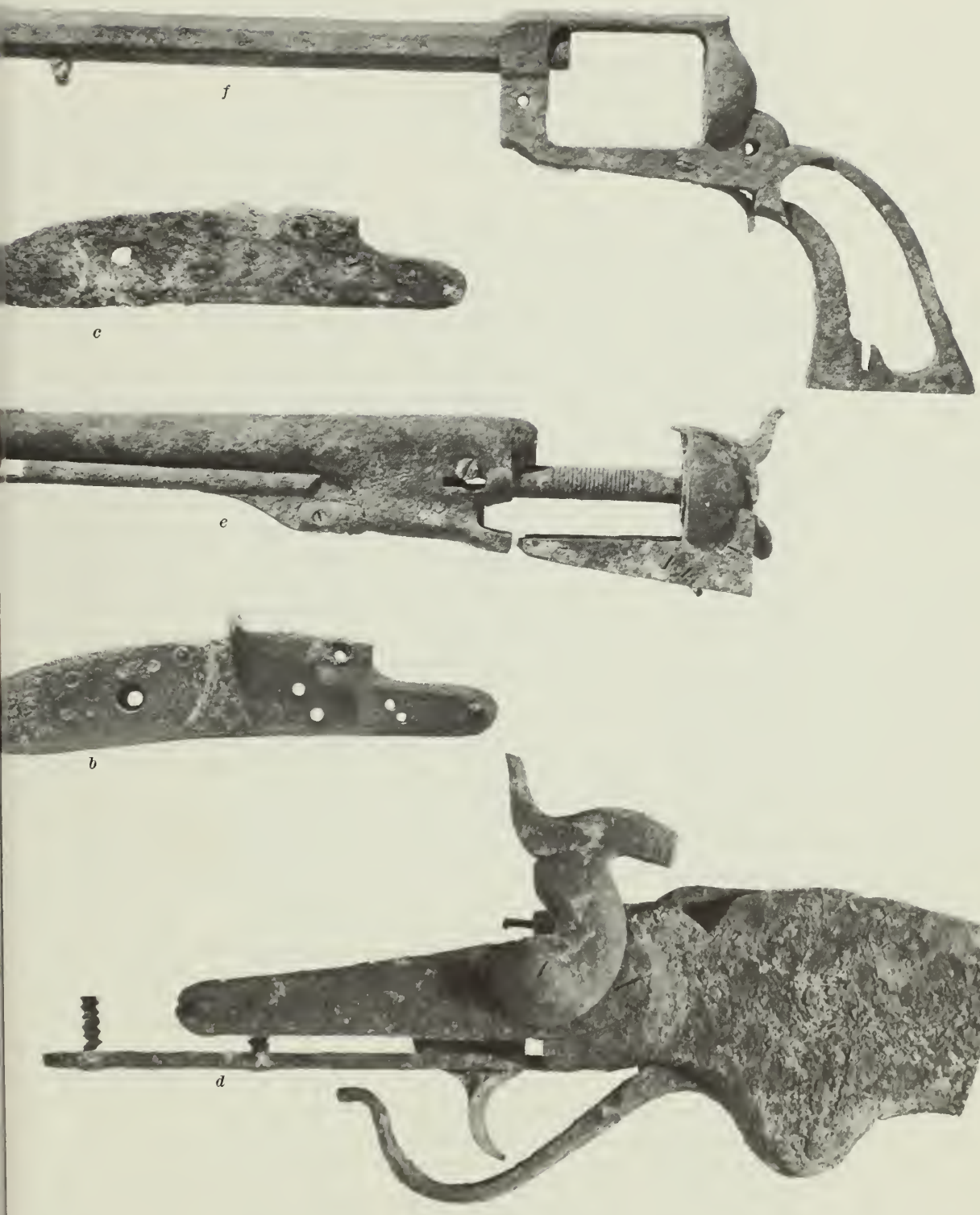
Of two parts from U.S. military muskets and carbines of Model 1842, one specimen is an iron lower band. Manufacture of this musket began at Springfield in 1844 and at Harpers Ferry in 1845, and was discontinued at both places by 1858 (Fuller, 1930, pp. 141–142). The other specimen is a brass butt plate, stamped "U.S.", from a Model 1842 Cavalry carbine, manufacture of which began in 1848 at Springfield and terminated in 1854. Such weapons were regulation issue for the Army prior to the introduction of Model 1855 weapons, but all of them saw service during the Civil War and may have been brought to the village even later.

A U.S. military rifle musket, of Models 1855, 1861, or 1863, is represented by the head of a ramrod. The cup-shaped hollow and outer contours denote the type of weapon (Fuller, 1930, pl. 23).

The Model 1873 U.S. Springfield carbine, .45 caliber, is represented by a barrel and receiver complete with rear-sight base and breech plug. The form of the rear-sight base indicates manufacture prior to May 1878 (Anon., 1898, pp. 2, 4, 23–26). This weapon was the regulation arm for cavalry after 1873. One Model 1873 lower band is present. Two butt plates for a Model 1873 Springfield rifle have the letters "U.S." stamped on the tang. A thickened area on the inside, around the central screw hole of each plate, suggests that they were made after August 1881, when the form established in 1855 was changed and made heavier (Anon., 1898, pp. 3, 19; Fuller, 1930, p. 118). Manufacture of this rifle ceased in 1892

A nearly complete Spencer carbine (fig. 46d), lacking only the butt stock and magazine, is present. This is the seven-shot repeating arm used by some cavalry units after

Figure 46. Saber and firearms from Like-a-Fishhook Village.



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1862, in the Civil War and on the frontier. The barrel is .52 caliber and has seven grooves indicating manufacture prior to 1865, when three-groove rifling came into use. The rear sight seems to be a handmade replacement (Fuller, 1949).

A breech pin from a lever-action rifle chambered for the .44 Henry rim-fire cartridge is present. This may be from a Model 1866 Winchester rather than from the older Henry rifle patented in 1860. The two firing pins of these rifles made double impressions on the cartridges.

Parts of five percussion revolvers of the Civil War period are present. The Colt New Model pocket pistol, Model 1855, also known as Root's Patent Pistol, is represented by a hammer. Such pistols were made from about 1857 to 1872 (Chapel, 1951, p. 125, pl. 23, figs. 3–5). A brass backstrap, stamped with the serial number 152040, is all that remains of a Model 1860 Colt Army revolver (Chapel, 1951, p. 126, pl. 23, figs. 6–8). A Colt Model 1861 Navy revolver, .36 caliber, serial number 18958 (fig. 46e), is represented by an assembled barrel, frame, hammer, ramrod, trigger, cylinder stop, cylinder pin, and several screws (Chapel, 1951, p. 127 and pl. 24, fig. 1). A Whitney Navy revolver, .36 caliber (fig. 46f), of the type made during the Civil War, is represented by the assembled barrel, frame, trigger, cylinder stop, and several screws (Chapel, 1951, p. 62). The first and last digits of a four-digit serial number are 9 and 7. Lastly, the cylinder for a revolver using metallic cartridges appears to have been a part of a seven-shot, .22-caliber revolver, of the type made by Smith and Wesson during and after the Civil War.

GUNFLINTS

Thirty-three gunflints are present. A comparison with those described and illustrated by Woodward (1951) indicates that four varieties are present. Fourteen gunflints conform in shape and material with those made in France, in that they are honey- or taffy-colored and have rounded heels. The majority of the flints used by the U.S. Army were of French manufacture, judging from a study of samples of those still sold by Francis Bannerman Sons, which came from old U.S. Army stores. Fourteen other gunflints are similar to those made for centuries at Brandon and other towns in Suffolk, England. English flints range from dark gray to black and have sharp, square heels. Four flints, of crude workmanship, are made of Knife River flint. Another specimen of local flint bears secondary pressure flaking over the top, indicative of native manufacture following traditional modes employed on projectile points, scrapers, and knives.

AMMUNITION

Cartridges

The collection contains 178 cartridges of copper and brass, the majority of which bear evidence of having been fired. Some have had the bullets and powder removed, probably for use in muzzle-loading guns. In rare instances, complete cartridges are present, often with impressions of firing pins in the bases, indicating misfirings. Several empty cases have perforations in the base, probably for use as ornaments. One case was used as the handle for a triangular file, and another case served as a covering for the handle of an iron awl.

It was thought that it might be possible to determine the make of firearm used from the impression of the firing pin in the head of the cartridge. But experiments with suspected weapons, Springfield and Sharps, failed to produce conclusive results, too much depending upon the amount of wear on the point of the firing pin and on the degree of expansion of the metal against the breech block. Sufficient differences are observable, however, to suggest that both Springfield and Sharps rifles were present. The Springfield, but not the Sharps, is represented by gun parts, and thus the presence of the latter is uncertain, as indicated by a question mark in the tabulation of identifiable firearms.

All the cartridges are typical of those in use during the last half of the 19th century. No cartridges for modern highpower rifles designed for the use of smokeless powder are present. A cartridge display made by the Union Metallic Cartridge Company in 1888 (reproduced in Amber, 1952, pp. 21–22) provides examples of all the cartridges found, with the exception of older varieties having internal center-fire primers and Berdan primers.

Rim-fire cartridges were first manufactured in 1845 (Logan, 1948, facing p. 1, p. 5) and are represented today by the common .22 rim-fire. The priming mixture, situated within the fold of the rim, is exploded by a blow of the firing pin at any point near the edge of the flat base. All the rim-fire car-

tridges in the collection were made for use in weapons typical of the period from 1860 to 1870 but could have been manufactured much later. Spencer cartridges were not made after about 1917. Henry cartridges were available in large quantities until about 1940, and the .38 rim-fire cartridge is still obtainable.

1—*.56/.50 Spencer, copper, plain base, tapered case; made until after 1900 for use in Model 1865 Spencer carbine and rifle. Two specimens present were perforated for use as ornaments.*

2—*.56/.52, or .65, caliber blank, Spencer, copper, plain base. Two of the six specimens are unfired, but cases have been cut to remove powder and bullet, or wad. The cases measure 31/32 inch in length, and appear to be identical with a blank cartridge illustrated and described by Logan (1948, p. 178). The .56/.52 Spencer ball cartridge appears to vary in length from 31/32 inch, for those of French and Canadian manufacture, to 1 31/32 inches, for a variety made by Winchester (personal communication from Frank Wheeler, Jan. 14, 1953). If the cases are from blank cartridges, they are short enough to have been used in the chamber of any Spencer. If they represent remains of ball cartridges, they were made for the Spencer, used from 1863 to 1865 in the Civil War. Two specimens have bases perforated for use as ornaments.*

3—*.44 Henry, copper; 15 with plain base, 22 with raised letter "H" on base (Winchester trade mark). Manufacture of these cartridges began in 1860 and ended about 1940. The Winchester Model 1866 took the place of the Henry in 1866, and as late as 1897 was offered for sale in Winchester catalogs (Amber, 1952, p. 216). One complete cartridge is present. Length of 14 cases is 13/16 inch. One specimen has been perforated for use as an ornament. All 37 specimens bear double firing-pin marks typical of Henry and Winchester rifles chambered for this cartridge.*

4—*.38 revolver, copper, plain base; maker unknown. Single specimen present has been perforated for use as ornament.*

Center-fire, internally primed cartridges were manufactured from 1851 to about 1890 (Logan, 1948, facing p. 1) and have no counterpart in the ammunition of today. The priming mixture is situated at the center of the base, held in place by an iron cup or bar inside the case. They can be distinguished from rim-fire by the presence of crimps on the sides of the case or on the base. The primer is exploded by the firing pin striking the center of the base. All the specimens in the collection are of U.S. Government manufacture for use in military guns, and date from 1866 to 1882.

1—*.45 Colt revolver, copper, plain base, Benét cup primer; made from about 1873 to 1880 at Frankford Arsenal, Philadelphia, for use in Colt Single Action Army revolver. Single specimen present is unfired, but the bullet has been removed.*

2—*.45 Government (.45–70), copper, plain base, Benét cup primer; made from about 1873 to 1882 for use in U.S. Springfield single-shot rifles, Model 1873, and for other weapons made on contract for the U.S. Army. One of the five specimens present is marked, clockwise, R–80–F–3, signifying Rifle (R), Frankford Arsenal (F), March (3), 1880 (80). Three cartridges are unfired, but the bullets have been removed.*

3—*.50 Government (.50–70), copper, plain base, bar anvil primer; made only from October 1866 to March 1868 at Frankford Arsenal (Logan, 1948, pp. 78–79, 97) for use in U.S. Springfield rifle, Model 1866, and in Sharps and Remington arms made for the U.S. Army. Cartridges of this type were used in 1867 at the Wagon Box Fight (Logan, op. cit., p. 97), in which the Sioux were confronted with the relatively rapid fire of breech-loaders, in contrast to that of muzzle-loaders encountered previously. Four of the 32 specimens present are unfired, but the bullets have been pulled. One cartridge was used as the handle of a triangular file.*

4—*.50 Government (.50–70), copper, plain base, Benét cup primer; manufacture began in March 1868 (Logan, 1948, pp. 79, 97) and probably continued until about 1880 at Frankford Arsenal; made for use in U.S. Springfield rifle, Models 1866, 1868, and 1870, and for Sharps, Remington, and other weapons manufactured for the U.S. Army. Of the 11 specimens present, one is unfired and complete with bullet, and one has an iron nail in the base.*

5—*.50 Government (.50–70), copper, deep an-*

nular depression in base, Martin primer; manufactured from May to December 1871 at Frankford Arsenal (Logan, 1948, pp. 80–81, 98), for use in the same weapons as four, above. Of the four specimens present, three were probably fired in a Sharps and one may have been fired in a Springfield.

Center-fire, externally primed cartridges first appeared in 1866 (Logan, 1948, facing p. 1, p. 8) and represent the type of priming used in most cartridges manufactured today. The priming mixture is in a small brass or copper cup placed in a recess at the base of the case, on the outside. Such cartridges may be reloaded by removing the exploded primer and putting in a new one. They are fired in the same manner as internally primed, center-fire cartridges.

Two varieties of primers are present. The Berdan primer, an adaptation by Col. Hiram Berdan of an invention of Col. S. V. Benét in 1866, embodies the use of an anvil, which is an integral part of the case (Logan, 1948, pp. 8, 79–80). Berdan primers went out of common use in the United States by about 1900, but they are found in all foreign center-fire cartridges today. The other variety is also derived from Benét's invention and has a separate anvil in the primer. The common name for the latter type is Boxer primer. Most American cartridges made since 1880 use the Boxer primer. Unless otherwise stated in the following descriptions, it is to be understood that such a primer is present.

The majority of the cartridges are .45 caliber Government, for use in U.S. military rifles and carbines made at Springfield under the model designations 1873 and 1888. They were also used in special weapons made on contract by private manufacturers, and in sporting arms of the same caliber. The .44 Winchester and .45 Government cartridges are still being made. Manufacture of the others ceased between World Wars I and II.

1—*.44 Winchester (.44–40), brass. Six of the seven cartridges present are unmarked and have a raised center on the base. The seventh has a plain base, marked "W.R.A. Co./ .44 W. C. F.", for Winchester Repeating Arms Co., .44 Winchester Center Fire. Made especially for the Winchester Model 1873, manufactured from 1873 to 1919 (Amber, 1952, p. 216), and for many other rifles and revolvers, and still being made. The unmarked cartridges probably date from about 1880, while the other one is probably later. One cartridge is complete.*

2—*.44 Smith and Wesson, brass, plain base, Berdan primer; manufacturer unknown. One of two specimens was made for use in Smith and Wesson Army revolvers of the type delivered to the U.S. Army in 1871, chambered for the .44 S. & W. American cartridge; it was used as a covering for the handle of an iron awl. The second specimen is slightly longer and may be an example of the .44 S. & W. Russian cartridge, made on contract for Russia between 1870 and 1875 (Logan, 1948, pp. 136–137).*

3—*.45 Colt, brass, plain base; manufacturer unknown; made for use in Colt Single Action Army revolver after about 1880. Eleven specimens are present.*

4—*.45–60 Winchester, brass, plain base. One of two specimens present is stamped "UMC Co./ .45–60", for Union Metallic Cartridge Company. The other is stamped "W.R.A. Co./ 45–60 W.C.F.", for Winchester. The former marking indicates that the cartridge was made prior to 1902, when Remington Arms bought the company. After 1902 the cartridges were marked "REM–UMC" (Logan, 1948, p. 10). Neither of the cartridges may have been manufactured much before 1880, since they were designed for use in the Model 1876 Winchester rifle, which was made until 1897 (Amber, 1952, p. 216), and in the Winchester single-shot rifle.*

5—*.45–75 Winchester, brass, plain base; manufacturer unknown; made for use in Model 1876 Winchester rifle and in Winchester single-shot rifle. Four specimens present.*

6—*.45 Government (.45–70), brass, plain base; manufacturer unknown. Made for use in U.S. Springfield rifles and carbines, Models 1873 and 1888, which were produced until 1892, and for other weapons manufactured on contract for the U.S. Army. Sixteen specimens present.*

7—*.45 Government (.45–70), brass, slightly raised center on base; manufacturer unknown; made for same weapons as six, above. Six specimens present.*

8—*.45 Government (.45–70), brass, raised cen-*

ter on base, Berdan primer; manufacturer unknown; made for same weapons as six, above. Of the three specimens present, one has the primer removed, and one is unfired but has the bullet and powder removed.

9—*.45 Government (.45–70 and .45–55), copper, raised center on base; made for same weapons as six, above. Two specimens present. One is marked, clockwise, "R–83–F–8", for Rifle (R), Frankford Arsenal (F), August (8), 1883 (83). The other is marked "C–83–F–8", for Carbine (C), Frankford Arsenal (F), August (8), 1883 (83). The carbine cartridge held 55 grains of powder instead of 70 grains, hence the need for the marking.*

10—*.45 Government (45–70), brass, plain base. The single specimen is marked, clockwise, "R–79–L–5", for Rifle (R), Lowell (L), May (5), 1879 (79). Lowell stands for the Lowell Cartridge Co., which later became the United States Cartridge Co. (personal communication from Frank Wheeler, Jan. 6, 1953). Such cartridges evidently were made on contract for the U.S. Army for use in the same weapons as six, above. The primer has been removed from the case.*

11—*.45 Government (.45–70), brass, raised center on base, Berdan primer. Marked, clockwise, "R–70–B–45", for Rifle (R), Bridgeport (B), .45–70. The letter "B" probably stands for Bridgeport, Conn., the location of the Union Metallic Cartridge Company (Platt P. Monfort, personal communication Jan. 15, 1953). Such cartridges were evidently made on contract for the U.S. Army for same weapons as six, above. Of the nine specimens present, two have the primers removed, and two are unfired but have the bullets and powder removed.*

12—*.45 Government (.45–70), brass, plain base with bevel on edge. The single specimen present is marked "UMC/S–H/.45–70", for Union Metallic Cartridge Co., Solid Head, .45–70. "Solid head" denotes a stronger base, of drawn rather than folded brass. Made before 1902, but probably not earlier than 1880, for use in the same weapons as six, above.*

13—*.45 Government (.45–70), brass, plain base. The single specimen present is marked "W.R.A. Co./.45–70 U.S.G.", for Winchester Repeating Arms Co., .45–70, United States Government. Cartridges so marked are illustrated in a Winchester catalog (1903 p. 117). Such marking probably does not date earlier than about 1880. Made for use in the same weapons as six, above.*

14—*.45 Government (.45–70), brass, rounded base. Logan (1948, p. 141) illustrates and describes a similar cartridge attributed to the Phoenix Cartridge Co., date unknown. Made for use in same weapons as six, above. Primer removed in two specimens present.*

15—*.50 Government (.50–70), brass, raised center on base, Berdan primer; manufacturer unknown; made for use in U.S. Springfield rifles, Models 1866, 1868, and 1870, and for use in Sharps, Remington, and other arms made for the U.S. Army prior to 1873. Seven specimens present; primer of one of them removed.*

16—*.50 Government (.50–70), brass, plain base, Berdan primer; manufacturer unknown; made for use in same weapons as fifteen, above. Three specimens present.*

17—*.50 Government (.50–70), brass, plain base; manufacturer unknown; made for use in the same weapons as fifteen, above. One specimen present.*

18—*.50 Express (.50–95), brass, plain base. Single specimen present marked "UMC Co./ .50 Ex.", for Union Metallic Cartridge Co., .50 Express. Manufactured for use in Winchester Model 1876 and single-shot rifles before 1902.*

Bullets

There are 20 lead bullets in the collection. Eleven of them are spherical balls, of the type used in muzzle-loading guns. Corrosion and other irregularities make it impossible to be certain of their original size. Four are approximately .52 caliber, the size used in U.S. Army smooth-bore pistols and in some rifles and carbines in general use prior to the Civil War. They would fit any muzzle-loader with a bore diameter of .52 to .55. Four others measure approximately .32, .35, .40, and .58. The first three sizes of bullets were commonly used in Kentucky rifles but would fit any muzzle-loading gun of appropriate size. Another bullet has been flattened by hammering. Two bullets have been flattened as a result of having been fired.

The other nine lead bullets are conical.

Five of them are of the type known as the .58 Minié, a bullet designed for use in U.S. military muzzle-loading muskets, Models 1855, 1861, 1863, and 1864, and weapons made on contract during the Civil War. The bullet has a hollow base, which permitted the gas from the exploding powder to expand the bullet into the rifling as it was pushed forward out of the barrel (U.S. War Dept., Ordnance Department, 1856, p. 109; Logan, 1948, pp. 15–16). One of the Minié balls has a threaded hole in the point, indicating that it had been loaded in a gun and removed with a ball screw on the end of a ramrod.

One conical ball measures about .42 caliber and may have been used in the Henry rifle, patented in 1860, or in the Model 1866 Winchester. Another is a 500-grain bullet for the .45 Government cartridge. Two shorter, .45-caliber bullets may have been used in revolvers.

There are also three pieces of lead. One is a sprue, cut from a bullet cast in a mold. The others are merely melted fragments resulting from molding.

MILITARY GEAR

The brass mouthpiece from a *powder flask*, made by the American Flask and Cap Company, has the charger graduated for loads ranging from 2 to 2¾ drams of powder. This object probably dates from the middle of the 19th century.

A hollow, conical iron object with remains of wood inside, perhaps the end of a military *lance* or guidon pole, measures 5½ inches in length and 1 inch in diameter at the open end.

A brass *spur* with iron rowel is of the style used during the Civil War and subsequently.

One Model 1840 heavy cavalry *saber* (fig. 46a) is of the type used by the regular cavalry, in contrast to light cavalry, in the Civil War and later (Laidley, ed. 1862, pp. 222, 224, and pl. 28).

One U.S. Army brass *belt-buckle catch* is similar to one appearing in the literature (Bannerman, 1949, p. 179). Such buckle catches were used from 1851 by the cavalry, and from about 1872 until about 1900 by other branches of the service (Ludington, 1889).

Of 14 brass U.S. Army *buttons* bearing spread eagles, one measures seven-eights of an inch in diameter and has the letter "I" in the shield, on the breast of the eagle. According to Ludington (1889), this was characteristic of buttons on infantry officers' uniforms throughout most of the 19th century. On the back, in sunken letters, is stamped "D. EVANS & CO. ATTLEBORO, MASS." The remaining buttons measure three-quarters of an inch in diameter and bear eagles without letters on the shields. Six are marked on the back, in raised letters, "SCOVILL MFG CO. WATERBURY". Two are stamped, in sunken letters, "WATERBURY BUTTON CO." One is stamped, in sunken letters, "HORSTMANN BROS & CO. PHILA." One is stamped, in sunken letters, "EXTRA QUALITY". Three buttons bear no marking on the back. All are similar to those on uniforms used in the Civil War and on those made after the change in the uniform in 1872.

A brass *shoulder scale is* represented by six fragments. This was a form of epaulet worn by enlisted men in the U.S. Army as a part of the uniform established in 1851 and discontinued in 1871 (Ludington, 1889, pls. 21, 23, 24, 26, and 29). Four of the fragments are individual scales which had once been riveted in overlapping positions. Two other pieces formed part of the attachment to the shoulder.

A plain lens-shaped, sheet-iron *canteen*, of military style, is typical of those manufactured during the Civil War (fig. 43a).

FORT BERTHOLD I

When archeological investigations were begun at Site 32ML2, evidences of the first Fort Berthold, used from about 1845 until 1862, were not visible, in contrast to those of the village and the second Fort Berthold. Drastic topographic changes had been invoked to explain the absence of physical evidence of Fort Berthold I. For example, Matthews asserted that the post had been built "on the extreme southern edge of the bluff," on land that subsequently had been "mostly, if not entirely, cut away by the river" (Matthews in Larpenteur, 1898, vol. 2, p. 386 n.). Probably to corroborate this statement, Matthews added that, in the autumn of 1865, he had been told that one or two hewn-log cabins, then standing close to the edge of the bluff and occupied by Indians, were remains of this first post. In 1952, however, it was apparent that the river channel had not altered its course after 1865 sufficiently to destroy the site of the post. Instead, as a result of a southerly drift of the main channel, this part of the terrace, which had provided boat landing facilities for the post, became an isolated slough or secondary channel.

Writing about 1858, Boller clearly stated that the first of the two major trading posts was situated on the "upper" (or northerly) side of the village—i.e., upstream—while his own opposition post, which was to become Fort Berthold II, lay on the "lower" (or southerly) side. He also indicated the relationship of the three chief parts of the community on a small-scale map (Boller, 1959, p. 33, and map facing p. 3).

An undated plan of Site 32ML2, showing its various parts, preserves other valuable details. The plan appears to have been based on information provided the State Historical Society of North Dakota by Frederick F.

Fort Berthold I during excavation in 1954.

Gerard and Lyman B. Sperry (original in the archives of the Society; tracing in Van Ostrand, 1942, facing p. 236). Gerard came to this place as a trader as early as 1855, and, inasmuch as the first post was destroyed in 1862, he must have been the chief source of information concerning it. Sperry served as agent for the Three Tribes from about 1873 to 1876. The plan is not drawn to scale. Apparently it was intended to show only parts of the community of Indians and Whites, together with details of the interior arrangements of the trading posts. With archeological investigation, certain distortions became evident in the plan. Thus the two more important trading posts are shown oriented with the compass and much closer together than they actually were. They appear to differ only slightly in size, probably in order to reveal the interior arrangement of each, whereas the first post was smaller than the second. The village area is shown, without detail, as smaller than it actually was and as having a shape other than the true one. Nevertheless, the plan preserves in graphic form information not available elsewhere, so far as is known, concerning areas not excavated. Among these are the sites of Gerard's trading establishment and the "Old Agency" of Capt. Walter Clifford. These structures were probably built about 1870 and were used for only a few years.

Excavations established that Fort Berthold I was not on the south side of the village, as Matthews had been led to believe, but, as Boller noted, on its north side and somewhat separated from it. Nor had all traces of the post been lost, despite its destruction by fire and the later use of its site in other ways. Moreover, excavation of the actual site of the post provided evidence that general topographic changes had been far less extreme than Matthews believed they were.

In the summer of 1952, during the course of excavating an earth lodge (House 20) in the Arikara section of the village, physical features were observed that were not related to the lodge but pertained to a previous use of this area. They consisted of two sections of straight, parallel-sided, filled stockade trenches, meeting at a right angle, which were associated with square post molds and a small rectangular pit. These features, upon which the lodge had been superimposed, appeared to be of white origin and, as later became evident upon complete exploration, were the long-hidden remains of a major establishment of the community, the first Fort Berthold. The trading post was situated north of the original Hidatsa-Mandan section of the village and beyond the palisade of that section,

in the area of the Arikara settlement of 1862. The remains clearly revealed destruction by fire. The physical evidence thus agreed with the records of the manner in which this post had been destroyed.

Following the initial hand excavation of small portions of the stockade, a motor road-patrol (blade) was employed in 1954 to uncover the entire area (XU21). Blading was begun on a north-south alinement paralleling the previously opened short section of the easterly stockade trench. Earth was first moved to the east, in order to expose this alinement to its full extent. When a second corner was encountered, at the junction of the easterly and northerly stockade lines, parallel east-west cuts were made across the area, proceeding from north to south. Earth was moved well to the west, until the entire area of the enclosure, including the west and south trench alinements, had been stripped. Ample margins were left on each of the four sides, well beyond the original stockade lines revealed by the sectioned trenches.

Before the mechanical stripping, the slightly uneven surface was covered with tough sod and weeds. A noticeable depression proved to be one of the two cellars of the trading post. Earth was removed in layers varying from 1 to 6 inches, according to the surface contours. In using mechanical equipment of this kind, cutting and moving of earth must be accomplished simultaneously; the blade is set at a low angle with the path of the machine and the earth is rolled forward a slice at a time. Repeated trips were necessary in order to expose this large area. The machinery was skillfully managed, and close watch by the operator, and by the field party following on foot, minimized damage to both structural features and artifacts.

When the vegetative cover and overburden had been removed with the blade and the underlying soil had been shaved with shovels, the complete plan of the post became visible. The area had been heavily used by the Arikara, and many features created by the Indians, particularly post molds, intruded upon the earlier remains. Each feature was marked by a wooden stake bearing a tag on which its number and other data were recorded. The features, totaling 780, were mapped and explored with small tools, frequently by vertical sectioning. In view of their great number, it was apparent that all

Figure 47. Wimar's sketch of the first post, made during the artist's visit in the late 1850's, depicts the west and south faces of the first post, probably viewed from the former steamboat landing, but it does not show the relationship of the post to Like-a-Fishhook Village, which was still somewhat separated from the post, as is corroborated by Letellier's recollections of 1854 (Letellier, 1908, pp. 237–238).

Figure 48. Excavated site of Fort Berthold I. Above is the view to the northwest; on the opposite page is the view east.

the features had not been in use simultaneously. They were therefore segregated into two groups: those certainly of earlier white origin, and those certainly or probably of later native origin. Results of plotting these two groups of data are shown in figures 49 and 50.

Collections of artifacts and specimens were made during the blading, the hand stripping, and the exploration of individual features. The provenience of the materials was recorded as accurately as possible.

The time required for the mechanical removal of 1 foot of deposit, on the average, from an area approximately 130 by 150 feet, or a volume of more than 700 cubic yards of earth, was but 3½ days. Some evidence was sacrificed in the process, particularly that pertaining to the occupation by the villagers following 1862. But the losses sustained here seem inconsequential compared to the loss of Site 32ML2 entire, beneath the waters of the rising reservoir a few weeks after the completion of this final piece of fieldwork.

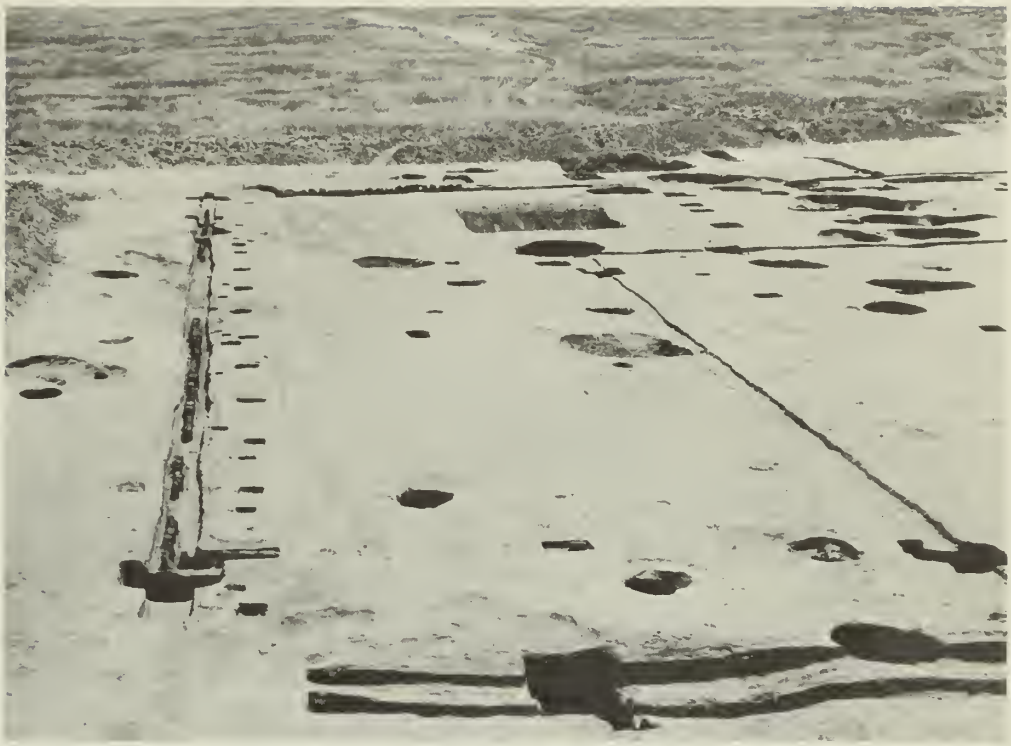
Fort Berthold I, as was learned from this investigation, had been built approximately 100 feet from the edge of the terrace and approximately 200 feet north of the original palisaded village (fig. 3). Such distances had no doubt been deemed essential to the security of the trading station.

STRUCTURES

On excavation, the course of the north-south stockade lines of Fort Berthold I was found to vary approximately 19° east of north. The magnetic declination here in 1954 was about 14° east, and thus it seems probable that the post was laid out with a compass. By contrast, as will be seen, Fort Berthold II was oriented with respect to the village and its palisade rather than the compass points. The earlier post was also found to have faced upon the former main river channel, with direct access to it by a gate on the west side.

Like most western trading posts of the last century, Fort Berthold I was a simple quadrangular enclosure of upright timbers, close-set in trenches. Kurz (1937, p. 122 n.) noted that the members of this stockade had been "driven into the ground" in contrast to those at Fort Union, which rested upon a limestone foundation, but his phrase is not to be taken literally. Although a distinctive part of a trading post, the stockade was seldom erected until after dwellings and other structures had been built. Such a sequence of events may have occurred here also.

The buildings within the enclosure of Fort Berthold I had their long axes parallel



to sections of the stockade but separated from them. The dwellings and other structures, connected in what were sometimes called ranges, appear to have been less elaborate than those of Fort Berthold II. A sketch by Kurz of the interior of the first post shows part of a building near the gate marked "Magazin," or store (Kurz, 1937, pl. 2, lower). No other contemporary evidence is known of the location and identification of individual buildings of the post, but evidence of later date is afforded by the Gerard-Sperry plan. This indicates that the post was provided with two blockhouses, at the northwest and southeast, offset in such a way as to allow gunfire along only one of the adjacent sides of the stockade rather than along both. Fort Berthold II was more conventional in this respect, and it is possible that in drafting the plan of the first post from memory an error was introduced respecting the exact position of the blockhouses in relation to the stockade.

No physical remains were found of either of the blockhouses of Fort Berthold I shown on the Gerard-Sperry plan. The blockhouses of Fort Berthold II had been built of hewn timbers laid horizontally upon the surface of the ground, and the same may have been true of its predecessor. The sketch of Fort Berthold I by Wimar suggests that the blockhouses were but one story in height, and they may have been slighter in character than those of the second post.

The Gerard-Sperry plan shows a single gate in the west stockade line, and excavation revealed only one interruption in the stockade trenches in approximately the same position (fig. 49). The location of this entrance, midway between the south stockade line and an interior trench line, strongly suggests that the smaller enclosure represents the first stage in the physical development of the post and that no major change had been made in the position of the gate during the existence of the trading station.

Though the plan of the enclosure was quadrangular, the alinements of the stockade trenches were seen to differ somewhat from one another, and despite its destruction by fire the post was found to have undergone various alterations and changes during its 17 years of use. The maximum size of the post was approximately 121 feet east-west by 110 feet north-south. At the outset, it measured only about 80 feet in each dimension. These facts suggest that, though intended in 1845 to replace Fort Clark, Fort Berthold I had been designed on a smaller scale and that its enlargement was made necessary when Fort Clark was actually abandoned in 1861.

Large portions of the stockade trenches of the first Fort Berthold were found to be devoid of post butts or wood remains but to contain random earthfill. Timber remains

were, however, encountered in other places, particularly along the northern and eastern outer alinements, with shorter sections along the western face. The entire westerly alinement and much of the southerly and easterly alinements were found to be of double width, sometimes with charred post remains in the outer of the two trenches, indicating that the outer trench lines had been in use when the post was burned in 1862. The inner trenches appeared to be the original stockade alinements. From these, timber remains had been removed, probably for re-use or for fuel.

A single gate opening in the stockade lines was found at the midpoint of the part of the west trench bounding the smaller enclosure, at a distance of approximately 40 feet from the southwest corner of the post. This opening was but 5.0 feet in width between adjacent sections of stockade trench, but the actual width of the gate was indicated by post molds about 8.5 feet apart, probably marking the position of gate supports. That this gate had been of stout material is shown in the sketch by Kurz (1937, pl. 2, lower).

A series of vertical sections was cut in the filled stockade trenches, and this revealed that the trenches varied from 1.3 to 2.4 feet in width and from 0.9 foot to 2.0 feet in depth. The depths of the trenches had been reduced by the mechanical stripping, and original depths were certainly greater. At a number of points along their courses the trenches were nearly obliterated by intrusive pits, which were probably opened after 1862.

In one section of the north face of the stockade it was possible to measure the remains of posts of which the stockade had been constructed. Here, beginning 25 feet from the northwest corner of the enclosure and extending 28 feet eastward, 28 posts, all of cottonwood, were found in place. Two were hewn on four sides, three had not been modified, and all the rest were split timbers. Ranging in size from 0.4 foot to 1.1 feet, those between 0.7 and 1.0 foot were apparently favored. The use of split timbers suggests that, at the period of enlargement, little care had been taken in selecting materials needed for building or for repairing the stockade.

The stockade trenches were interrupted at the southeasterly and northwesterly angles or corners of the enclosure, and at these places the stockade may have abutted upon the blockhouses shown on the Gerard-Sperry plan. Near the first of the two open corners, two large boulders were found in a depression 12 feet beyond the ends of the trench lines. These rocks may originally have served to support the timbers of a blockhouse.

A pair of somewhat irregular trenches projected at low angles outward from the south face of the stockade, near its southwest corner. The outer ends of these trenches were separated by a distance of 27.5 feet, and within this gap were two pits, each about 2.5 feet in diameter. The Gerard-Sperry plan shows a storehouse in this location and Wimar's sketch of the post shows a structure here, with a gable roof and walls formed of vertical timbers, but no evidence of such a building was obtained on excavation.

Several other features were observed during excavation of the stockade lines. One of these was a trench extending at right angles eastward from the east stockade. This may have been related to two cellars beyond it, to be described, and perhaps marked the site of a building, other evidence of which had been destroyed.

Within the enclosure, along its east face, were three groups of rectangular, filled pits, probably originally dug with spades. The first group, comprising 12 larger and six smaller pits, outlined a rectangular area, approximately 55 feet in length north-south by 22 feet in width, which was separated from the outer stockade line by a distance of about 6 feet. The larger pits occurred in two rows oriented north-south, while between them were three pairs of smaller pits set closer together. The area appeared to have been divided into two parts of unequal size, perhaps for living and kitchen purposes. The larger pits were approximately 2.5 feet square and ranged in depth from 0.4 foot to 1.5 feet, the majority being about 0.8 foot deep. Post butts in some of these averaged slightly more than 1.0 foot in diameter. The smaller pits ranged from 1.5 to 2.0 feet square and from 1.0 foot to 1.4 feet in depth. Some of them contained post butts averaging 0.9 foot in diameter.

The post remains and the square pits in which they occurred were undoubted evidence of the large rectangular building shown in this position as a residence on the Gerard-Sperry plan. Another manuscript in the archives of the State Historical Society of North Dakota, apparently also by Gerard, states that this was a framehouse used by

Figure 49. Features in XU21 associated with Fort Berthold I.

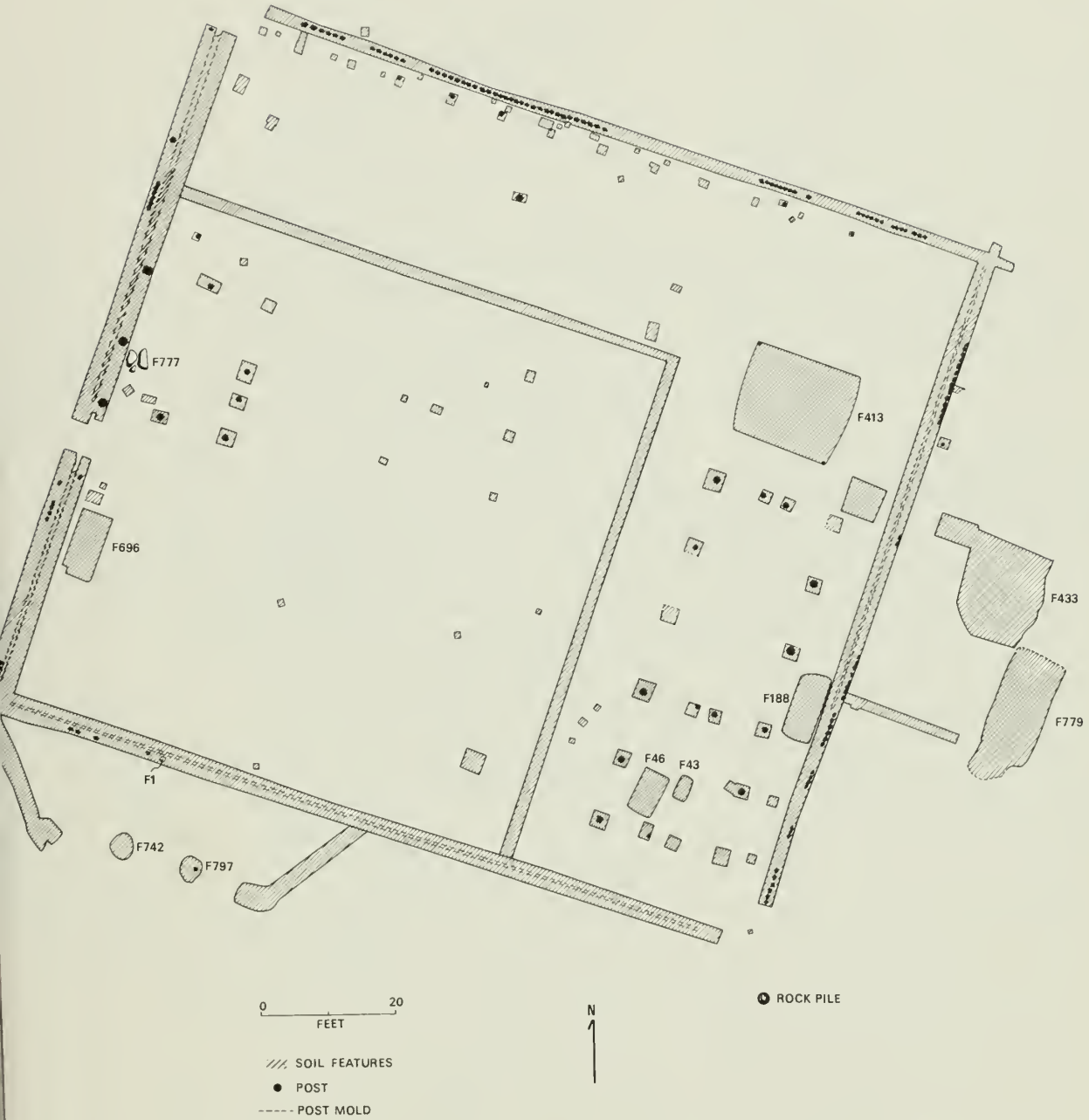
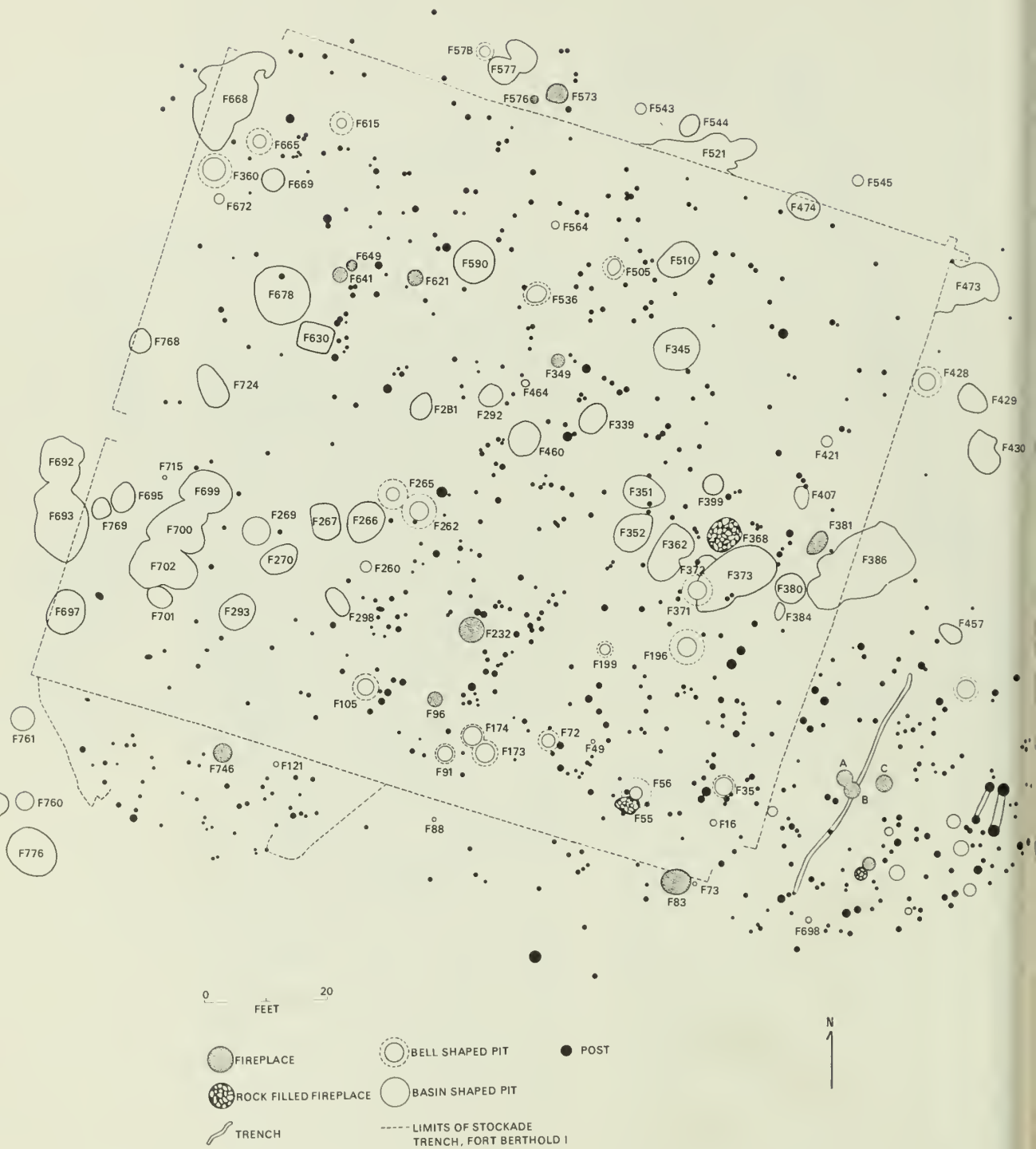


Figure 50. Features in XU 21 probably of later native origin.



the head trader of the post and that the building had been 2½ stories in height. The Wimar sketch shows the steep-pitched roof of a large building, probably the same structure. If actually a frame building, it was probably in the older, hewn-timber style employing mortise and tenon and wooden pins or treenails, rather than a building of light sawed lumber and iron nails, familiar from later frame construction in the West.

The remains of another building were encountered north of the gateway, adjacent to the stockade. Rectangular pits outlined a structure approximately 22.5 feet in length north-south and 21 feet in width. This was probably a second building marked as a residence on the Gerard-Sperry plan. The west line was marked by posts set into the inner line of the stockade trench, and the building may therefore have been erected after the enlargement of the stockade. The filled pits averaged about 2 feet square. Post remains within them averaged 0.8 foot in diameter, while those that survived within the outer stockade trench, on the west side, averaged slightly more than 1 foot.

Associated with this building were two flat slabs of limestone (F777), lying side by side and chinked with smaller stones. The slabs, about 0.5 foot thick, outlined an area approximately 3.0 feet in length east-west by 2.0 feet in width. The upper surfaces had been damaged by fire, and the stones had probably served as a hearth, or as the base for a chimney. No other details of this structure were noted.

A third group of rectangular pits was observed approximately 20 feet east of the last group described. Six pits outlined part of a rectangle but did not indicate the size and character of the building that presumably had stood here. The pits measured 1.0 foot to 1.5 feet on a side and lacked any timber remains or associated artifacts.

A series of small rectangular pits, in alinement and varying from 0.4 foot to 1.2 feet on a side and from 0.2 foot to 1.4 feet in depth, occurred inside the north stockade line, at a distance from it of 1.0 foot to 2.0 feet. These were probably the remains of stalls for work animals. The general area is designated as a corral on the Gerard-Sperry plan. Some of the pits may also mark the location of braces against the inner face of the stockade.

Eight larger, rectangular pits were encountered on excavation—six inside and two outside the enclosure. They must also have been dug with shovels and used by Whites, subsequently becoming filled with random deposits. One of these pits (F46), probably originally used for storage, was located near the southwest corner of the trader's residence. It had vertical walls and a level floor, and measured 6.8 feet north-south by 4.7 feet east-west and 3.0 feet deep. The uppermost foot of fill was composed of ash, charcoal, and burned earth. The upper parts of the walls were heavily fired, and it is therefore probable that the pit was in use at the time the building burned. Objects recovered from the cellar included the pintle of a door, fragments of window glass, the blade of an ax, the lid of a Dutch oven, and fragments of glazed earthenware, clay pipestems, and leather. One of the leather fragments has a buckle and rivets.

A smaller pit (F43), probably also for storage, lay near the southerly part of the same residence. It measured 3.7 feet north-south by 2.2 feet in width by 2.5 feet in maximum depth. Water-laid silt was observed in the upper portion of the fill, suggesting that the pit had been open to the weather at some period. Upper parts of the walls had also been fired. The few objects recovered from this pit include a metallic cartridge case for a .45 Colt revolver, a brass button, a fragment of stoneware, and a piece of sandstone. The cartridge case must have been an accidental intrusion, since manufacture of cases of this kind did not begin until about 1880.

Adjacent to the east stockade line was a large cellar (F188), measuring 10.0 feet north-south by 4.5 feet, and varying from 3.6 to 4.0 feet in depth. The uppermost 0.6 foot of fill was a mixture of gravel and yellow soil containing household refuse. Beneath this was a layer of decayed bark about 0.1 foot thick. The bark was underlain by yellow soil that continued nearly to the floor. Immediately above the floor was a layer of broken and fired stones, mingled with wood ash, and under the stones was an ash deposit, approximately 0.4 foot thick, probably derived from a collapsed chimney of the building that adjoined the cellar. Objects taken from this pit included fragments of glazed earthenware, bottle and window glass, a link of a chain, an iron rod,

iron nails, fragments of leather shoes, a bit of gold braid, and two sherds of native pottery.

Near the northeast corner of the trader's residence, next to the stockade, was another pit (F411), measuring 5.0 feet square and 2.2 feet deep. This pit may have been used at some time as a latrine, in view of its location and shallow depth and the fact that it had been refilled with gravel. The only objects obtained here were a whetstone and a few animal bones.

A much larger cellar (F413) in the northeasterly part of the post, inside the east stockade line and immediately north of the trader's residence, was one of the most prominent features of the whole enclosure. The Gerard-Sperry plan shows that this had been the approximate location of an icehouse. The cellar measured approximately 15.0 feet east-west by 14.0 feet, and 6.5 feet in maximum depth. No evidence was found of any superstructure, but remains of decayed timber cribbing lay near the bottom of the cellar. Here, the undisturbed earth was largely sand, and the cribwork had doubtless been introduced to minimize slumping of the cellar walls. Fragments of hewn wooden slabs at the bottom of the cellar were perhaps the remains of the floor or of the covering of the original structure. After the cellar was abandoned, it was used for refuse. Water-laid deposits of silt and sand rested on burned materials. The latter, in turn, lay on a deposit of refuse approximately 5.0 feet in thickness. Thus earlier refuse had become covered with materials following the fire of 1862 and with natural sediments of still later date.

Numerous objects were recovered from this large abandoned cellar. These include gun parts; wrought-iron nails, iron wire, and metal tools such as axes, files, and knives; tinned food containers; fragments of window glass; numerous fragments of earthenware and glass bottles; fragments of hard-rubber combs; bits of clay pipes; metal trouser buttons of older styles; bits of leather shoes and the visor of a cap; and a large quantity of animal bone, among which were several skulls of canids. The gun parts include the lock plate of a flintlock trade gun, unmarked; a gunflint; and a band from a U.S. Army musket.

Another larger cellar (F433), situated outside the east stockade line of the fort, was similar in character to the one just described. It appeared to have served for storage of goods or food, though no remains of the original superstructure were found and the Gerard-Sperry plan does not show a building at this place. This cellar, roughly rectangular in plan, measured 15.0 feet north-south by 12.0 feet, and 6.5 feet in depth. The dimensions of the floor of the pit, however, were found to be approximately 12.0 feet square, and the larger dimensions of the surface outline had resulted from slumping of the walls. Access was by an entryway, 5.5 feet in length east-west and 3.7 feet in width, at the northwest corner of the pit. At the base of the walls were the remains of hewn timbers, measuring about 0.8 foot square.

Fill in this abandoned cellar had also been deposited in layers. Perhaps two-thirds of the fill had accumulated after the burning of the post, for charred wood and ash were found in a layer only 2.5 feet above the floor. Beneath this layer, in mixed earth and gravel, lay the skeleton of a horse, probably buried soon after the abandonment of the pit. The upper portion of the fill, approximately 4.0 feet in depth, consisted mainly of ash and water-deposited sediments, suggesting that the cellar had also lain open to the elements for some years after 1862.

Specimens obtained from this cellar were also largely traceable to the use of the post by Whites, particularly those objects from upper layers of the deposit. They include fragments of fired-clay chinking; gun parts; wrought-iron nails, iron rings, steel knives, and a brass button; bits of window glass; large quantities of glazed earthenware and a glazed earthenware pipe bowl; glass beads; a fragment of shoe sole; and a fragment of cork. The gun parts are a trigger guard and butt plate from a flintlock trade gun and three gunflints. Other objects, of native manufacture, were probably discarded by the Indians after the burning of the post. They consist of a fragment of catlinite resembling an arrowshaft smoother; an oval grinding stone; a bone ice-glider; an eagle bone and a bison rib, both modified; fragments of birch-bark; and a number of seeds.

Another cellar (F696), differing somewhat from those previously described, was near the southwestern corner of the stockade, a few feet south of the gateway. This pit

measured 9.0 feet north-south by 4.7 feet. An extension to the south, measuring 2.5 feet north-south by 3.4 feet, provided space for a stair leading northward into the cellar from the surface. The wooden-slab treads of this feature rested on flat cuts made in the soil. When in use, the cellar and entrance probably had an earth-and-timber roof.

This cellar is not marked on the Gerard-Sperry plan, but other contemporary evidence of its use is available. The sketch of the interior of Fort Berthold by Kurz (1937, pl. 2, lower) shows a low mound of earth inside the gate, between the storehouse ("Magazin") and the gate. The mound has a trapdoor and is labeled "powder cellar." At some later period, probably just prior to 1862, the pit was used as a latrine. The few objects recovered from the pit consisted of fragments of bottle glass, the trigger guard from a flintlock trade gun, and the lock plate of another flintlock made by George Tryon, of Philadelphia.

Still another larger pit (F779) lay at a point outside the stockade, 3.0 feet south of the outer cellar (F433) previously described. This pit had surface dimensions of approximately 10.0 feet north-south by 6.0 feet. Vertical sectioning of this feature revealed that the pit was about 5.0 feet deep and that it contained few artifacts. Though nothing can be said concerning the original purpose of the pit, like the others it had probably served for storage purposes.

It is clear from the foregoing data, obtained by means of mechanical stripping and hand excavation, that much of the physical evidence of the arrangement and construction of separate buildings and of the use of the area prior to 1862 was lost with the passage of time. The Gerard-Sperry plan, corroborated in part by excavation but lacking other direct confirmation, so far as is known, remains the chief authority on many points. Separate buildings of different dimensions, marked as residences, are shown along east and west sides of the enclosure, and a range of three others, connected with a kitchen, along the north side, is separated from the stockade by a greater distance. Facing these, on the south, a range of three connected buildings adjacent to the stockade is marked as having been for stores. This general plan, though only in part substantiated by excavation, resembles the plan of Fort Berthold II and may therefore have been approximately correct. Such an arrangement may have been chosen for both establishments in order to provide maximum protection from prevailing northwest winds, as well as to take advantage of the warmth of winter sunshine on the fronts of at least some of the dwellings.

Reference has been made to archeological features that are deemed to have been largely of native rather than white origin and to have been introduced into the area (XU21) after the destruction of the trading post in 1862. They are shown in figure 50. Except for House 20, described previously, outlines of earth lodges were not encountered in this area. Eighty-six pits of two forms, bell-shaped and basin-shaped or shallowly cylindrical, and nearly 700 post molds were found. No generalizations can be made about the latter, since they did not occur in regular or definable groups. They may have been the remains of drying racks and other minor structures of native provenience.

The bell-shaped pits, totaling 19, closely resembled those seen in the village proper. They were undoubtedly used originally for storage of food and other goods, and were then utilized for the disposal of miscellaneous refuse. Round in plan, they reached a maximum depth of 4.3 feet and had a mean depth of 2.8 feet. The larger diameters ranged from 2.7 to 6.0 feet, with a mean of 4.4 feet; and the smaller diameters, near the openings at the surface, varied from 1.2 to 3.1 feet, with a mean of 2.4 feet.

Of the 67 basin-shaped pits, 24 were circular in outline. Eight of these were small: 1.0 foot in maximum diameter, with a mean of 0.7 foot, and 0.1 foot in maximum depth. They may have been used particularly for the smoking of hides. Eleven others, 7.2 feet in maximum diameter, with a mean of 3.0 feet, and 2.2 feet in maximum depth, contained primarily refuse bone, including one human incisor. Five other pits, containing burned earth, ash, charcoal, and fire-cracked stones, were doubtless sweat lodges or small hearths. They measured 4.3 feet in maximum diameter, with a mean of 3.4 feet, and 0.7 foot in maximum depth.

Twenty-one basin-shaped pits were shallow depressions, oval in outline, yielding household refuse. One of these also contained burned earth, ash, and charcoal. The deepest was only 2.8 feet, with the mean being 1.3 feet. They were 11.8 feet in maximum length,

with a mean of 5.8 feet, and 10.0 feet in maximum width, with a mean 4.9 feet.

Of the remaining 22 basin-shaped pits, eight were subrectangular and 14 were irregular in outline. Maximum dimensions were: length, 22.0 feet; width, 10.0 feet; and depth, 2.2 feet. These may have been borrow pits, though only one dwelling was found in the immediate vicinity.

ARTIFACTS

Excavation of the first trading post (XU21) produced numerous objects, largely of white origin or manufacture, which are preserved in the museum of the State Historical Society of North Dakota. The selected specimens here described appear to be representative of articles and commodities used year after year at this place by both Whites and Indians. But the specific dating or attribution of particular objects or groups of objects, which would permit distinguishing between activities at the post prior to 1862 and those in the years following, is possible only in certain instances.

CONSTRUCTION MATERIALS AND BUILDING HARDWARE

Evidence concerning construction materials used at Fort Berthold I, apart from certain timber items, is limited in kind and quantity. Trading posts in such remote locations as this were undoubtedly erected in the most expeditious fashion and, ordinarily, of the plainest materials available locally. Moreover, the destruction of the superstructure of this post by fire and the salvage of useful surviving building materials and artifacts, particularly by the villagers, help to explain the exceedingly scanty material evidence and the absence of most of the things with which the buildings had probably been equipped.

The single structure (F777) employing native *stone*, probably a hearth and chimney base, has been mentioned. Quantities of smaller stones for chimneys and fireplaces were undoubtedly used, perhaps with sticks, twigs, and clay, but evidence of them was not found. Nor was there evidence of the use of native clays in chinking logwork or in sun-dried bricks.

Three fragments of kiln-fired *bricks* were recovered from two refuse pits (F386 and F362). One measurable specimen is 7 7/16 inches long, 3 9/16 inches wide, and 2 1/16 inches thick. That other fired bricks were not found in other parts of the post site, despite the mechanical removal of much of the overburden, strongly suggests that fired bricks were not available here until after 1862, when shipments of such building materials are known to have been made to nearby military posts such as Fort Stevenson (32ML1), occupied in 1867.

Although numerous small fragments of *window glass* of varying thickness were recovered in the excavations, nothing can be said of the use of glass in windows at Fort Berthold I. The fragments were largely encountered in intrusive pits used after the abandonment of the post, and thus the greater part of the window glass was probably introduced when this commodity had become more readily available.

Other building hardware is somewhat better illustrated in the collections. There are 10 wrought-iron *spikes*, 1/4 inch square and 4 to 5 1/8 inches long, with faceted heads and chisel ends; and 184 wrought-iron *nails*, varying in length from 2 1/16 to 5 3/4 inches but most commonly 3 5/8 inches long, with rectangular shanks, flat heads, and tapering points.

Three *door pintles* exemplify the simple hardware employed here. These L-shaped pins, rectangular in cross section, were made of 1/2-inch square bar-iron or steel. The longer branch is pointed, for driving into the inner edge of a door; the shorter branch served as the pivot. The longer branches of these specimens are 4 1/2, 5 3/4, and 6 1/4 inches in length. Since the shorter branches show no wear, these pintles may not have been used.

Other door items include a 4-inch *strap hinge* with 10-inch leaves, and a 1 1/2-inch *wood screw* suitable for use with such a hinge; a wrought-iron *door handle*, 9 3/4 inches long, with a 4 1/2-inch thumb latch, perhaps fashioned by a local blacksmith; and the fragment of a brown ceramic *doorknob*. The strap hinge was obtained from a pit near the gate of the post, and thus may have been in use before 1862. The single doorknob fragment was found in a late refuse pit (F460). This suggests that such luxuries were probably not available here until after 1862.

TOOLS AND IMPLEMENTS

Some essential tools and implements were collected at the site of the first trading post.

Wood-working tools include six blades of single-bitted *axes* of two sizes, measuring 7⅝ inches long by 4¾ inches wide and 6¾ inches long by 4 inches wide, with battered polls, obtained from three pits (F386, F521, and F702); the blades of three *hatchets*, also with damaged polls, having lengths of 5½ and 5 inches and widths of 3¾ and 3⅛ inches, respectively; the blade of an *adz*, 3⅛ inches wide, found in a pit (F373) near the trader's residence; and the much-worn blade of a *block plane*, measuring 5¾ by 2 1/16 inches.

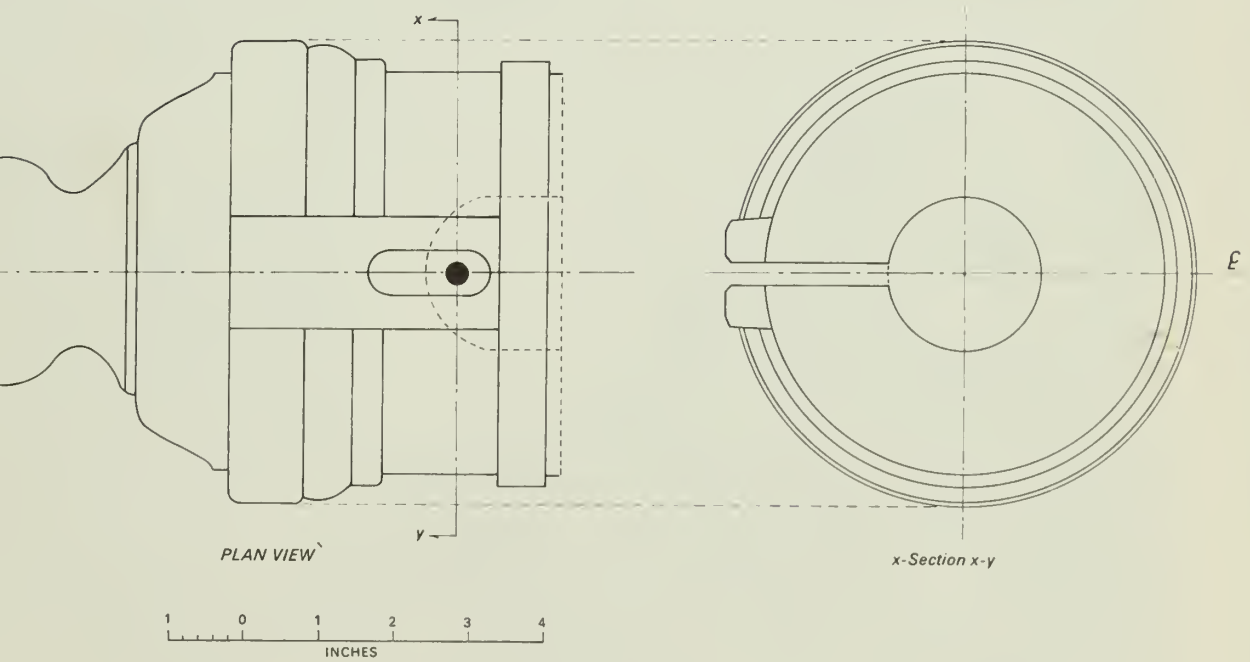
Ten *files*, useful to carpenters and farriers as well as to native craftsmen, were recovered. Seven are flat files, provided with a tang for hafting, ranging in length from 6½ to 12 inches; and three are broken triangular files, each originally about 8 inches long.

Figure 51. Plan view and section of small cannon fragment from Fort Berthold I. The east metal shows excessive porosity, and one ovoid hole is visible in the bore opposite the vent. At one side of the chamber a porous area had been covered with a wrought-iron patch, probably driven into place while hot, using a mandrel pushed inward from the muzzle.

Agricultural implements consist of the blade of a straight-sided, machine-forged *spade*, 12 inches long by 7½ inches wide, provided with a narrow ferrule but lacking the handle and handle-guard; the blades of three *hoes*, worn with use, measuring 6⅜, 6½, and 5¾ inches in width; several fragmentary *scythe-blades*, one of which, from a pit (F373) at the trader's residence, may also have been used by native women in graining and softening hides; and the fragment of a fine-grained commercial *whetstone*, rectangular in cross section, measuring 1¼ inches wide and 9/16 inch thick.

HORSE GEAR AND WAGON PARTS

The few objects pertaining to the use of draft animals and wagons or carts suggest that relatively few animals and little equipment for them were available at Fort Berthold I. Direct and indirect evidence of animals consists only of a few horse bones, a mule shoe, and a picket pin (a surface find). However, a number of horses and mules, as well as oxen, must have been used here, in view of the yard or corral found along the north side of the stockaded area.



The horse gear includes a *tug*, a *cinch ring*, seven *buckles*, metal parts of three *currycombs*, and three *bells*. The bells, of cast brass, one of which is plated, range in diameter from ¾ to 1¼ inches. They are die-stamped with the numeral "2", indicating the size.

Wagon parts consist of the fragment of a *wagon skein*, threaded at one end; an *axle bearing*, 2 inches in diameter, one end of which is threaded; and a *clevis*, 5⅞ inches in length.

EQUIPMENT AND DOMESTIC FURNISHINGS AND ARTICLES

Relatively little evidence had survived of the larger equipment and domestic furnish ings and articles of Fort Berthold I, and the few objects of the kind remaining at the site are assignable to the period of the post's occupation.

A noteworthy find is the breech portion of a small cast iron *cannon*, discovered along the southerly stockade, where it had probably been disposed of as useless after its destruction. The descriptive details and illustration (fig. 51) are taken from a paper published by Carlyle S. Smith (1955, p. 6 and fig. 1). The breech fragment, with its cascabel, is approximately cylindrical and measures 7½ inches in length and 6¼ inches in maximum diameter. The barrel had been roughly broken across the breech, near the vent or touch hole, parts of which are still visible. At this point the bore is approximately 2 inches in diameter. Projection of the contours of undamaged surfaces and comparison with complete specimens indicate that this piece was originally about 3 feet long and weighed approximately 150 pounds. The size of the bore reveals that this was a 1-pounder. Around the neck of the cascabel is the fragment of a wrought-iron strap that may have served as a handle if the piece had been used as a swivel gun.

Whether of military origin or specially made for the trading companies, this cannon is of a kind frequently used at such posts, perhaps as much for signaling, or for awing native clientele on certain occasions, as for actual defense. As early as 1849, cannon were available at Fort Berthold (report of William S. Hatton, June 1849, in U.S. Comm. Ind. Aff., 1849, p. 135). Contemporary posts also known to have been equipped with cannon and suitable ammunition are Fort Benton, which had two 3-pounders, and Fort Union, which had a brass swivel cannon (McDonnell, 1940, pp. 205, 215).

Figure 52. Cannon and wooden carriage used at Fort Berthold I; photograph taken about 1903.

A cannon similar to this fragment, which was also used at Fort Berthold, perhaps at a later period, and is still mounted on its wooden carriage, is now in the museum of the State Historical Society of North Dakota (fig. 52). Several fragments of another small cannon were obtained in excavations at Kipp's Post (32MN1), of the 1820's, located at the mouth of the White Earth River (Woolworth and Wood, 1960, p. 267). Another piece of ordnance, from the heyday of the trade on the upper Missouri, is the cannon said to have been used on the pioneer steamboat *Yellowstone*, which reached Fort Pierre Chouteau in 1831 and Fort Union the following season. This piece is described as about 2 feet in length, approximately 5 inches in diameter at the breech and 4½ inches at the somewhat flaring muzzle, and with a bore of approximately 1½ inches (DeLand, 1918, p. 79).

Several fragments of cast-iron *stoves*, though found in refuse pits (F173, F265, and F267) and perhaps of relatively late date, suggest the simple heating and cooking equipment that may have supplemented the open hearths probably first used at the post. A circular *grate*, 10½ inches in diameter and bearing the mark "V 5", probably indicating the size, two fragments of the lining of a *firebox*, and a *collar*, 10 inches in diameter, for connecting a firebox and a flue, are from small stoves.

Dutch ovens are represented by the fragment of a lid retaining a portion of the manufacturer's mark, "CHAMBE[RLAIN]", at the edge, and by a fragmentary handle and base, both found in refuse pits (F352 and F692). A *kettle* is represented by a small lid of cast iron, 2⅜ inches in diameter, and *skillets* and *ladles* by wrought-iron handles, some of them provided with an eye or hook for suspension.

Four steel fragments—parts of handles, gears, and grinding surfaces—belong to a *coffee mill*, and there is one steel *corkscrew* with loop handle.

A single metal *cup* with strap handle, of thin sheet iron, is 2 inches high and 3½

State Historical Society of North Dakota

Figure 53. Glazed earthenware from Fort Berthold I.

inches in diameter. There are two complete and six fragmentary kitchen *knives* with plain wooden handle fittings. The complete specimens are 10½ and 10⅝ inches long. Of five wooden fittings for similarly large knives, three are crosshatched and two are plain. Seven cooking *spoons* of sheet iron range in length from 7½ to 8¾ inches. Some of them show traces of having been tinned.

Other articles of table use include sherds of common white glazed earthenware, much of it of the kind often called ironstone, and a smaller quantity of other kinds such as queen's ware, once in common use in preparing food. Not all of these fragments can be from vessels antedating 1862, but some are undoubtedly from objects used here before that date.

A few other table utensils remain to be mentioned. One of these is a *mess knife*, 8¾ inches in length, of pressed steel and having recessed panels in the handle rather than bone or wooden fittings. This piece was obtained from a pit (F386), probably of late date, and may be an item of military issue which first reached this place in the mid-1860's, when troops were quartered at Fort Berthold II. A commoner style of *table knife* is illustrated by a single bone handle fitting, provided with two brass pins for attachment to the blade and having simple incised crosses. A *table fork*, lacking tines, has plain wooden fittings. Two *teaspoons* of iron, 6 inches in length, obtained from refuse pits (F590 and F692), are probably of later date.

Other household articles include part of the sheet-iron base of a *lamp*, having one large and one small hole, perhaps of the primitive variety that burned lard; two fragments of clear glass lamp chimney, one of which has scallop decoration at the lip and is probably of relatively late date; and a small *lock*, with brass cover carrying marks probably British, which would be suitable for use on a trunk or chest.

TRADE GOODS AND PERSONAL POSSESSIONS

Many articles found at Fort Berthold I illustrate the range of commodities that once came to this place for the local Indian trade. Though goods of this sort are less abundant

here than they are at the later post, they constitute material evidence of strong and continued alien influences that operated during a significant period in the history of the native peoples. They are also evidence of the vigorous growth, during the period, of domestic and foreign industry and of the development of adequate transportation of manufactured goods to then-remote stations, complementing return shipments of furs and hides downriver to Eastern and foreign markets.

Though most of these articles were undoubtedly imported by the local traders and normally changed hands by barter, certain objects are probably attributable to the occasional presence here of Whites other than traders. For example, specimens of military design, which are not ordinary Indian trade goods, may have reached the site through actual visits of military parties, or may have been provided to Indian scouts in the 1860's.

Although most articles of the trade appear to be factory-made, a few seem to have been produced by frontier blacksmiths. Examples of the latter are eight *arrow points* of iron or steel. Four are narrow triangles with straight, plain stems, and measure from 7.6 to 8.3 cm. in total length and 1.9 cm. in maximum width. The other four, of similar shape, have straight, serrated stems; they range from 5.1 to 8.0 cm. in total length and from 1.9 to 2.2 cm. in maximum width.

Animal *traps* are another item of the trade. The two steel springs present, measuring 7½ inches each, are from traps probably used for the larger fur-bearing species. Two iron *fishhooks* are 2½ and 3 inches in length.

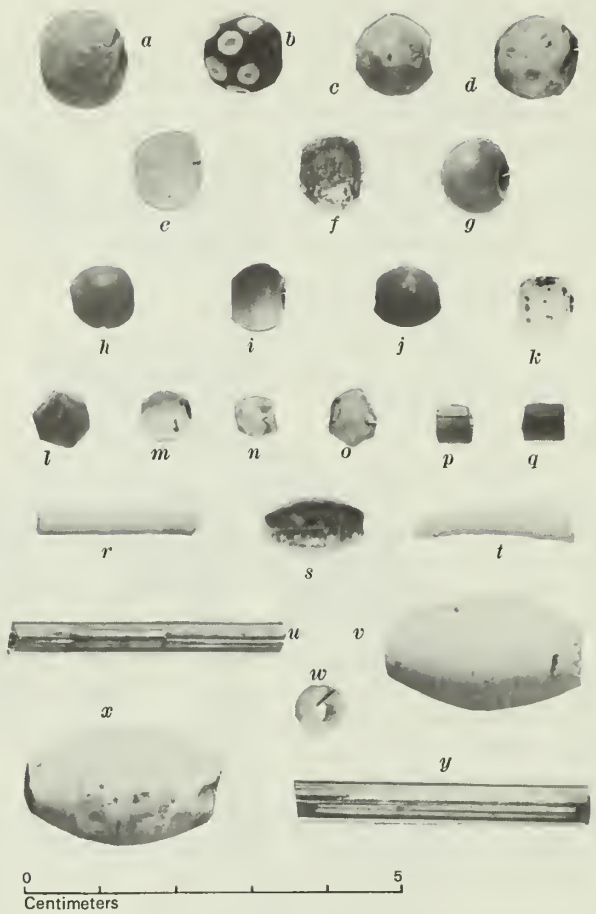
Two steel *awls* represent another type of article in demand in the trade. One of these, square in cross section, is 3½ inches long and tapers toward each end from an offset at the midpoint. The second specimen, whose single point is apparently damaged, is set, perhaps originally with cement, in a brass cartridge of .38 caliber, which served as part of the handle.

There is one brass *tag*, 1 inch square, bearing the die-stampd number "240". It is punched at one corner, probably for fastening to bundled furs or hides, or to parcels of merchandise, for shipment by steamboat. Similar tags were found at Fort Berthold II.

Trade articles for personal adornment include *bracelets*, *finger rings*, and *beads*. Of

Figure 54. Personal possessions and trade goods from Fort Berthold I.

Figure 55. Glass and shell beads from Fort Berthold I.



the seven bracelets, three are made of brass wire, two of strips of rolled brass, and two of flat iron. The wire, of a relatively heavy gage, is 5/16 inch in diameter. The rolled brass strips are 3/4 inch and 1 7/8 inches wide and have parallel grooves, perhaps in imitation of coils of brass wire, which was traded at an early date (fig. 54b). One of the iron bracelets is plain, the other is decorated with cross-hatching.

The finger rings are of brass. One is made of a strip of flat metal and the other is cast. The latter, measuring 1/8 inch in width and 7/8 inch in diameter, is of a size suitable for use by a man.

Glass beads (fig. 55a-s, u-y) include varieties collected from the village and, in large numbers, from the second trading post. Beads of *Dentalium* (fig. 55t) probably reached the site largely through intertribal exchanges, but they were often handled as a commodity by the traders.

While not exclusively articles of the Indian trade, glass bottles should also be mentioned here. One interesting example of a marked bottle is of the kind originally made for Robert Turlington's "balsam of life," an English proprietary medicine of the early 18th century. Additional bottles of the Turlington type, some of which may be of American rather than of English manufacture, were obtained at Fort Berthold II.

A flat bottle of clear glass, with a height of 4 5/8 inches and a capacity of 1 ounce, bears on one face the molded legend "DAVIS VEGETABLE PAIN KILLER", a well-known American panacea, devised in 1840 by Perry Davis. There are fragments of two marked bottles which originally held "DR. THOMPSON'S EYE WATER" and "MEXICAN MUSTANG LINIMENT." Another bottle, with a height of 9 inches and a capacity of 1 quart, carries the molded legend "U.S.A. HOSPITAL DEPT." This specimen may have been left by military units in the 1860's. Bottles of this kind have been recovered from military posts elsewhere. A small vial, damaged by fire, may also have been a hospital item, perhaps for a narcotic.

Several machine-finished leather *shoes* are present. Two pairs of adult shoes, 10 and 11 inches in length, have square toes, steel pegs in the heel and arch, and stitched soles. Two shoes for children, 6 3/8 inches long and 5 inches high, have square toes, steel pegs in

the heel and sole, and lace holes reinforced with brass eyelets.

One pair of *overshoes* has square toes. The uppers of a rubberized fabric are fastened with steel rivets and stitching to the lowers, made of soft rubber with a molded tread on heel and sole. Secured to the foot with brass snap-fasteners, the overshoes are marked "8D," but there is no visible manufacturer's label. The specimens, obtained from a refuse pit (F590) of late date, probably represent goods available at the village late in its existence.

Toilet articles include a straight-edge steel *razor*, a *hairbrush*, a *toothbrush*, and *combs*. The razor lacks handle fittings. The hairbrush is a flat, oval piece of wood with small holes for the insertion of bristles, now missing. The toothbrush, probably of bone (fig. 54a), carries the die-stamped legend: "IMPORTED BY [figure of E. H. DURFEE elephant] INDIAN TRADER LEAVENWORTH" It is known that about 1869 the firm of Durfee and Peck, of Leavenworth, Kans., were trading at Fort Berthold II, and the toothbrush is probably of the late period.

The several combs in the collection are made of hard rubber. This substance largely replaced bone, horn, and other materials previously used for such manufactures. A riveted folding comb (fig. 54h), with coarse and fine teeth, bears the die-stamped legend "I P C & GOODYEAR 1851". A small comb (fig. 54d), with fine teeth on both sides, carries a similar legend "I. R. COMB CO. GOODYEARS / PATENT MAY 5, 1851". The patent referred to on these specimens was one of a series pertaining to processes for hardening natural rubber. Similar marked specimens were found at the second trading post and are described later on.

In the realm of personal possessions are a steel *dagger* or stiletto, *pocket knives*, and *knife-sheaths*. The dagger, 9½ inches long, has a guard 2 inches wide and a plain bone handle secured by three small brass pins (fig. 56b). Items such as this were useful for many purposes other than defense or protection. A comparable specimen was excavated at Star Village, which was used during the year 1862 (Metcalf, 1963, p. 110 and pl. 13f).

Among several pocket knives is one complete specimen, 3½ inches long, with a large and a small blade, and there are a number of smoothed wooden and polished brass handle fittings, 4⅛ inches long, for similar but larger knives.

The two knife-sheaths are for broad-bladed, tapering knives. They measure 5 and 5½ inches in length. They are apparently made of commercially tanned leather, hand-sewn along the edges. One of them has two slits at the top for suspension from a belt.

The finding of eight pairs of *scissors* suggests the usefulness of such implements to both traders and Indians. They vary in length from 5½ to 8 inches, and the handles of several pairs retain traces of the black lacquering commonly applied to cutlery.

Among fragments of molded *clay pipes* obtained, one bowl (fig. 54i) is an effigy head in reddish brown glaze; on another (fig. 54j), of the more common unglazed type, a floral design encloses the bowl and rosettes surround the rim. The tip of an unglazed stem bears the mark "DEMUTH & . . . /WOODSTOCK PIPE" (fig. 54f). The firm of William Demuth and Company, of New York, is known to have imported such articles at least as early as 1862 (personal communication from James J. Heslin, New York Historical Society, April 24, 1962).

Evidence is offered elsewhere of the popularity at this place of the game of *dominoes*. Four machine-made specimens were obtained from Fort Berthold I. Three of them, measuring 1⅜ inches by $1\frac{1}{16}$ inch, are of wood and of ivory or bone, with the two parts fastened by small pins of brass or iron. They are marked "six-three," "four-three," and "two-two." The fourth domino, a "six-one," measures 1¾ inches by $1\frac{3}{16}$ inch. It is made of wood only and the dots are marked in black paint.

Two *game pieces*, one round and the other oval, are fashioned from bits of glazed earthenware. Used in a native game, they resemble specimens obtained from the village and the second trading post.

That children were ever present about the community is evidenced by fragments of painted "china" dolls of similar style, in several different sizes (fig. 54c, e, and g). They have black hair and eyelashes, brown eyebrows, blue eyes, and red cheeks. Shoes, some with high heels, are indicated in black. Leg and arm fragments terminate in flat surfaces, with grooves for attachment to the body.

FIREARMS, AMMUNITION, AND MILITARY GEAR FROM FORT BERTHOLD I

BY CARLYLE S. SMITH

Small arms and related equipment were excavated in 1954 at the site of Fort Berthold I. The following account of this material is a revision of the report I prepared in 1955 for the State Historical Society of North Dakota and published the same year as a journal article (C. S. Smith, 1955).

FIREARMS

Flintlock trade guns, seemingly American imitations of the North West gun of English manufacture, are represented by several parts, including one lock plate marked "TRYON/PHILA" and one marked "H. E. LEMAN"; two lock plates, apparently unmarked but conforming to patterns of British muskets of the period of the Napoleonic Wars; a hammer or cock of a style used on British muskets during most of the 18th century; one frizzen, or steel; three frizzen springs; three mainsprings; three cut sections of half-octagonal barrels of approximately 24 gage; four sections of similar barrels that had been made into hide fleshers; four large iron trigger guards; and two fragmentary brass butt plates. In addition, there are 13 gunflints—two apparently of French origin, 10 similar to those made at Brandon (Suffolk, England), and one apparently made locally of Knife River flint. The two marked lock plates are derived from products of well-known American gunsmiths, George W. Tryon, operating at Philadelphia as early as 1811, and Henry E. Leman, operating at Lancaster, Pennsylvania, after 1834 (Russell, 1957, pp. 116, 139).

Weapons made for the armed forces of the United States and Great Britain are represented by parts and accessories of muzzle-loading *muskets*, breech-loading *rifles* and *carbines*, and a percussion *revolver*. A U.S. Army musket, Model 1840 or 1842, is represented by lower and middle barrel bands, the latter with a sling swivel. (The Model 1842 was a percussion-lock arm rather than a flintlock.)

The breech block of a rifle-musket, Model 1866, made at the Springfield Armory from 1866 to 1868, and a section of the barrel, near the muzzle, of a rifle or carbine, Model 1873, caliber .45 Government, are present. For use with a piece such as the latter, probably made about 1880, which lacked an attached rod, there is a portion of a jointed steel cleaning rod. Also present is a triangular bayonet, made originally for a rifle-musket, Model 1855, and suitable for use with later arms also.

There are two fragments cut from octagonal barrels of non-military, muzzle-loading rifles, one of which had had a percussion lock, together with a brass-tipped iron ramrod and the tubular mouthpiece of a brass powder flask. Though corroded and damaged, the barrels have calibers of ca. .40 to .45. One of them, with the bolster intact, bears a partly legible name stamped on the under side, "DR. SIEGER", with five or six illegible letters possibly indicating place of manufacture. Such rifles, typical of the mid-19th century, were made for general use and the Indian trade.

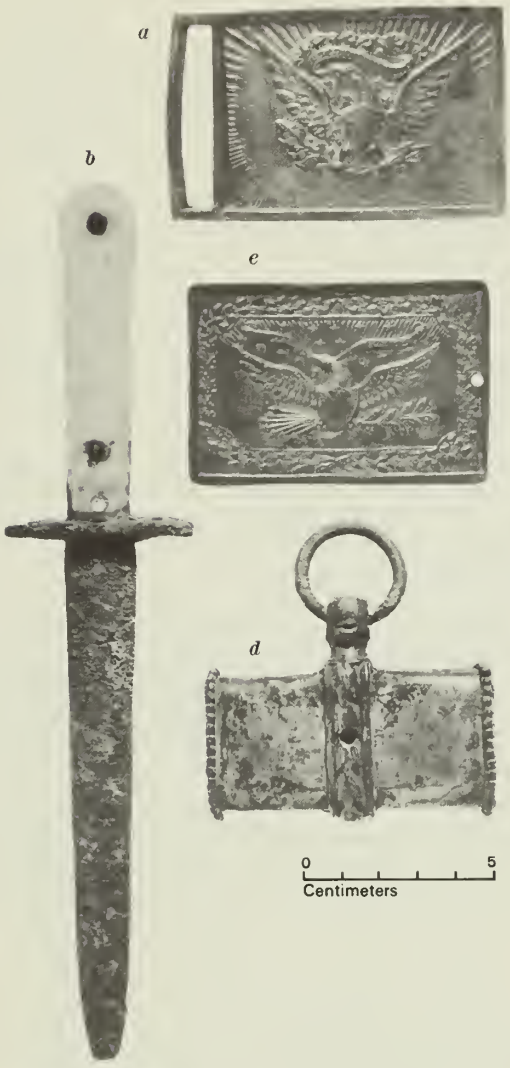
Present also are parts of two varieties of muzzle-loading percussion guns with double barrels mounted side by side; fragments of shotgun barrels of ca. 12 and 24 gage; a pair of barrels from a combination rifle and shotgun of ca. .38 caliber and 28 gage; parts of two iron butt plates with short rounded tangs; and the head and tip of a brass ramrod. Fragmentary specimens such as these cannot be accurately dated since such guns varied relatively little during most of the last century.

A Sharps carbine or rifle, Model 1859 or 1863, is represented by the lever that was attached to the breech block for the purpose of raising and lowering the piece during reloading. Inasmuch as this lever lacks a small projection at the forward end, which served in actuating the extractor, it was probably made prior to 1870 and before alteration to the .50 Government metallic cartridge. This part must have been used on the gun chambered for the .52-caliber linen cartridge, which was combustible and required no extractor.

A single part of a .44-caliber Colt percussion Army revolver is present. This is an iron back strap on which the first three digits, "111," of a six-digit serial number are still visible. A milled recess on the strap and the fact that it is of iron rather than brass indicate that the revolver was designed to be equipped with a detachable shoulder stock for the use of cavalry or dragoons. Most weapons of this type were made between 1861 and 1865.

Two brass butt plates present are derived from the military Enfield rifle-musket, Model 1853, as are a brass trigger guard lacking a hole for the sling swivel; one iron and one

Figure 56. Personal possessions from Fort Berthold I.



brass trigger assembly; a .577-caliber iron barrel, 32 inches in length; a steel ramrod retaining the spring; and an iron compound appendage for disassembling the weapon. Such weapons were made in England between 1853 and 1865 for the British armed forces.

AMMUNITION

The ammunition obtained from Fort Berthold I is described below under five classes.

Rim-fire cartridges

1—*.32 revolver, copper, plain base; maker unknown; made after 1860. Single specimen present.*

2—*.44 Henry, copper. Nine cases with plain base, and two with raised letter "H" on base (Winchester trademark). The plain-base specimens are 13/16 inch in length and those marked with H are 7/8 inch in length. The manufacture began in 1860 and terminated about 1940. The raised letter H dates before 1900. Later the H appeared as a sunken letter. Ten cases bear the double firing-pin marks of the Henry repeating rifle, patented in 1860, or the Model 1866 Winchester, made until 1897. The other case bears a single firing-pin mark, indicating that it had been fired in a single-shot rifle.*

3—*.56/.50 Spencer, copper, plain base; maker unknown. Two cases present, 1 5/32 inches in length. Made after 1865 for the Model 1865 Spencer carbine and rifle. One case may have been fired in a single-shot rifle, of unknown make, because of the presence of a raised boss of expansion near the center of the base.*

4—*.56/.52 Spencer, copper. One specimen, 1 1/32 inches in length, with raised letter "H" on base (Winchester trademark). Probably made between 1866 and 1900 for use in the Spencer carbine and rifle.*

Center-fire, internally primed cartridges

1—*.45 Colt revolver, copper, plain base crimped nearly all the way around, five-thirty-seconds of an inch from the base. Benét cup primer. Seven specimens, six of which are unfired but with bullet and powder removed by cutting and folding back the mouth of the case. Made at Frankford Arsenal for use in Colt Single Action Army Revolver, ca. 1873–80.*

2—*.45 Government (.45–70), copper, plain base crimped nearly all the way around, seven-thirty-seconds of an inch from the base. Benét cup primer. Ten specimens. Two cases unfired but with bullet and powder removed by cutting and folding back the mouth of the case. Made at Frankford Arsenal between 1873 and ca. 1882, for use in U.S. Springfield single-shot rifles and carbines, Model 1873, and for other weapons made experimentally or on contract for the U.S. Army.*

3—*.50 Government (.50–70), copper, plain base with two short crimps about one-sixteenth of an inch from the base. Martin bar anvil primer. Twenty-five specimens present. Two unfired but with bullets and powder removed without cutting the case. Four cases perforated at the base for use as ornaments. Made at Frankford Arsenal from October 1866 to March 1868, for use in U.S. Springfield rifles, Models 1866 and 1868, and in weapons such as the Sharps and Remington made on contract for the U.S. Army.*

4—*.50 Government (.50–70), copper, plain base with two long crimps about three-sixteenths of an inch from the base. Benét shallow cup primer. Two specimens. Made between 1868 and 1873 for use in the same weapons as three, above, and also for the Model 1870 Springfield.*

5—*.50 Government (.50–70), copper, plain base with two long crimps about seven-thirty-seconds of an inch from the base. Benét cup primer. Six specimens present. Two cases unloaded by cutting and folding back the mouth. Made at Frankford Arsenal between 1873 and ca. 1880, for use in the same weapons as three and four, above.*

6—*.50 Government (.50–70), copper, deep annular depression in the base, completely encircling crimp at the flange. Martin primer, second patent 1870. Eight specimens. Made at Frankford Arsenal from May to December 1871, for use in the same arms as three to five, above.*

Center-fire, externally primed cartridges

1—*.32 revolver, brass, plain base; maker unknown. Single case present is broken and crumpled, ca. 1880.*

2—*.38 revolver, brass, plain base; maker unknown. Single case present served as part of the handle of an iron awl., ca. 1880.*

3—*.45 Colt revolver, brass. Seven cases with plain base and one with raised center. The latter specimen may have been made by Winchester; maker of the others unknown, ca. 1880.*

4—*.45 Government (.45–70), brass, plain base; maker unknown. Three specimens. Made for use in U.S. Springfield rifles and carbines, Model 1873 and later variations, until 1892, and for arms made on contract for the U.S Army, ca. 1880.*

5—*.45 Government (.45–70), brass, raised center on base. One specimen. Probably of Winchester manufacture ca. 1880, for use in same arms as four, above.*

6—*.45 Government (.45–70), brass, slightly raised center on base. Berdan primer. One specimen. Maker unknown, but possibly Winchester between 1873 and 1880. Made for use in the same arms as four and five, above.*

7—*.45 Government (.45–70), copper, raised center on base, marked (clockwise) "R, 82, F, 4". One specimen. Made at Frankford Arsenal in April 1882, for use only in U.S. Springfield rifles, Model 1873.*

8—*.45 Government (.45–70), brass, plain base marked (clockwise) "R, 70, B, 45". Two specimens. Made by the Union Metallic Cartridge Co., at Bridgeport, Conn., ca. 1880, for use in same arms as seven, above.*

9—*.50 Government (.50–70), brass, raised center on base. Berdan primer. One specimen. Probably made by Winchester between 1870 and 1880, for use in U.S. Springfield arms, Models 1866, 1868, and 1870, and on contract for the U.S. Army.*

10—*.50 Government (.50–70), brass, raised center, marked in relief around the edge "E. REMINGTON & SONS". One specimen. Made by Remington probably between 1870 and 1880, for use in the same arms as nine, above.*

Unidentified cartridge

One copper tube, open at both ends, probably a section cut from a cartridge

case, dating after 1860. The cartridge may have been a .44 Henry, described under two of the rim-fire cartridges, above.

Bullets

Four spherical lead balls. Three are .51, .55, and .64 caliber; the fourth is a crushed bullet that had been shot from a gun. All were made for use in muzzle-loading guns such as those described above. The .51-caliber ball could have been used in either a rifle or a smoothbore gun. It is probable that the .55-caliber ball was used in one of the North West guns. The .64-caliber ball is of the proper size for use in the .69-caliber U.S. Army muskets of 1840–58, as described above. Bullets for smoothbore guns were usually made one gage smaller than the bore, for ease in loading, whereas those for rifles were made nearly bore diameter.

MILITARY GEAR

Certain other objects, like some of the small arms, are also items of military origin. These include two *belt plates*, a sword *scabbard fitting*, two *canteens*, two *brass buttons*, and a *textile fragment*.

One of the belt plates, of cast brass (fig. 56a), bears the seal of the United States. The head of the eagle is on the heraldic right, the arrows are clasped in the left talon, and there are 13 stars above, but the separate wreath of white metal, which originally surrounded the emblem, is lacking. Plates of this general design were used by commissioned and noncommissioned officers in all branches of the Service, and by enlisted men of all grades in the cavalry, during the last half of the 19th century. The other plate, of die-stamped brass (fig. 56c), bears the seal of the United States, but the arrows (seven instead of the usual three) are clasped in the eagle's right talon, the sun's rays are confined to the upper part of the design, 17 stars are distributed above the eagle, and the emblem is bordered by a wreath of oak leaves and acorns. This piece differs materially from regulation items. It may be a militia item of ca. 1835–45 (personal communication from J Duncan Campbell).

The brass throat from a sword scabbard with one attaching ring (fig. 56d) is not from a regulation U.S. scabbard. Probably made between 1850 and 1870, it may have come from one of the many non-regulation field officers' swords which generally followed the pattern of Model 1850, or from a light cavalry officer's saber of Model 1860–62 (personal communication from Harold L. Peterson).

The two canteens, made of two pieces of tinned sheet iron, stamped and soldered, are lens-shaped and have concentric corrugations typical of U.S. Army issue items of 1861–65. The pewter mouthpieces are stamped "R. H. GRATZ & CO. PHILA." and ". . . & BOOTH, PHILA."

One of the two brass buttons is three-quarters of an inch in diameter and bears the seal of the United States, with the letter "A" in relief on the shield instead of the vertical stripes. It carries the following legend in relief on the reverse: "CANFIELD BRO & CO BALTIMORE". Buttons of this kind were worn by artillery officers throughout the latter part of the 19th century. The other specimen, seven-eighths of an inch in diameter, is die-stamped on the upper surface to suggest the texture of woven fabric and bears the Gothic letters "L G", for light guards, encircled by a laurel wreath. This button is typical of those purchased in the 1840's by various state military organizations (personal communication from Harold L. Peterson).

The fragment of textile has interwoven strands of gilded brass wire, and may be a portion of braid from a military uniform.

FOOD AND DRINK

Food refuse, in the form of animal bones and fragments, was found in considerable quantities in excavations at Fort Berthold I. The bulk of this material was obtained from pits and cellars. As has been noted previously, most of it may have been deposited after the post was destroyed. Although the refuse bone may reflect the dietary habits of the native peoples rather than those of the local Whites, one may assume that these habits did not differ substantially between the two groups.

The greater part of the bone appears to be of native species—bison (foremost), deer, elk, beaver, wildfowl of large size, and fish. Bones of canids, probably domesticated dog, testify to the importance of the dog for food at tribal ceremonies as well as to its role as a beast of burden. Horse bones were also present. Horses were doubtless consumed in

times of food shortage.

The shipment by steamboat of various commodities for the trade must have included small amounts of salted and dehydrated beef and pork. These commodities and the establishment in 1867 of resident agents and of issues of rations to the villagers, including meat, explain the presence of domesticated animal species.

No clear evidence was observed of masses of bone meal, the residue of preparing bone grease, which is said to have been favored by the Hidatsa (Wilson, 1934, p. 356). Much of the bone scrap probably derived from the cracking of long bones of the large native animals for the purpose of extracting marrow directly.

Little can be said of the scanty vegetal remains suitable for food. Charred corncobs were recovered but, according to the late George F. Will, their damaged condition made identification of varieties impossible. Seeds of pumpkin and squash *(Cucurbita maxima)*, wild plum pits, and seeds of ragweed *(Iva)* and goosefoot *(Chenopodium)* were recognized.

Several metal food containers show that factory-packed foods were available, probably at a rather early date. The contents of some containers can be inferred with reasonable certainty from the shapes of such containers still in use. A cylindrical can, 2¾ inches high and 2⅛ inches in diameter, is of a style still used for baking powder. An oval can, 9 inches long and 2⅛ inches high, probably held sardines, and a tapered pail, 5 inches high and 4 inches in diameter at the lip, doubtless held lard. Wire handles and lids of various sizes suggest containers for other staple processed foods.

Numerous glass bottles in the collection may have held wine and beer. The full significance of each of these specimens cannot be determined, but they are evidence of unregulated or illegal traffic with the Indians, as well as of the fact that the traders and other Whites residing here were able to enjoy certain luxury goods brought long distances by steamboat.

A pint-size bottle of light green glass with a deeply recessed base, 10 inches high and lacking a manufacturer's mark, probably contained an imported wine. A darker green glass bottle with a shallower recess in the base, 9⅞ inches high and holding 1¾ pints,

Figure 57. Bone and clay artifacts from Fort Berthold I.

carries the molded figure "27", perhaps a factory number. This bottle was probably made by an American factory and may once have contained an American wine. Another green glass bottle with a flat, unmarked base has a height of 10¾ inches and a capacity of 1½ pints. Base fragments of two dark green bottles of different sizes carry all or parts of the legend, "W/McCULLY & CO/ PITTSBURGH PA". This is the mark of a well-known manufacturer of bottles and other glass articles in the mid-19th century. Similarly marked specimens were obtained from Fort Berthold II.

A quart-size brown glass bottle for bitters, though lacking the neck, seems to be identical with a complete specimen from the second trading post. This bottle, whose shape suggests a log cabin, appears to be a variety specially made for this alcoholic preparation in commemoration of the discovery of oil in Pennsylvania, in 1860.

One plain brown glass bottle, 7 inches in height, and several other brown glass bottles represented only by bases probably held beer. Two bases are marked "A & D H C", which probably stands for the factory of Alexander and David H. Chambers, of Pittsburgh. Complete specimens of these bottles were obtained from Fort Berthold II.

The collections from both the earlier and later posts reveal scant evidence of bottled spirits such as whiskey. It is reasonable to suppose that such spirits reaching this place were transported in wooden kegs, the remains of which were not found, rather than in fragile glass bottles and flasks.

OBJECTS OF NATIVE MANUFACTURE

Certain varieties of native artifacts were recovered from Fort Berthold I. Some of these, though fashioned from materials obtained through trade, have special significance in the native culture. The specimens supplement comparable artifacts found in greater quantity in the village and in the second trading post, and described elsewhere in this report.

POTTERY

Only two fragments of native *pottery vessels* were found. One of these, collected during the stripping of the site by machinery, is a rim sherd of cord-marked ware, which has fine horizontal cord impressions around the

neck and two small bosses, 1.2 cm. below the lip. The paste is light gray, the temper is coarse sand, and the surface has a hardness of 3.5. The other fragment is a body sherd, 0.5 cm. thick, grooved-paddle impressed and partly smoothed. It was found in a pit (F188) believed to be of white origin.

Two fragmentary *figurines* of fired clay, each measuring 3.7 cm. in length and 4.7 cm. in height, represent horses (fig. 57k and l). The animals are realistically modeled except for the legs, which are short knobs into which small sticks were inserted. One specimen with a mane was obtained from a pit (F693) located near the gate of the stockade and intrusive into the stockade trench. The contents of this pit, including the figurine, probably date from the period after 1862. A photograph in the archives of the State Historical Society of North Dakota, taken by O. S. Goff in the late 1870's at the nearby Congregational Mission (32ML50), shows 12 animal figurines said to have been made by Indian boys at the mission school. One has stick legs.

STONE

A single *projectile point*, of gray chert, lacks the base. Lenticular in cross section, it bears large primary-flaking scars on each face. The edges are retouched.

One of two *knives*, lacking the base, is leaf shaped in outline and lenticular in section; it measures 4.7 cm. in width, 0.9 cm. in thickness, and more than 9.0 cm. in length. Both faces are flaked and are stained with red pigment. The other knife, of gray quartzite, is triangular and measures 6.8 cm. in length, 3.7 cm. in width, and 1.3 cm. in thickness. It is bifacially flaked to produce opposed beveled edges.

One *chopper*, of gray schist, is ovate in outline and measures 10.5 by 7.5 by 1.0 cm. The faces are smooth and the edges have been sharpened by flaking.

Five *flakes* of Knife River flint show retouching along one or more edges. They were obtained from five small refuse pits.

There are four *hammerstones* of quartzite, ranging from 7.5 to 9.3 cm. in maximum diameter, battered on the faces or edges.

A fragmentary full-grooved *maul*, fashioned from a granite cobblestone, is pointed at the intact end.

One complete and four fragmentary *abraders* are present. The complete specimen, of sandstone, is triangular and has a straight groove varying from 0.5 to 0.9 cm. in width. The fragmentary abraders are of natural clinker, or scoria. Two have a slightly convex working surface and two have short, straight grooves.

A small piece of *hematite* is perforated, perhaps for suspension as an ornament.

There are seven fragments of Indian-made tobacco *pipes*—four of catlinite and three of gray shale—and three pipe "blanks" or unfinished pipes of gray shale. Two catlinite pieces are part of a bowl and part of a shank, and two appear to represent modified platform pipes. The specimens of gray shale include a modified platform pipe, a bowl, and the section of a stem.

Four *tops*—truncated cones of sandstone—are about 3.2 cm. in maximum diameter and 3.2 to 4.4 cm. in length. All of them show cuts and scars, presumably as a result of use.

BONE AND ANTLER

A single bison scapula *hoe* is present. Measuring 37.5 cm. in length, it has been modified only by the removal of the spine and ridges, and it shows no signs of actual use.

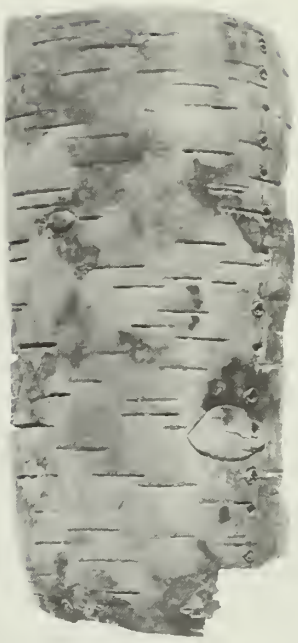
Three *ice-gliders* of bison rib, ranging from 9.2 to 12.0 cm. in length, are square-cut at one end and pointed at the other, like those found in the village. Two specimens have holes, and the third is cored out at the square-cut end, for insertion of willow wands. One ice-glider bears straight-line incisions on the inner concave surface (fig. 57j), and another is deeply incised near the tip.

An object of rib bone, probably a *game piece* (fig. 57f), is lozenge-shaped and measures 15.1 cm. in length and 1.6 cm. in width. One face is marked with small dots; the other has been cut away to the cancellous tissue. The piece resembles certain decorated staves or "stick dice" (made from elk-horn cores and used by Hidatsa women) collected by Matthews (Culin, 1907, p. 186 and fig. 241).

One *domino*, fashioned from a rib fragment, measures 3.8 cm. in length and 1.8 cm. in width. Dots incised in one face indicate that this is a "five-three" piece; the reverse face bears lightly incised diagonal lines. This specimen was recovered from a larger pit (F373) at the trader's residence. Similar dominoes, handmade from rib fragments, were obtained at the village, and machine-made pieces were recovered from the second trading post. The wide distribution of dominoes

Figure 58. Felt and bark objects from Fort Berthold I.

a



b

0 5
Centimeters

c

suggests that the game was enjoyed by Indians as well as Whites.

Three hollow bone tubes, made of long bones of small mammals or large birds, and cut square and smoothed at the ends, are *plume-holders* (fig. 57g-i). Varying from 3.3 to 4.5 cm. in length and from 1.3 to 1.4 cm. in diameter, they are perforated at different points and incised. One specimen shows traces of red pigment in the incisions.

Five artifacts are of antler. Two of these are *scraper-hafts* of elk antler, comparable to specimens from the village. One is complete, measuring 32.1 cm. in length, and is incised; the grip is polished from use. The other lacks part of the grip. Both hafts have been cut and hacked at the angle, and the inner face of the shorter part of the complete specimen is curved, probably for attachment of a metal blade.

A fragmentary piece of antler is probably part of a *saddle frame.*

Two artifacts of antler tip, 12.2 and 8.0 cm. in length, are *simulated bear claws.* In each case, the base is cut at right angles to the shaft but the tip is unmodified. One specimen is not decorated, while the other (fig. 57a) has rows of incised dots and a large perforation at right angles to the midline, for suspension. Grizzly bears and black bears disappeared from this region with great rapidity. These imitations of bear claws, which were prized for men's necklaces, are an interesting illustration of swift adaption to the changing natural environment.

Four animal *teeth* had been used as ornaments. Three are bison incisors, 3.5 cm. in length and cut or scored at each side of the root for suspension (fig. 57c and d). The fourth is a horse tooth perforated at the base (fig. 57b). Another ornament is a perforated bone disk (fig. 57e).

OTHER MATERIALS

A small *birchbark container*, measuring 31.5 by 9.6 cm., is made of a single folded piece of bark (fig. 58b). The long edge and one end of this envelope-like object are sewed, and the opposite end is open. Birch does not grow along the upper Missouri, but its useful bark must often have been brought to the settlement from the northeast, where the tree is native, by the villagers as well as by Plains Ojibwa and Red River *métis.*

Several fragments of hide, probably native-tanned, include four heavy soles of *moccasins* in both adult's and children's sizes. Moccasins were undoubtedly the commonest footwear used here by both Indians and Whites.

Two cone-shaped *caps* are apparently made of single pieces of felt and may have been sewed with sinew (fig. 58c). The upper parts are open and fringed, and the lower margins have lozenge-shaped tabs.

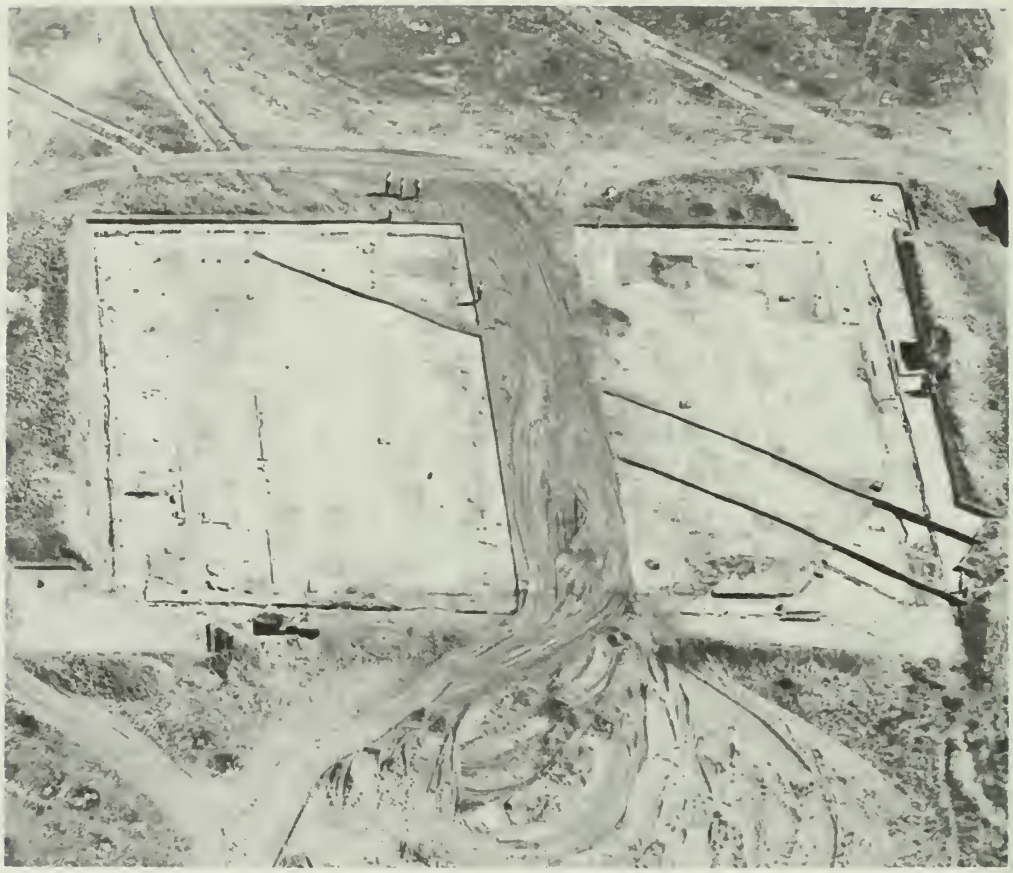
A small *human figure*, apparently also made of felt, lacks the head and arms but is cut to suggest the fringed leggings worn by male Indians (fig. 58a). This object was perhaps a child's plaything.

FORT BERTHOLD II

That the original trading post of Fort Berthold prospered from the outset is shown by the fact that, as early as 1851, a second post was in operation near the village and was competing for the trade of the region according to the familiar pattern (cf. Chittenden, 1902, vol. 1, pp. 378-380). Apart from brief allusions to this local opposition post in the private journal of the artist Kurz, nothing is known of its appearance or of its fortunes. But in view of the success usually enjoyed by "the Company" here and elsewhere, this attempt at competition may have failed.

A more determined effort to oppose Fort Berthold was made in 1858. A new and larger post, called Fort Atkinson, was built for the purpose, with its stock in trade apparently supplied by Frost, Todd and Company, of Sioux City, which was previously among the opposition here and elsewhere (H. A. Boller to his mother, on board the steamboat *Twilight*, June 6, 1858, in Boller Papers). This firm appears to have obtained the necessary blessing of the Indian Office, including awards of contracts for supplying goods due these and other Indians under treaties and less formal agreements (Thomas, 1949, p. 181).

The opposition of 1858 was represented on the ground by a group that included young Henry A. Boller, fresh from the East, who recorded in some detail the plan of the new post, located southeast of the village, near the site of the earlier opposition post. The plan, not drawn to scale, accompanied a letter from Boller to his father, Henry J. Boller, Fort Atkinson, August 12, 1853 (Boller, 1966a, p. 156). The post was then substantially complete except for two proposed "bastions," or blockhouses, indicated on the plan at the southwest and northeast corners of the enclosure. However, later pictorial records



Fort Berthold II during excavation in 1952.

(figs. 59–63) and physical evidence uncovered in the excavations reveal that the blockhouses were at the northwest and southeast corners, where they would have permitted a clear view up and down the river, along what was then the main channel of the Missouri.

Boller's plan of August 1858, conforming to local usage at the time in orienting the new post with the compass, showed, immediately "east" of this post, "where [the] old Post stood"—the site probably used by the earlier opposition. In his book, published 10 years later, Boller stated that by the time Fort Atkinson was established the buildings formerly occupied by the company had become so dilapidated with age and neglect they were not fit for use and their "renewal" was imperative (Boller, 1959, p. 75). The earlier post, perhaps going back to 1851, may have consisted of only a few log buildings. Test excavations (XU29 and XU30) made with a motor road-patrol, followed by handwork, in the area immediately northeast of the site of Fort Atkinson produced no evidence of earlier structures, and it is possible that intensive use of Fort Atkinson, one of the main gates of which opened near this area, had helped to destroy evidence of the earlier establishment.

The renewed competition of 1858 at the village was most unwelcome, and Chouteau Company representatives soon succeeded in squeezing it out of business. In June 1860, Boller's company was, he said, "consolidated" with the larger one; only "one set of Forts" would be maintained thereafter, without "outposts" elsewhere or any "going into winter quarters" (Boller, 1966a, p. 218; Boller to H. J. Boller, Fort Atkinson, June 18, 1860). Boller's wording suggests that he and his associates expected, at the time, to retain a financial interest in trade at the village. But it is probable that they were being forced to sell out, as the trader Charles Larpenteur, who visited them about this time, later implied (Larpenteur, 1898, vol. 2, pp. 309–310). In accord with the frequent experience of those attempting to compete in the region, the new opposition in which Boller had been briefly involved appears to have been beaten back also, and after less than 2 years—probably too short a time for real profit to any group except the most experienced and well financed. Such a combination of assets was usually to be found only

within the Chouteau organization.

An attempt was now made to regroup the opposition. Jefferson Smith and Boller were joined by Larpenteur—like Smith, a former Chouteau employee—who was able to interest Robert Lemon, a clerk in the St. Louis business house of Robert Campbell (Larpenteur, 1898, vol. 2, p. 311). Boller and Lemon were the "financiers," and Smith and Larpenteur were the traders (Larpenteur, op. cit., p. 320). Boller and Smith wintered again at Fort Atkinson, while the other partners stationed themselves among the Assiniboin at the mouth of the Poplar River, some miles above Fort Union. But this reorganization of the opposition soon fell apart. Larpenteur recalled, sourly, that the partners were disillusioned with each other, and added some uncomplimentary remarks about Boller and Smith.

In the spring of 1861, Boller and Smith departed down river (Larpenteur, 1898, vol. 2, p. 323), leaving the field to others, perhaps better qualified. On December 24, 1862, during an attack on the whole community by the aggressive Sioux, the old post of Fort Berthold was destroyed by fire and Fort Atkinson inherited its name (Boller, 1959, p. 362). It is the site of this establishment, here called Fort Berthold II for convenience, which will now be discussed in the light of physical data obtained by excavation and supplementary facts from other sources.

For the subsequent history of the use of this second Fort Berthold—built by an opposition group but operated by the Chouteau Company for a time after 1862—few specific details are at present available, though manuscript sources of further information are extant. About 1866, the Chouteau Company withdrew from trade on the upper river and disposed of its various stations. At approximately the same time, Fort Berthold II came into the hands of the Northwestern Fur Company, of St. Paul, Minn., in which Alpheus F. Hawley and James B. Hubbell were managing partners (Kane, 1955). The post appears to have changed hands again by 1867 and, with other former Chouteau posts, was being used by the firm of E. Hicks Durfee and Campbell K. Peck, of Leavenworth, Kans. (Reid, ed., in Van Ostrand, 1942, p. 236, n. 3). Glimpses of its operations at this period are afforded by the recollections of Horatio H. Larned, who with Daniel W. Marsh was employed by Durfee and Peck until October 1870 (Larned in Collins, 1925, pp. 30–35), and by a journal kept here during 1871 and 1872 by Ferdinand A. Van Ostrand (1942).

Larned recalled that the value of the annual inventory at the post during his service had been approximately $70,000. Of this sum, $8,000 was counted as the value of buildings and equipment and the balance as the value of goods and furs on hand—the goods being figured at invoice cost prices, and the furs and robes at $2.50 each, or approximately their cost to the traders. Larned also recalled the cost and selling prices of some of the principal articles and commodities, such as blankets, sheeting, calico, denim, broadcloth, sugar, coffee, hard bread, tea, bacon, tobacco, beads, vermilion, ocher, indigo, iron arrow and spear points, and powder and ball.

Brief impressions of the post at this time were also preserved by one of its white visitors, the well-known soldier and frontiersman, Luther S. ("Yellowstone") Kelly (1926, pp. 25–32). Within the trading room of the post in 1868, he recalled, was displayed a line of goods "calculated to touch the heart or desires" of the Indians. Among the goods were bolts of coarse broadcloth, red and blue ornamental shells and beads, knives and hatchets, shawls and headbands, powder in kegs, brown sugar in barrels, flints, matches, trade guns, a variety of blankets, "and many other goods to catch the eye." Among the firearms were brass-mounted Henry carbines, which Kelly understood were for trade with Whites. He purchased one of them, with a supply of .44-caliber cartridges, and recalled that he had paid $50 for the outfit. He recalled that although the Indians usually came to trade in groups, a single family would sometimes ask for a "private deal" and the "shop" would be closed to others while this was carried on. He witnessed the exchange of a very fine cow-buffalo robe, upon which an Indian scene or event had been outlined in "pigment colors." The robe was traded for 25 cups of brown sugar, and each cupful was measured by the trader with his thumb "full length" inside it. This was a "common practice," according to Kelly.

As with numerous other trading posts that had outlived their original usefulness, Fort Berthold II was now offered for sale to the Federal Government (Mattison, 1951, pp.

206–207, citing archives of the Office of Indian Affairs, in the National Archives). Parts of the post had already been used during 1864–65 as a base of operations for troops engaged in the campaigns against the Sioux commanded by Gen. Alfred Sully. The use of the post by the Army continued until 1867, when a new military post was built some miles downstream. This post was first called New Fort Berthold but was soon renamed Fort Stevenson (Site 32ML1; G. H. Smith, 1960). Beginning in 1868, parts of Fort Berthold II were used as headquarters for the first resident Agency personnel, but no record has been found of actual sale of the post to the Government (Mattison, op. cit., p. 208). Perhaps it had little or no value for government purposes, as a result of its long, hard use.

An extensive fire on October 12, 1874, destroyed parts of the post and the following year it was found necessary to construct new Agency buildings, located 1¾ miles downstream (Site 32ML49; Mattison, ibid.). By 1878, remains of Fort Berthold II were so dilapidated that the Indian agent was authorized to tear down a section of the enclosure, 21 by 29 feet, and an old corral and stables, previously rebuilt in part, measuring 321 by 30 feet (Mattison, ibid.).

By this time, Fort Berthold II, like its predecessors, had served its term of usefulness, and other buildings were being built near the village by various independent traders, among them Frederick F. Gerard, formerly a Chouteau Company employee, and Daniel W. Longfellow. Few details of their activities are known. The photograph of such a later building, identified as "Fort Berthold" (original in the archives of the State Historical Society of North Dakota) preserves evidence of a two-story structure of end-notched logs, unlike any building at Fort Berthold II.

South Dakota Museum, University of South Dakota

STRUCTURES

The first Fort Berthold was built well back from the edge of the river terrace, at some distance from the Indian village, and was oriented with the cardinal points. When Fort Berthold II came to be erected, in 1858, the space available on the south side of the village, opposite the first post, was probably limited as a result of the growth of the Indian community. In any case, the new com-

Figure 59 (above). Fort Berthold II, looking southwest; photograph taken about 1865. (After O. D. Wheeler, 1904, vol. 1, p. 277.)
Figure 60. Interior of Fort Berthold II, looking northwest; photograph by S. J. Morrow, 1870.

peting post was located near the terrace edge, without regard to compass directions and with one side of its stockade paralleling a section of the village palisade. During the period from 1845 to 1858, the river channel apparently altered its course sufficiently to favor the use of a new landing place for the steamboats near the second post, over that previously used by the first post upstream. The new landing is shown in a pencil sketch of 1868, and in a painting based upon it, by Trobriand (both in the archives of the State Historical Society of North Dakota; the painting is reproduced in Trobriand, 1951, opp. p. 68). A view of Fort Berthold II, also from the river, is preserved in a sketch made by Stuart during a brief stop here 2 years previously (Stuart, 1963, p. 29).

Like the original Fort Berthold and most other frontier commercial stations of the period, Fort Berthold II was quadrilateral, with its sides formed by the stockade (figs. 59, and 65a and b). Two offset blockhouses were attached to the stockade at opposite corners. The post's buildings, placed in connected rows, sometimes called ranges, paralleled the stockade and faced an open work area or yard (figs. 60–62). As at many posts elsewhere, these buildings were erected first.

Excavation revealed that the post was an elongated rectangle in plan. The dwelling units lay along the northwest side of the post (fig. 66a), probably in order that their entrances would face southeast, away from prevailing winter winds. On the southeast side of the yard, opposite the dwelling units, were work and service buildings such as storerooms and warehouses (fig. 61), near which boxes, barrels, and wagons were sometimes kept. On the southwest, near one of the two gates, stood the flagstaff—a polled pine or spruce, perhaps from the valley of the Little Missouri River where such trees grew (fig. 60).

Logs and timbers needed for construction at Fort Berthold II were probably obtained chiefly from bottom-land groves upstream from the site. The stockade of 1858 was built

Figure 61. Interior of Fort Berthold II, looking southeast; photograph by S. J. Morrow, 1870.

of cottonwood, according to Boller, and doubtless most of the other building members used at that time, and later needed for repair or rebuilding, were of this species also. Cottonwood was the commonest source of logs and timbers of adequate size for construction purposes, and while still green it could be worked without undue effort, using axes, adzes, and other hand tools available. Though drift logs may sometimes have been employed, the builders probably preferred standing timber.

Early photographs and sketches show that the post was constructed chiefly of hand-hewn members, with sawed lumber constituting only a small part of the material used (fig. 60–63). Sawing was probably done by hand, with one- or two-man saws, since there is no record of any mill in the immediate area before the late 1860's. Tasks such as cutting, hewing or sawing, and joining logs must have been regarded as routine, for little mention of these operations is made in the records that have survived.

During the middle years of the 19th century, trading posts on the upper Missouri, like most frontier stations elsewhere, were built chiefly of local materials. The limited cargo space on the steamboats was needed for goods of the trade, and for increasing numbers of passengers. Furthermore, the trading posts were not ordinarily designed for long-time use. Military posts of the period were similarly built of local materials, except for occasional millwork—doors, window sash, casings, flooring, and the like—in certain structures. At Fort Berthold II, the only building materials of non-local origin or manufacture recovered by excavation consisted of some lime, window glass, nails, and other building hardware.

Pictorial and documentary evidence indicate that the stockade of Fort Berthold II consisted largely of peeled and sometimes fitted log pickets of quite uniform diameter which were capped by a hewn plate spiked to the upper ends of the pickets (Boller, 1959, p. 78; letter of W. M. Cuppett to O. G. Libby, Aug. 21, 1914, in Libby Papers, State Historical Society of North Dakota). The plate kept the uprights in proper position. In a photograph of the part of the stockade on the southeast side, beyond the storehouses, the plate appears to be missing (fig. 61). Perhaps this is one of the alterations known to have been made in various parts of the stockade. Plate-capped stockade pickets were used at contemporary posts elsewhere, and this style may have been more commonly employed

Figure 62. Interior of Fort Berthold II, looking east; photograph by S. J. Morrow, 1870.

at this period than that of pointed pickets with interior bracing.

Boller (1959, p. 78) stated that the pickets of Fort Berthold II were about 12 inches in width by 6 inches in thickness—i.e., thick puncheons rather than whole logs—and that they were 16 feet in height and were set 3 feet in the ground. While the post was being built, he noted that the pickets were 15 feet high and were closely set (Boller, 1966a, p. 156). Boller may have meant that the pickets stood 15 or 16 feet above ground, though such a height would have required members 18 or 19 feet in length.

A photograph, taken about 1865 (fig. 59), tends to corroborate Boller's statement about the height of the original stockade above the ground surface. However, the portions of the stockade shown in this view, the northeast and northwest faces, were somewhat altered about this time, according to William M. Cuppett, who as a member of Company G, Sixth Iowa Cavalry, forming part of Sully's forces, was stationed here from September 1864 to May 1865 (reminiscent letter to O. G. Libby, Aug. 21, 1914). Cuppett, who was in charge of the "wood squad," recalled that the post had been built of hewn cottonwood timbers. An addition made by the soldiers on the "north" side of the stockade was used as a "barn" for their horses—perhaps a corral. Cuppett recalled that this was done "by digging a trench about 4 feet deep and the hewed timbers were set close together in the trench and a cap or plate was pinned on the top of the timbers to hold them in place." In the photograph referred to, the stockade replacements of 1864–65 appear to have been nearly whole logs.

The interior face of one of the gates of Fort Berthold II, on the northeast, is visible in a photograph (fig. 62), and in an unpublished sketch of June 1868 by Trobriand (in the State Historical Society of North Dakota). This gate was framed by two large posts—of greater dimensions than the stockade pickets—which rose above the plate line of the stockade and were connected at their tops by a heavy timber. A pair of swinging doors hung from these posts had panels of heavy hewn planks placed horizontally on the exterior—and perhaps vertically on the interior face—and roughly framed with stiles and rails. The doors appear to have been stopped at top and bottom. According to Trobriand (1951, p. 83), they were barred on the inside.

The views just mentioned show that the one-story structures within the enclosure were not built of whole logs, saddle-notched at the ends—a style more familiar today—but of timbers hewn square and tenoned into uprights, which were hewn square and grooved at corners and convenient intervals. Distances between the uprights varied according to the length of timbers available, and the units, probably added without a definite plan, formed rows, which were separated from the stockade by a passageway. It seems probable that doors and windows were provided only at front and rear, since openings between rooms would have weakened the structures. That the timbers were chinked with clay was shown by fragments of accidentally fired chinking obtained in the excavations.

The timber construction at Fort Berthold II was employed at many other Missouri River trading posts of this period. Though its history is not well understood, the style is of Colonial origin and appears to be characteristic of areas such as the Mississippi and lower Missouri Rivers, which were occupied by French-speaking builders.

Another sketch of 1868 by Trobriand (1951, facing p. 100) shows some cabins of whole logs, saddle-notched, standing outside the post near the native earth lodges. Thus it is clear that not only did native and alien building traditions converge at this place, but differing traditions of log construction met here also.

Aside from the two blockhouses, of somewhat specialized design, the buildings within the post's stockade had simple, low-pitched gable roofs, with the ridges alined with the sides of the enclosure. Trobriand (op. cit., pp. 83–84) noted that the buildings were roofed with narrow boards covered with grass and earth a few inches in depth, and photographs corroborate his observations. But rafters must have undergirded the roof sheathing, since an earth cover would have been too heavy for unsupported boards. Though the use of earth for covering these roofs parallels the use of earth as a final cover for the native lodges nearby, the two practices obviously had quite different origins.

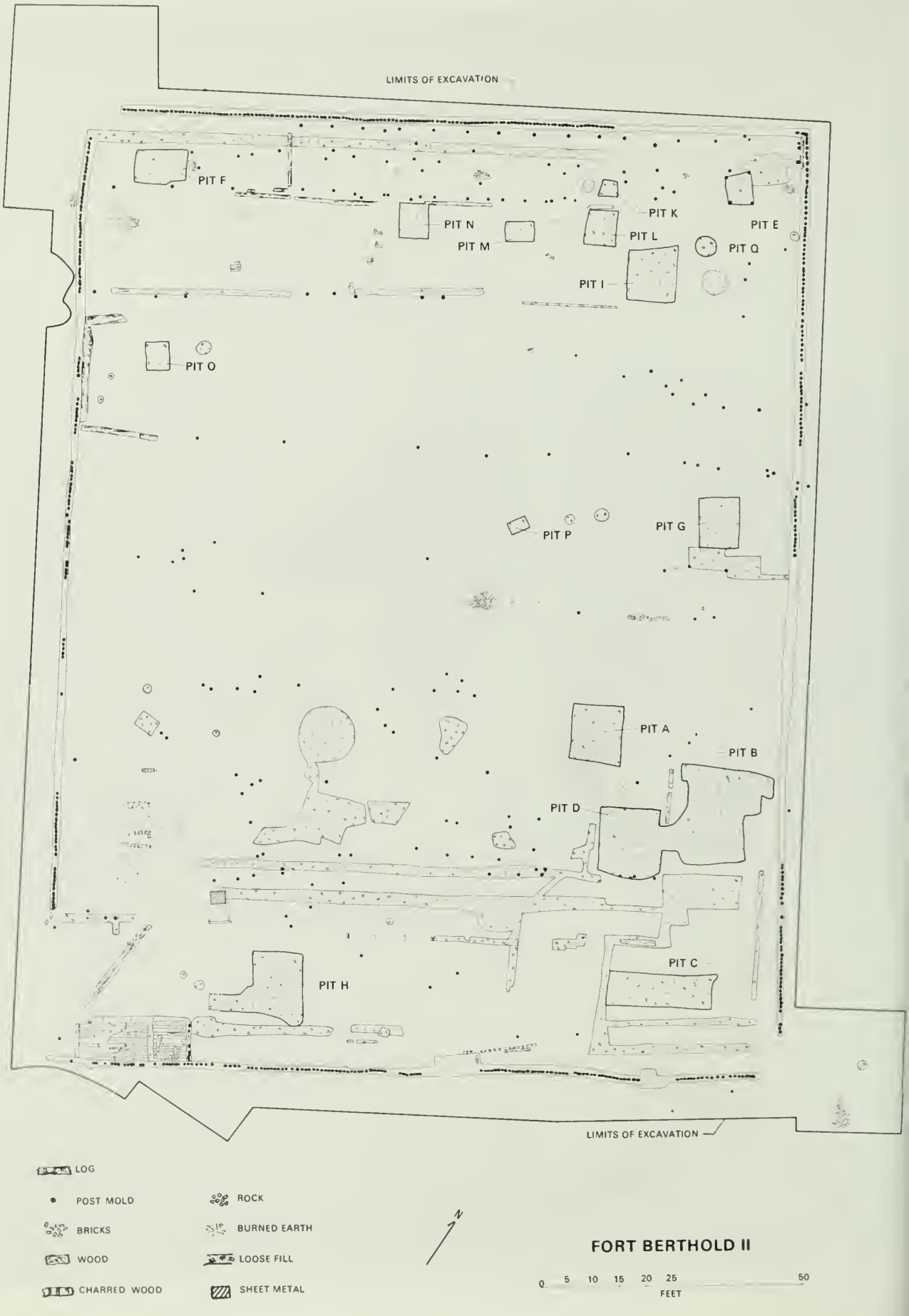
The photograph (fig. 62) and unpublished sketch by Trobriand, previously referred to in connection with one of the gates, show structures with chimney openings. The bases of two fireplaces of rough sandstone laid in adobe were exposed by excavation, but no chimneys of fired brick were found. Perhaps there were stone flues and the rocks, together with other useful building material and many portable artifacts, were removed after the post was abandoned.

A few slabs of rock, possibly displaced fragments of shoring, were found near the easterly blockhouse. Otherwise, the buildings at Fort Berthold II appear to have been placed directly upon the surface of the ground, without footings or sills. Large flat rocks suitable for footings and piers were not to be had in the immediate vicinity of the post. There seems to have been no need for them since the site was well drained. It was doubtless chosen with this important asset in mind.

The two blockhouses had been sturdily framed, like the buildings of the interior, and had been provided with an upper story slightly overhanging the lower. The design was perhaps intended to distribute the weight of the

State Historical Society of North Dakota

Figure 63. Western blockhouse of Fort Berthold II, looking east; photograph by O. S. Goff, about 1879.


LIMITS OF EXCAVATION
PIT F
PIT N
PIT M
PIT K
PIT L
PIT I
PIT E
PIT Q
PIT O
PIT P
PIT G
PIT A
PIT B
PIT D
PIT C
PIT H
LIMITS OF EXCAVATION
LOG
POST MOLD
BRICKS
WOOD
CHARRED WOOD
ROCK
BURNED EARTH
LOOSE FILL
SHEET METAL
N
FORT BERTHOLD II
0 5 10 15 20 25 50
FEET

mass and minimize thrusts. The upper level was not turned 45°, as in the case of certain comparable structures elsewhere in the region, e.g., at Fort McKeen and Fort Rice, both military posts. Larned, who was at Fort Berthold II as early as 1867, later asserted that the upper story of each blockhouse was of the same size as the lower, "but turned one-eighth of the way around" (Larned in Collins, 1925, p. 46). Both of his assertions are incorrect, and his sketch plan of the community, showing Fort Berthold II and later buildings nearby used by Gerard and by Durfee and Peck, is unreliable in certain other respects ("Fort Berthold, H. H. Larned," accompanying Larned's letter to O. G. Libby, Dec. 23, 1922, in Libby Papers).

The two-story blockhouses had a kind of catwalk, supported by brackets at the level of the second story and enclosed with planks, probably to afford protection for a sentry (figs. 59–61). Subsequently, the catwalk of the blockhouse at the west corner was removed and the blockhouse shingled (fig. 63). Both blockhouses had a pyramidal roof, too steep to be covered with earth like the other buildings of the post, and a simple finial at the peak, perhaps intended to support a lightning rod. They were also provided with loopholes from which small arms could be fired. Cuppett's letter, already mentioned, states that in his time the eastern blockhouse was used as the guardhouse and the western one was occupied by the interpreter of the trading post, Garreau, who lived in the lower part with his mixed-blood family.

An interesting detail, visible in various views of the interior buildings of Fort Berthold II, is the small number of window openings provided. Dwellings toward the north seem to have had more windows than the storage, warehouse, and trading rooms toward the south—probably for reasons of security, in the latter cases. Several additional openings, apparently primitive dormer windows, are to be seen in the roofs of the dwellings. One skylight is shown in an unpublished sketch by Trobriand. Like the windows, this skylight, a small frame with panes of glass, was near the ridge of the roof. Such window casings as were used at the post had doubtless been made there from locally finished boards and panes of glass received by steamboat. No remains of true millwork, such as window sash, doors, frames, and casings, were uncovered in the excavations.

In his plan of August 1858, Boller (1966a, p. 156) indicated the varied uses to which buildings, rooms, and units of Fort Berthold II were put. There are two "entrance gates," on the "west" and "east," and on the "north" side of the yard, separated from the stockade by a distance of "4 feet," is a row of buildings, at the east end of which is a "kitchen" with its own small yard. Next to this, proceeding in a westerly direction, are the following: "Our HOUSE," "Men's Quarters," and "Interpreter's House." Opposite this row of dwellings are three "Plunder Rooms" along the "east" stockade line, a "Shed to be built" at the south corner and, proceeding west, a "Storehouse," a "Store" (perhaps for actual trading), and a "Robe House." Between these three commercial units and the southerly line of the stockade is an L-shaped area marked "Corral."

In his book, Boller (1959, pp. 75–78) described the simple furnishings of the buildings within the stockade. The room occupied by the *bourgeois*, or manager, and himself had two "rough bedsteads," made of cottonwood slabs and curtained with "gaudy" calico. The bedding consisted of buffalo robes. Other items of furniture in this room included a few "rough" chairs with seats of rawhide cord, a "clumsy" table, a water barrel, and a tin wash pan. The walls were hung with elk horns, powder horns, bullet pouches, beaded shoulder straps, bridles, saddles, apishamores (or saddle blankets), lariats, rifles and shotguns, and other items. The record of Trobriand's visit of 1867 agrees with Boller's earlier account of furnishings, and adds that the interiors of all dwellings were whitewashed (Trobriand, 1951, p. 83).

Information on the use of buildings at this post, as well as at Fort Berthold I, was also recorded in the undated sketch plan of the entire community by Gerard and Sperry, which was probably made after its abandonment (tracing of original in Van Ostrand, 1942, facing p. 236). Like their predecessors, these two long-time residents recalled that on the "north" side of Fort Berthold II were the "residences" and a kitchen, behind which were corrals and a stable. They showed an "Office" near the "west" gate, and on the south side of the yard three "Stores" and a

Figure 64. Map of site of Fort Berthold II.

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"Storehouse." Beyond the latter, near the east gate and stockade line, lay a "Warehouse." Thus it seems unlikely that major changes had been made in the use of various parts of the post during its existence.

Prior to the excavation of the site of Fort Berthold II, shallow trenches outlined a roughly rectangular area of slightly less than one-half acre. The surface of the area was well covered with grass sod except where the ruts of a wagon road crossed it. The grass was noticeably more luxuriant in the trenches and in partly filled pits and post holes.

The entire site of Fort Berthold II was examined in the light of available records of the physical history of the post and a contour map of the immediate area was made. Since the full significance of the cultural features noted could not be established without excavation, a grid oriented with the compass was staked out at the south corner of the site, near the edge of the terrace. When an initial group of squares had been opened and traces of the stockade—marked by rows of post butts in the original trench prepared for them—had been encountered, the arbitrary grid was disregarded. Thereafter, successive sections of the stockade and associated structural remains were exposed in rectangular excavation units.

The excavated earth was closely watched but not screened. At the outset, specimens were segregated by excavation units. When it was realized that objects were seldom related to specific structural details or revealed special uses of particular areas, location data for individual objects were noted only when these data seemed to be significant.

In order to open as much of the site as possible to a uniform depth, excavation was ordinarily carried to a depth sufficient to expose clearly undisturbed soil features and structural remains—upper ends of post butts, other wood members, groups of rock, and the like. It was not possible to maintain a perfectly level plane because of the size of the area and its varying contours, rising slightly toward the center, upon which the trading post had been built. Moreover, in the course of exploring certain structural details, excavation was carried below the level approximating the original occupation of the area.

When the four alinements of the stockade had been determined, sections of the interior were stripped in rectangular units. The work progressed toward a midline running northeast-southwest, with the spoil dirt being moved by hand beyond the exposed stockade lines. As excavation approached the midline and the breadth of the stripped area increased materially, it became necessary to move the spoil dirt toward the midline, from which it was again moved with a tractor and a "tumblebug" to the edge of the terrace. Two narrow balks were left for reference. These were extensions of base lines running south to north across the site.

Figure 65. Excavations at Fort Berthold II. Top view: the southwest stockade line; bottom: a detail of the posts along the same line.

Figure 64 shows the following excavated features: (1) the stockade, (2) the interior structures, including dwellings and warehouses, and (3) lesser constructions.

The stockade was built of straight rows of logs and heavy timbers set upright in a prepared trench. Several uninterrupted sections of the rows of post butts remaining in position in the original trench revealed the alinements (figs. 65 and 66, above and below). The entire stockade was not completely uniform in character, as might be inferred from recorded descriptions of it and from the photograph of the northeast and northwest stockade lines made in 1865. Replacements had been made along these two faces, and probably along the other two, though this fact was not evident in the physical remains. Whereas the majority of the stockade members appeared to have been of full dimension, but ordinarily without bark, other members were split logs or timbers hewn at least in part. Such variations undoubtedly resulted from the use of random materials available during various construction periods and in the course of replacement and repair.

Certain sections of the stockade line were relocated during the use of the post. Filled sections of straight trench within the outer line and paralleling it, particularly on the southeast side, may represent original alinements from which most of the timbers had been removed upon successive enlargements of the post. On the other hand, the outer stockade line, marked by a nearly continuous row of post butts or by filled trench, represents only the late stage in the development of the post, at the time of its greatest expan-

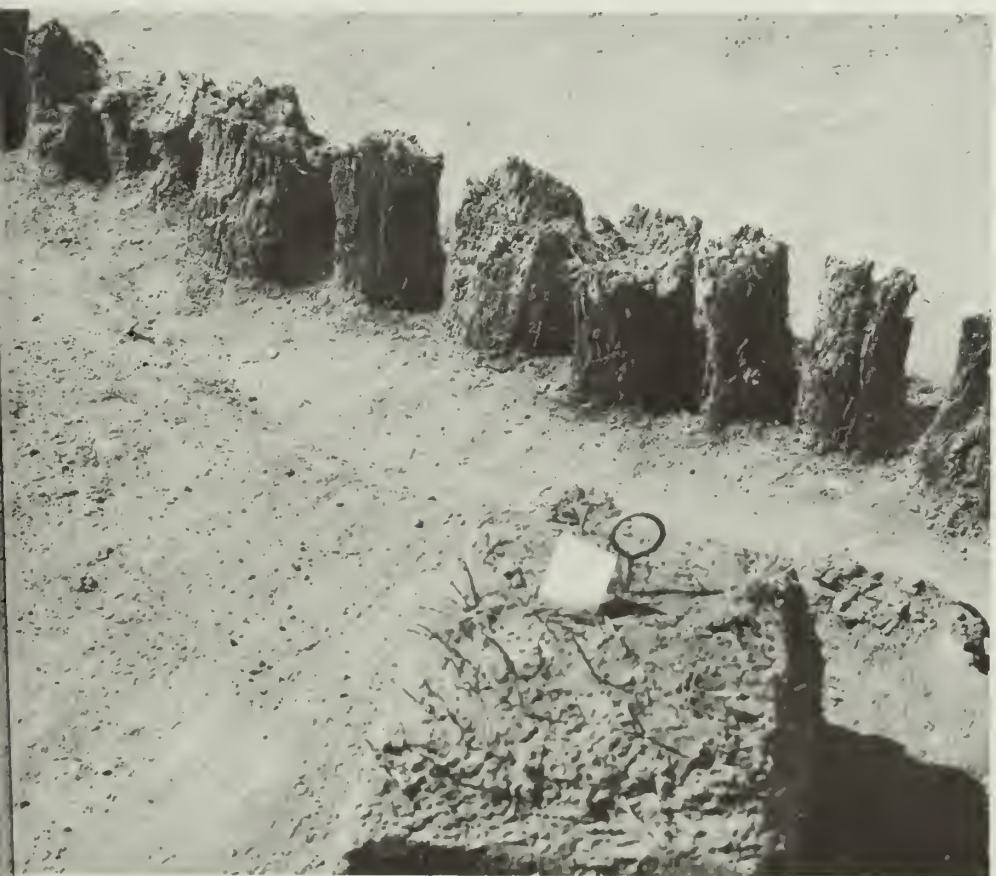


Figure 66. Excavations at Fort Berthold II. Top view: the northwest stockade line and building remains, looking southwest. Below: the southwest stockade line, looking southeast.

sion. It may be supposed that enlargement of the post would have occurred particularly in the area of actual trade, on the southeast, opposite the dwellings. The several filled trench sections found along the southwest side of the central yard suggest expansion in this direction also. As noted previously, during the brief military occupation of the post in 1864 and 1865, the northwest and northeast faces of the stockade were moved outward, to afford additional shelter for horses.

Boller's letter of August 1858, previously cited, which was written when the post was complete except for the blockhouses, states that it was 100 by 120 feet, the long dimension north-south (i.e., probably northwest-southeast). Corresponding dimensions of the enclosure found on excavation were approximately 140 by 180 feet. As will be seen in the plan (fig. 64), some evidence was found suggesting a former smaller enclosure—perhaps the original of 1858. It is probable that the post had reached its maximum size by the time photographs could be made of it, inasmuch as no evidence was found of subsequent relocation of the blockhouses.

Although the size of the stockade at its greatest extent was clearly evident in timber remains, filled trench, or both, gate details were not revealed by excavation. The points at which these gates had opened upon the interior had been used as a road, following demolition of the post and occasionally thereafter, and this long use doubtless erased all structural details.

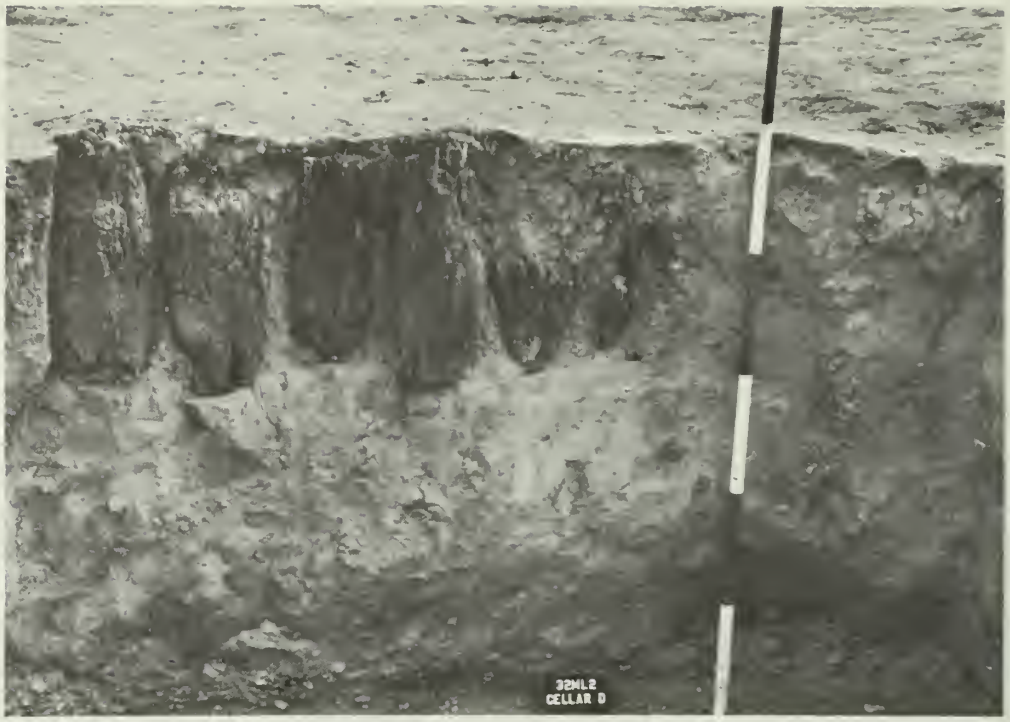
Only vestiges of the interior buildings survived, in occasional decayed or burned wood fragments and bits of building debris. Nevertheless, the approximate location of these buildings was evident, particularly along the northwest and southeast sides of the yard. The row dwellings on the northwest side were marked by fragments of decayed timbers, probably lowermost wall members rather than true sills, but these fragments seldom outlined buildings or room areas completely. Room areas were also apparent in the location and orientation of fireplace remains exposed in the bases of two rock-lined fireplaces built of random slabs and laid in adobe (fig. 67, p. 133). No evidence was found that dwellings and commercial buildings had been provided with plank or lumber flooring, as certain late records indicate (Mattison, 1951, pp. 210–211, citing archives of the Office of Indian Affairs). The scanty structural fragments in original position demonstrated that most, if not all, of the buildings of the post had been demolished and removed after abandonment.

Sections of timbers and wood fragments were found in areas in which the warehouses had stood, on the southeast side of the yard. These remains clearly showed the effects of the fire of October 12, 1874, which is said to have destroyed three sides of the post (Matthews, 1877, p. 40). After that date, much of what had survived was probably removed for fuel. Near the south corner of the post were the remains of a shed floored with cottonwood planks and a shallow, sloping wooden trough, which probably provided drainage for this part of the post.

Several fragments of accidentally fired gray or buff-colored clay indicate that the log walls of buildings were sometimes chinked. This fact is recorded in only one known contemporary record, which refers to the "daubing" of one of the sheds (Van Ostrand, 1943, p. 46). That these fragments were not accidental lumps of clay is shown by impressions of the rough timbers against which the clay had been pressed. Some of the fragments also bear traces of a thin coating of whitewash on exterior or interior surfaces, in agreement with contemporary observations (Trobriand, 1951, p. 84; Van Ostrand, 1943, p. 112). Exteriors and interiors of the buildings at other posts were frequently treated in the same way.

Several partly filled pits were observed before excavation began, and a number of less obvious pits were found later on. Most of them lay directly beneath, or in the immediate vicinity of, building sites and had probably served as storage pits, comparable to native caches; others had served as latrines. The pits were lettered for reference as they were excavated (fig. 64).

Pit A appears to have been a storage cellar, though it lacked timberwork or cribwork and the remains of an entrance. The earth and gravel fill were probably deposited soon after the pit ceased to be used for storage, since its central location would have made it



particularly hazardous if left open.

Pit B, which had been connected at some period with Pit D, lacked timberwork around the walls but had a plain wooden stair, badly damaged by fire. The structure above this pit, probably a warehouse, had burned, probably in 1874, and many of the goods stored in the building and its cellar were destroyed. There was no evidence that any attempt had been made to salvage the goods damaged by the fire. Charred remains included such staple foods as coffee beans, rice or wheat, navy beans, and sugar. Some of these were found in great quantities, with occasional charred fragments of the original burlap in which they had been stored. In the debris was a large cylindrical heating stove lying on its side, several feet above the cellar floor. The stove may have fallen from the first floor into the pit during the fire. Indeed, it may even have caused the fire through overheating.

Pit C, lacking structural detail, was very nearly filled with kitchen refuse. After having served as storage space for the structure originally standing over it, the pit had probably been abandoned before the fire, inasmuch as no fire-damaged debris was mingled with other refuse. Bones from this and other features of the site include animals and birds of both native and introduced species, and shed some light on diet at the post before 1874.

Pit D, at one time connected with Pit B, was also a simple pit, lacking structural detail. The random earth-and-gravel fill included few objects of any kind. The pit was near an early stockade line, and stockade post butts were found in original position along one wall (fig. 67 above). It is probable the cellar was used when the post enclosure was somewhat smaller, and the section of the stockade near it was not completely removed, as appears to have been done elsewhere during the later period of expansion, for fear of weakening the earth wall.

Pit E, originally somewhat smaller than the other pits, was also apparently intended for storage purposes. Simple timberwork, consisting of a small post at each corner and (probably) planks between the posts, retained the earth walls, but few signs of cribbing remained. The pit was filled with considerable quantities of kitchen refuse. There was no evidence that the original superstructure had been destroyed by fire.

Pit F was a latrine, completely filled during use. The dark fill yielded numerous objects, including a complete clay pipe and glass bottles for wines, liquors, and patent medicines, some of which were unbroken.

Pit G was a simple storage pit, lacking wooden members. It was filled with random earth.

Pit H was a storage pit showing evidence

Figure 67. Excavations at Fort Berthold II. At left is a detail of stockade posts in Pit D; above is a rock-lined fireplace.

of destruction by fire. It had subsequently been filled with gravel and random earth. The pit was a simple earth-wall excavation, partially cribbed with wooden planks resting on edge and held in place by short vertical timbers to which the planks were spiked with cut nails. The cribbing extended from the gravel floor to a height of approximately 3 feet, perhaps half the full height of the cellar. Subsurface gravels had been penetrated during the original opening of this pit and the cribbing had been introduced to minimize slumping of the walls. Above the top of the cribbing the finer soils, originally smoothly cut, stood up well, perhaps in part because of the accidental burning of the buildings over the pit.

The planks or slabs of wooden cribbing were 1 foot or more in width and approximately 1 inch in thickness. Some members were sawed lumber. As noted previously, the use of such materials was not common at the post, and the construction here may have been of relatively late date, immediately preceding the fire of 1874. The cellar had simple wooden steps leading from ground level down to the cellar floor. The steps were held in place by 2-inch planks and 2- by 4-inch stock, fastened with cut nails. Some of this lumber was sawed. Extensive fire damage occurred near the entrance.

Much of the fill had been intentionally introduced after the fire and, aside from charred debris, was primarily coarse gravel containing very few object materials. Small pieces of burned clay chinking with bits of whitewash came from the warehouse which stood over the pit. Two objects, so badly damaged by the fire that they were not collected, were a pair of heavy ice tongs, approximately 2 feet in length, and the blade of a common spade, approximately 8 inches in width. Large quantities of charcoal and partially burned wood fragments were evidence of a rapidly burning fire. Many wood fragments appeared to be coarsely sawed cottonwood lumber, probably produced locally.

No evidence was found that this cellar, in contrast to Pit B, had been used for food storage. It may have been used for other commodities and articles. The ice tongs and the spade suggest that tools were sometimes kept here. It does not seem probable that such a small cellar, under a warehouse, would ordinarily have been used for storage of ice. Icehouses were probably located outside the enclosed area, perhaps along the riverbank.

Pits I, K, L, M, O, and P were simple storage pits which had been filled with random earth after having served their original purposes. No wood or other structural details

were found in any of them, and no evidence of fire damage was seen. Pit P was somewhat shallower than the other five.

Pit N, like Pit F, was a latrine, largely filled with random earth after use. No structural details and no evidence of fire damage were found. Less than 1 foot of organic matter was encountered at the lowest level of the fill. This suggests that the pit was closed after only brief use.

Pit Q, filled with random earth, was unlike all the other pits. It was formed by a stave barrel sunk to a depth of approximately 4 feet. The barrel was approximately 3 feet in height, and 2 feet in diameter at the base and 3 feet in diameter at the midline. The staves showed no signs of fire damage but were badly decomposed. There were no remains of hoops, which may have been of wood. It seems probable that this pit, in the immediate vicinity of the kitchen buildings, had been used as a food cooler.

Little structural detail of the two blockhouses survived, despite the more massive character of these buildings, but numerous details are visible in pictorial records. Like the dwellings, storehouses, and other major structures of the post, the blockhouses had been placed directly on the ground without separate footings. A late photograph of the westerly of the two blockhouses (fig. 63) shows that this structure rested on heavy sill-like timbers running northeast-southwest and extending for a short distance beyond the wall line. During the use of this building it had become necessary to brace or shore it with two heavy timbers resting against the southwest face at the second-story level. The excavation uncovered the butt end of one of them, braced with a large boulder and a number of small stones. Figure 63 also shows a low plank fence at one side, which had replaced the original stockade at this point.

Mention has been made of groups of fired bricks which occurred in greatest frequency toward the midline of the yard (fig. 64). Most of these specimens were visible on the surface prior to excavation. Fired brick are known to have been made on the Indian reservation during the late Agency period, in the 1880's. The location and haphazard arrangement of these bricks suggested child's play at a late date rather than relationship to the construction and use of the trading post itself. Four fence-post butts running across the southern part of the site also pertained to a period following abandonment of the post.

ARTIFACTS

Objects were found in abundance during the excavation of Fort Berthold II. Most of the objects were collected and are now in the U.S. National Museum. The following account describes selected specimens according to the classes represented. The materials illustrate various aspects of life at the post and the character and kinds of commercial goods of the Indian trade, as well as something of the history of 19th-century manufactures, their transport to the frontier, and other historical topics. The collection supplements those previously described from the village and Fort Berthold I.

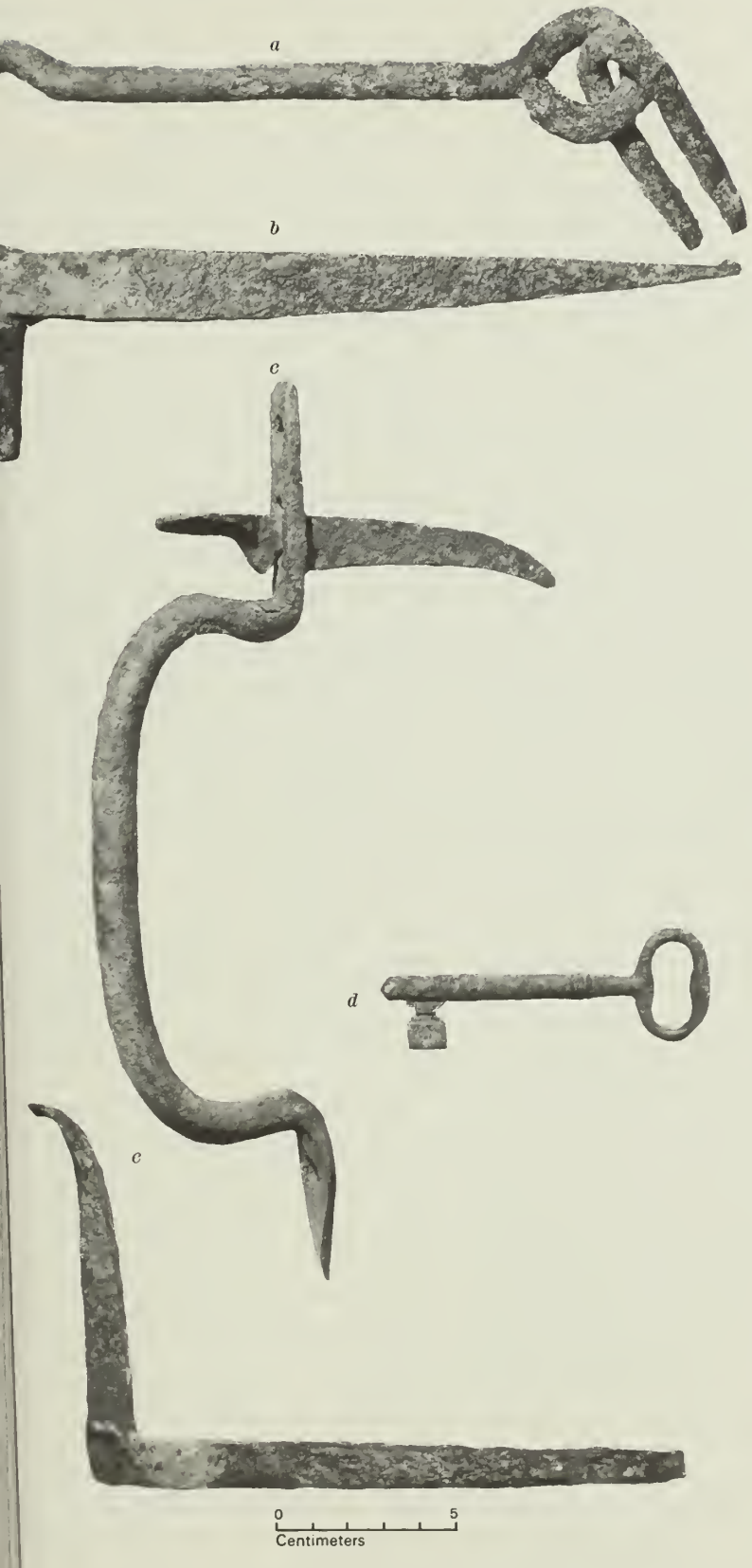
CONSTRUCTION MATERIALS AND BUILDING HARDWARE

Many of the fragments of *clay chinking* obtained in the excavations show impressions of rough-hewn timbers against which the clay had been pressed. Most of these were partially burned as a result of the fire of 1874, which destroyed the warehouses on the south side of the post, and some are reddish rather than natural buff or gray. The fragments were probably preserved by debris that also resulted from the fire.

A large subrectangular lump, measuring about 8 by 5½ by 3 inches appears to be the remnant of a sun-dried *adobe brick*. The mass contains pebbles, up to 1 inch in diameter, but no visible binder such as prairie grass, known to have been included in adobe bricks made elsewhere. There is no record that adobe bricks were employed at Forts Berthold I and II, but they were used in the vicinity about this time, e.g., at Fort Stevenson (G. H. Smith, 1960, p. 172). The present specimen was obtained from a pit apparently abandoned and intentionally filled prior to the fire of 1874. One surface of the brick is coated with a thin wash, probably of lime. It is known that interiors of structures at Fort Berthold II were whitewashed, and exteriors may also have been whitewashed from time to time.

There were two masses of white *lime mortar*. One included a generous amount of small gravel and was probably waste. The other appeared to be from a mass used in the

Figure 68. Building hardware from Fort Berthold II.



rock chimney flues of dwellings along the north side of the post. The meager evidence of the use of lime, which includes a single fired brick with lime mortar adhering to it, in addition to the instances mentioned, suggests that this material was a rare item at the post. A kiln was under construction here in 1871, but whether it actually produced lime is not known (Van Ostrand, 1943, p. 87).

Several hundred fragmentary *fired bricks*, molded and of common red color, were found on the surface or at very shallow depths. Sixteen of the specimens measured approximately 8 by 3⅞ by 2¼ inches. They were apparently made locally, for it is known that in the late 1880's the manufacture of brick was undertaken at the agency nearby.

As noted above, only one brick shows evidence of having been used in masonry with lime mortar. One other brick, with a whitewashed edge, may have come from a chimney at the second Fort Berthold Indian Agency (Site 32ML49) or from the adjacent Congregational Mission (Site 32ML50), where similar bricks were observed. The present specimens, arranged in groups, may have been brought to the site of the post for casual use. The arrangement of one roughly circular group resembled the boulder mosaic at the adjacent Indian Scout Cemetery.

The dimensions of these bricks were standard until 1887 and 1889, when slightly larger dimensions are said to have been adopted by the National Brick Manufacturers' Association and the National Trades Association.

More than 1,200 fragments of *window glass* were collected. Clear and fairly uniform in quality, the glass is of the thinner gage seen in buildings of the period, measuring approximately 0.2 cm. in thickness. Though numerous fragments have trimmed edges or corners, no restorable panes were found. None of the pieces show traces of putty or other means of keeping panes tight in their frames, and no glazier's points were found.

The original source of this glass can only be guessed at. Important glass manufacturing centers in the West at this period were Pittsburgh and Wheeling, and their products were doubtless shipped great distances. Window glass was also produced at St. Louis at least as early as 1850, and by the 1870's there were several major glass

works there (Van Ravenswaay, 1943, pp. 72–73; cf. U.S. Census Office, 1853, p. 674; ibid., 1865, pp. 311, 317). The price of window glass on the frontier, as recorded in post inventories, seems low. At Fort Union, in 1851, 3 dozen panes on hand were valued at 30 cents a dozen (McDonnell, 1940, p. 215).

Nails and spikes, totaling more than 1,900 specimens of various sizes, clearly reveal that there was no lack of such hardware at Fort Berthold II. Some spikes are as much as 6 inches in length, and one of these appears to have been made of a bar of iron, round in cross section. This specimen may be a local product, but most of the spikes are machine cut. No hand-wrought nails were found.

It seems not to be generally known that nail-making machinery, producing so-called cut nails, was developed in the United States as early as the 18th century. In 1786, Ezekiel Reed, of Bridgewater, Mass., invented a machine for cutting tacks and nails which, improved in 1815, turned out 150 million tacks; and in 1807, Reed's son obtained a patent for a machine that made and headed tacks in one operation (Lossing, 1876, p. 216). Other patents are those of Samuel Briggs, of Philadelphia, obtained in 1791; J. G. Person, of New York, in 1794; Jacob Perkins, of Newburyport, Mass., in 1795; and Isaac Garretson, of Philadelphia, in 1796. The last is said to be the first patent issued for a combined heading and cutting machine. New England was for a long time the chief American center of naileries.

Cut nails and spikes, particularly well suited for use with hewn timbers such as were employed in the construction of this post, survived long after the invention of wire nails, the familiar variety today. Local manufacture of the old style, handwrought nails likewise persisted for a long time after the invention of the cut nail. Cut nails, in fact, are still being made by some factories.

The relative scarcity on the frontier of nails of any kind, factory-made or locally wrought, owing to the great distances from sources of supply of both materials and finished products and to the costs of transportation, is revealed in inventories at posts elsewhere. Thus at Fort Union, in 1851, 12-penny cut nails (the only size listed) were inventoried at 5 cents, wrought spikes at 12½ cents, and "old nails" at 3 cents per pound (McDonnell, 1940, pp. 196, 214).

Two types of *hinges* are represented. These are flap or butterfly hinges, of various sizes from 1½ by 1¾ to 3¼ by 4 inches, and strap hinges. Two of the latter have a complete leaf, 8 inches long. Several of the former still retain the original wood screws with which they were fastened.

There are several iron *pintles*. One of these, fashioned from a square bar, is 5¾ inches in length and has a round, upright pin 1¾ inches in height. A similar specimen (fig. 68b) is 8½ inches in length and 2½ inches in height. Still another is 12 inches in length and 7 inches in height. Two similar specimens appear to be supports for sliding bolts used to brace doors. One of these (fig. 68e) is square in section, and measures 6½ inches in length and 4½ inches in height. Another, round in section, measures 8 inches in length and 3¾ inches in height.

A wrought-iron *door latch*, measuring 9⅞ inches in length, has a thumb latch about 4½ inches long and two holes for fastening (fig. 68c). Although found on the surface, the object appears to have been used in a building and may have been produced by a blacksmith at the post or the nearby agency.

Fragments of five brown-glaze earthenware *doorknobs*, 2 inches in diameter and about 1 inch thick, and part of a steel spindle with its screw, of a type provided for these knobs, were obtained. Common brown ceramic door and furniture knobs were frequently made in the so-called Bennington style, and these fittings were often described by contemporary writers as "door furniture" or "mineral door-knobs" (Ramsay, 1947, p. 77).

The portion of a cast-iron *edge-lock* with a large keyhole, for a door, is present. It is lacquered (japanned) on exterior and interior, and is 5½ inches in height, 4½ inches in width, and ⅝ inch in thickness. There is a fragment of a large cast-iron specimen of different design, bearing a mark of which only the initial letter, "B", is still visible. A specimen of cast iron and steel, lacquered on the exterior, with a sliding thumb-latch, measures 4½ inches by 3⅝ inches by ⅞ inch. The portion of one face of another lacquered specimen, with keyhole, measures 4 inches in height and 3⅜ inches in width. It has the cast letters "B.L.W." in relief on the exterior, and "982½", perhaps the design number, on the interior.

One flat iron *door-lock catch*, 4 inches by 1 inch, with an extension to serve as a striker for the tongue of the lock, and a *catch*, of somewhat different design, 4½ inches by ⅞ inch by ⅞ inch, are present.

A round iron *door plate*, with center hole for spindle and two screw holes, is 2 inches in diameter.

An iron *door hook*, 7½ inches in length, with an iron staple, 2½ inches long, was probably wrought locally (fig. 68a). Two wrought-iron specimens are 5½ inches and 3½ inches in length, and two similar specimens are each 2½ inches in length. One of the latter retains its staple.

A shield-shaped iron *escutcheon*, 2½ inches in height and 2 inches in width, has two screw holes and a large center opening, probably for the insertion of a lock.

A cast brass *key* is 3⅝ inches long (fig. 68d). An incomplete specimen of the same size is also present. An iron key, lacking bit or web, had an original length of 4 inches, and another, lacking bow or loop but having a large flat bit, was originally about 6 inches long.

TOOLS AND IMPLEMENTS

The tools and implements collected at Fort Berthold II are few in number. In view of the wrought-iron objects obtained here, the absence of identifiable blacksmiths' tools seems strange. Woodsmen's and carpenters' equipment of simple character are the only tools represented in any quantity.

Eight woodsmen's single-bitted *axes*, of steel, have blades ranging in length from 4 to 7½ inches and in width from 3⅛ to 4¾ inches. One specimen, much worn, weighs 1 lb. 7½ oz. (fig. 69e); another weighs 3 lbs. 9 oz. (fig. 69f). A woodsman's *wedge*, of steel, is 2 inches in length. The steel blade of a carpenter's *jack plane*, 7½ inches in length and 2⅛ inches in width, has a slot for fastening it (fig. 69g). A steel *gimlet*, 4 inches long, has a steel grip 2 inches wide (fig. 69d).

Five carpenters' *twist bits* vary in diameter from ¼ to 1 inch. Seven carpenters' *files*, triangular in cross section, vary from 4¼ to 6¾ inches in length and from ¼ to ⅜ inch in width. Two half-round files are ½ and ⅜ inch in diameter. Nine flat files vary from 4⅝ to about 17 inches in length. A heavy flat steel hook, 6¾ inches long, and three attached links, each approximately 4 inches long, appear to be part of a *log chain* (fig. 69b).

A mason's *chisel*, of steel, about 9 inches long and 1 inch in diameter, shows little evidence of use (fig. 69c).

The blades of two iron garden *hoes* are present. One of these, 10 inches square, shows little sign of use (fig. 69a); the other, 6½ inches wide and 7 inches long, retains a fragment of the wooden handle in the eye. The iron handle-bolt of a *scythe* is approximately 6 inches long. A three-tine steel *hayfork* is about 13½ inches in length. A steel *tooth* from the cutting blade of a mowing machine and two flat iron *wrenches*, 3¾ and 4 inches in length, for use with hexagonal nuts, appear to be of recent origin.

HORSE GEAR AND WAGON PARTS

Various metal and leather objects relating to the use of work animals were collected at the post.

An incomplete steel *picket pin*, five-eighths of an inch square, has a forged link in the shape of a figure-of-eight (fig. 70d).

A steel *bridle bit*, about 5 inches wide and about 4¾ inches long, is provided with a loop tongue-depressor and with loops for the halter.

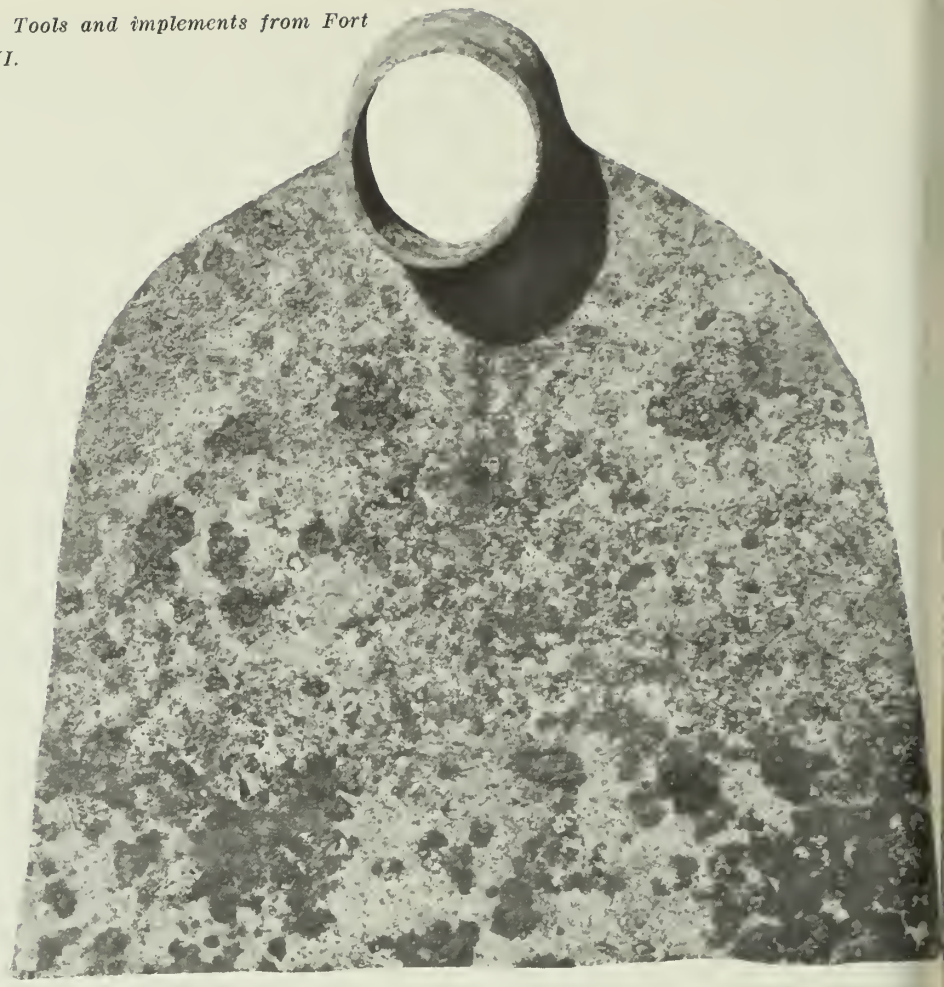
There is a fragment of a die-stamped iron *currycomb* with small teeth.

Nine complete or fragmentary *horseshoes*, of simple style and lacking calks, vary in length from 4¾ to 6¾ inches. One specimen appears to be a mule shoe. Although oxen must have been used here occasionally, no ox shoes were recovered.

Six cast brass *sleigh bells* and the fragment of another, spherical and approximately 1⅛ inches in diameter, are riveted to a piece of leather strap (fig. 70c). Their clappers (probably steel pellets) appear to have been intentionally removed. The bells are die-stamped near the base and rivet, "Pat. Oct. 24 [18]76 & May 14, [18]78". Patents for sleigh bells, of one piece of sheet metal and having a clapper, were issued on these dates to George W. Tucker, of Waterbury, Conn. (U.S. Patent Office, 1876, vol. 10, p. 682; ibid., 1878, vol. 13, p. 892). Waterbury has long been a major brass manufacturing center (Lathrop, 1926).

A *harness ornament*, of die-stamped brass

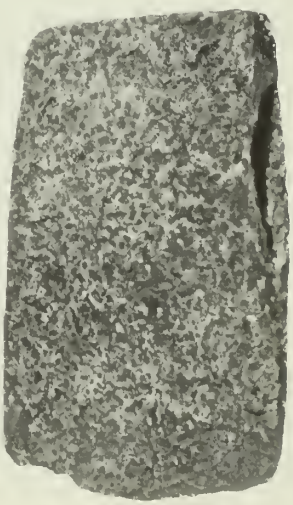
Figure 69. Tools and implements from Fort Berthold II.



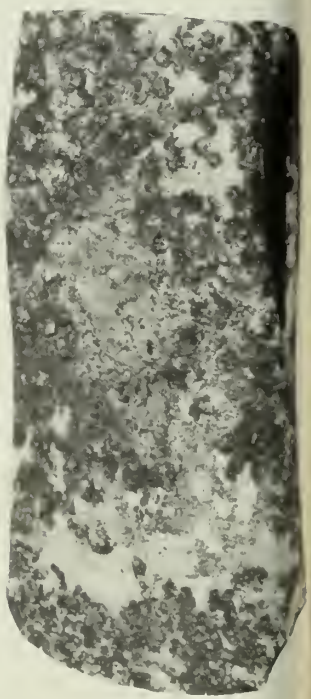
a

c

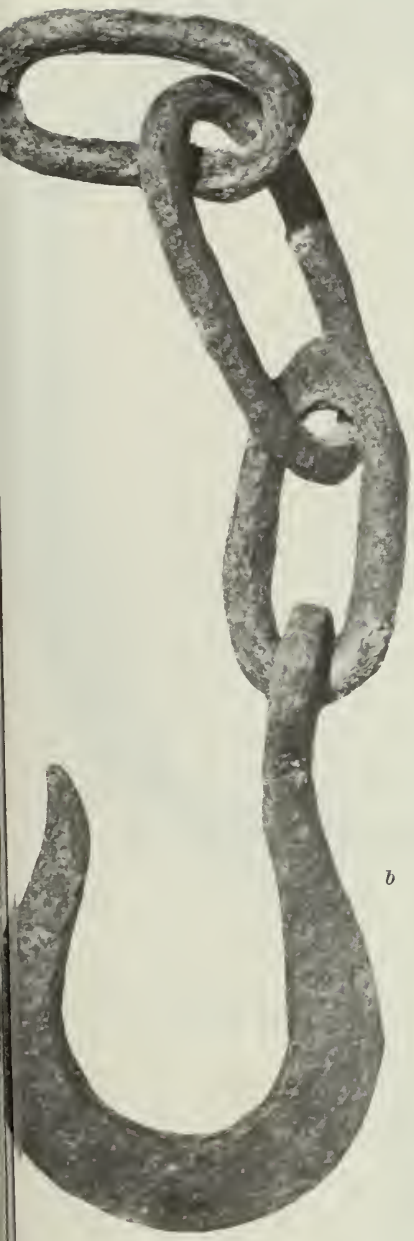
d



e



f



b

g

0 5
Centimeters

filled with lead, measuring 1¾ inches in diameter, has a stamped design of a horse's head, in profile, in a circle with a beaded field and plain margin. There are two small holes near the margin for fastening it (fig. 70a).

A leather *blinder* of military style, measuring about 5 inches square, was made in two parts and was machine stitched. At the center of the outer face is a cast brass disk, 1¼ inches in diameter, bearing in relief the large letters "US", held in place by brass pins (fig. 70e). This piece of equipment may have been used by military units at the post during the 1860's. In 1864, artillery in the vicinity had included two sections of the Third Minnesota Battery and another battery (Folwell, 1924, vol. 2, p. 296). Photographs of such units in the field have been preserved (fig. 71).

The portion of an incomplete leather *quirt*, composed of a bundle of narrow leather strands about 25 inches in length, has a leather-wrapped handle (fig. 70b).

Numerous fragments of leather *harness straps*, some stitched and some riveted, were collected. None of these are of sufficient size to reveal their specific uses. Many iron *rings*, varying from 1 inch to 2⅛ inches in diameter, and a section of iron *chain*, 11 inches long, with twisted, round, and elongated links, are probably harness parts. Individual links and fragments of links, presumably for harness, are also present.

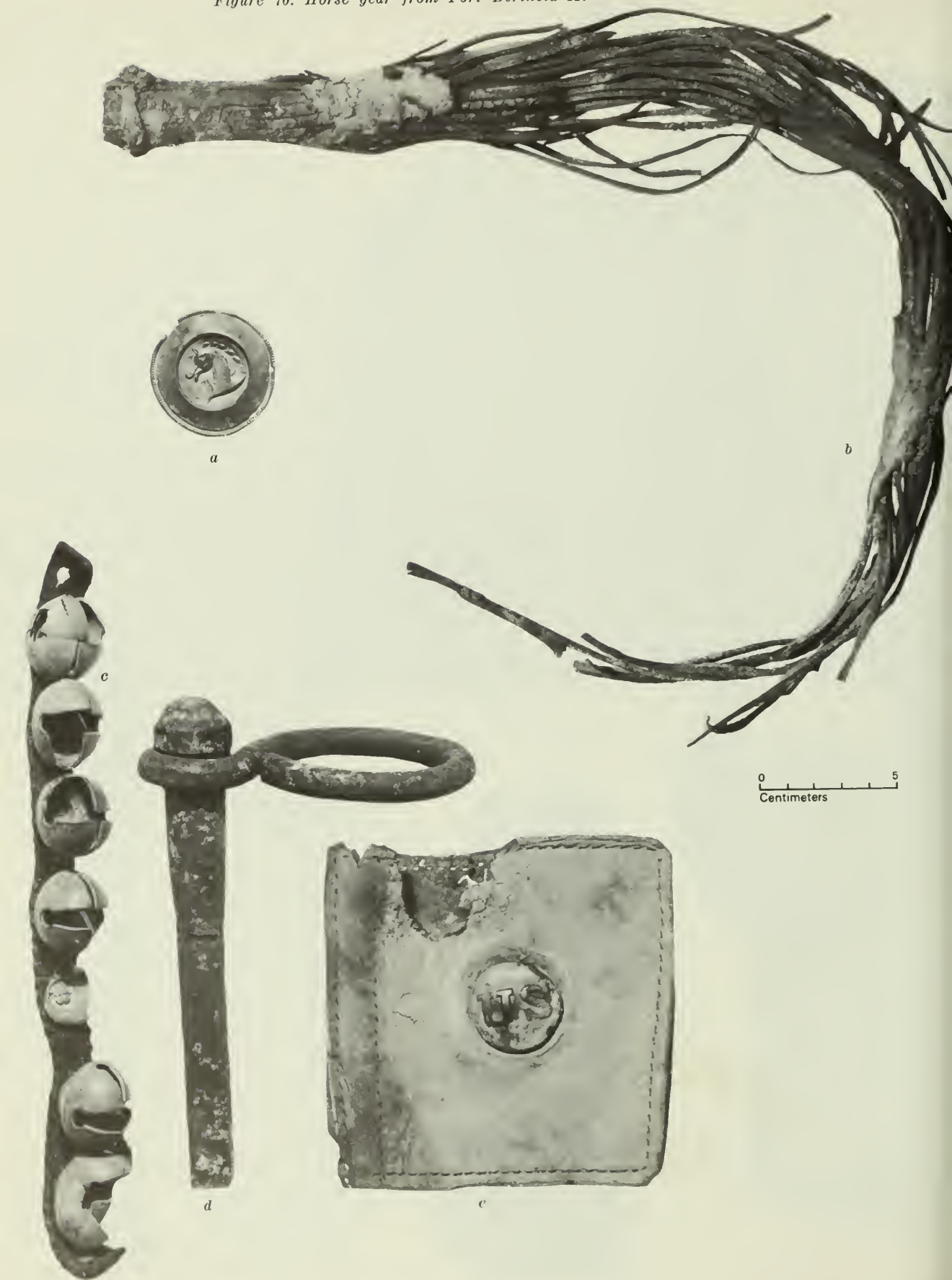
Among several possible wagon parts, only one steel *brake shoe*, 12½ inches long and having three holes, was definitely identifiable.

DOMESTIC FURNISHINGS AND ARTICLES

The objects from Fort Berthold II classed under domestic furnishings and articles are small, plain, and serviceable.

The ash door of a *stove*, of cast iron with riveted cast handle, and measuring 6¼ by 14¼ inches, bears in relief the mark, "Bridge Beach & Co./St. Louis/Design Patd 1859". Two patents for stove designs were issued on July 3 and December 4, 1860, to Isaac de Zouche, of St. Louis, by whom they were assigned to Bridge, Beach and Co. (U.S. Patent Office, 1861, vol. 1, pp. 843, 848; not illustrated). The part found may represent one of the designs referred to, though not actually patented until 1860. A portion of the frame enclosing an ash door, 22½ inches in

Figure 70. Horse gear from Fort Berthold II.



width and 11¼ inches in height, bears the name of the same manufacturer. Bridge, Beach and Company, a well-known firm, was organized at least as early as 1853, and complete specimens of their products have been preserved (Bryan, 1943, p. 80).

A double *stove lid*, of cast iron, with recess for lid-lifter, and measuring 20¼ inches long and 9¼ inches wide, bears in relief the cast mark, "Jewett & Root's/Stove Works/Buffalo, N.Y. /9/ Patented 1861". Walter S. Stannard, of Buffalo, was issued patents for three stove designs on April 9, 1861, which were assigned to Jewett and Root, of the same place (U.S. Patent Office, 1863, pp. 101, 658). The partners of this firm in 1870 were listed as Sherman S. Jewett and Francis H. Root.

Numerous other stove parts were found, and those having distinctive design or decoration were retained for future identification. Examples are shown in figure 72j and k.

An incomplete *bibcock* or spigot with a ½-inch spout was probably used in vingear casks.

The lid of a cast-iron *Dutch oven*, 12 inches in diameter, with cast handle and a rim 1 inch deep, bears in relief the mark, "Pocasset Iron Works/New York/No. 3/12 in". Pocasset is a place name in Barnstable County, Mass., but the manufacturing firm has not been identified. A cast-iron Dutch oven without legs, measuring 15¼ inches in diameter and 4 inches high, has two lugs for a handle. The handle and cover of this specimen are missing. Another Dutch oven with three legs, measuring 12¾ inches in diameter and 5¾ inches in height, retains one of two small lugs for a handle (fig. 72i). This specimen also lacks the handle and cover.

A cast-iron *trivet* for a sadiron is about 9 inches long and about 4½ inches wide.

A steel *scale weight* of 4-pound size, marked with cast letters in relief (illegible), a crown, and the numeral "4", is probably of British manufacture.

A part of the stamped brass framework of an *alarm clock*, lacking manufacturers' marks, retains fragments of the iron bolts that held the framework in place.

There are quantities of sherds from handthrown gray or brown stoneware *crocks*, with and without molded handles. Two restorable specimens of 2-gallon and 1-gallon size, lacking handles, have a dark brown interior glaze frequently applied to such pieces. Neither appears to have been marked.

Such heavy earthenware, formerly common in household use before the introduction of enameled wares, glass, and other types of culinary articles, was manufactured at an early date at many places in the Middle West, for example, at Dakota City, Nebraska Territory, opposite Sioux City, at least as early as 1859. Although the present pieces generally resemble marked specimens made at the Dakota City Pottery, similar wares were made at many potteries in Illinois, Iowa, Minnesota, and elsewhere in the region. The wares appear to be very similar in shape, composition, and finish, and few marks seem to have been used. Systematic studies of these potteries, like those in New England and New York State, may eventually lead to identification of products from individual plants.

Numerous sherds of glazed earthenware *mixing bowls*, often called queen's ware, were also obtained. A partially restorable bowl with an annular base, measuring 5½ inches in height and approximately 11 inches in diameter, is off-white and has painted bands of blue, brown, and gray-green on the exterior (fig. 72h). Sherds of the same pattern from vessels of other sizes indicate that this bowl was one of a set. Sherds of a bowl of smaller size are buff, with white and brown bands on the exterior. Those of another bowl, 3 inches high and approximately 5 inches in diameter. are off-white, and have a wide band of buff and narrow bands of pale blue on the exterior.

Parts of several metal and glass kerosene *lamps* are present. A wick holder of brass, 2½ inches in diameter (fig. 72b), die-stamped (incomplete), bears in relief on the wick-roller knob, "Pat Nov 26 [18]72 Pat Feb 11 [18]73". A patent for a lamp burner was issued on the earlier date to Lewis J. Atwood, of Waterbury, Conn., and assigned to Plume and Atwood Manufacturing Co., of the same place (U.S. Patent Office, 1872, vol. 2, p. 664 and illustration), and a patent for a lamp was issued on the later date to Atwood and was assigned to the same company (U.S. Patent Office, 1873, vol. 3, p. 166). The firm of Plume and Atwood is said to have been organized at this famous brass manufacturing center in 1871 (Lathrop, 1926, p. 69). A similar specimen was obtained at Fort Stevenson (G. H. Smith, 1960, p. 219).

Another wick holder bears in relief on the knob, "Venus Pat. Oct. 16, 1860./Dec. 10,

Figure 71. Field battery near Fort Berthold II, about 1864.

1867". Published patent records for this item have not been found.

There are fragments of clear-glass lamp chimneys of several styles. Two fragments are from chimneys measuring 3 inches at the base and one fragment is from a chimney with a base diameter of 2 inches. Several pieces have the familiar flared scallops around the lip.

There are upper-end fragments of four cylindrical, clear-glass Argand lamp chimneys with which tubular wicks were employed. Three chimneys are 1¼ inches in diameter and the fourth is 1 inch in diameter.

A clear-glass bowl for an oil lamp is represented by several pieces, associated with fragments of the brass fittings for the wick.

The top of a tinned *oilcan*, 9 inches square and soldered, with an opening for attachment of a spout, bears the die-stamped legend, "S[tandard] O[il] Co. / Patented July 12, 1859 / and others / Cleveland, O[hio]". This container probably held five gallons. The Standard Oil Company was incorporated in Ohio on January 10, 1870 (Moody, 1954, p. 790). The date 1859 appears to be that of a patent issued to John W. Masury, then of Brooklyn, N.Y., for an improvement in metallic cans for paints and other substances, hermetically sealed with metal soft enough to be removed with a penknife or other sharp instrument (U.S. Patent Office, 1860, vol. 1, p. 448; and vol. 2, p. 390). The firm of John W. Masury and Son, Inc., now of Baltimore, manufactures colors, paints, and varnishes.

Part of the base of a heavy brass *kettle*, originally about 10 inches in diameter, retains part of the die-stamped legend, "[H]iram W. Ha[yden] / Waterbury, C[onn.] / [Pa]tended Dec. 16 / 1851 / ". Other portions of the base had been cut away. The fragment clearly shows the concentric toolmarks of manufacture on a lathe. A patent for spinning and turning a blank of metal was issued to Hiram W. Hayden, of Waterbury, Conn., on Dec. 16, 1851 (Lathrop, 1926, p. 26; U.S. Patent Office, 1852, p. 297). Hayden was also a member of the firm of Holmes, Booth and Haydens [sic], organized in 1853 (Lathrop, 1926, pp. 57, 67, and passim). A ferrotype frame of die-

State Historical Society of North Dakota

stamped copper, described below, is another product of that firm.

A *pail*, 6 inches in height and lacking the bail, bears the die-stamped legend on the side, in an oval cartouche, "N. K. Fairbank & Co. / Pure Refined / Family Lard / Chicago & St. Louis". The oval encloses a boar's head, facing left. Another specimen of the same size has an oval cartouche with the same legend except that four place names appear outside the oval: "Chicago" and "Omaha" at upper and lower left, and "St. Louis" and "New York" in upper and lower right. Similarly marked specimens are 5 and 6⅜ inches in height. Portions of bails and handles for such pails are present.

Two fragments of wood, fastened with a brass pin and retaining fragments of a brass spring, appear to be from a patented *clothespin*.

Three iron *meathooks*, round or half-round in cross section, are 7 to 10 inches in length and 2 to 4¾ inches in width.

One *butcher's steel*, measuring 15¼ inches in length and ⅝ inch in diameter, lacks the handle.

Fragments of five machine-cut *whetstones*, all of fine-grained micaceous schist, are approximately 1¼ inches in width and from ½ to ¾ inch in thickness. Some of the specimens are worn with long use.

A cast-iron *skillet*, with cast handle, has a diameter of 9¾ inches. A steel *pan*, retaining a part of its riveted handle, measures 10 inches in diameter and 2 inches in height. Another steel specimen, represented by fragments, is 8 inches in diameter and 1 inch in height; and a brass pan or plate, measuring 10 inches in diameter, may have had an enameled lining. No other provisional or actual examples of enamelware were found. (This type of kitchenware was marketed chiefly after 1890.) The handles of several other pans, ranging in length from 8½ to 12½ inches, are present.

A *coffee mill* is represented by only a curved cast-iron handle measuring 5¾ inches in length.

Two complete and several fragmentary *metal cups* are present. One complete specimen, probably originally tinned, is straight-sided and measures 3¾ inches in diameter and 3 inches in height. It has a tapered strap handle and two horizontal ridges midway down the side. The flat base and handle are soldered in place (fig. 72g). The other specimen, with a riveted handle, is slightly flaring and measures 4½ inches at the base and 2 inches in height.

Two *metal covers* for pails or coffee pots, with concentric ridges inside the edge, measure 4¾ and 7¾ inches in diameter and ¾ and ⅝ inch in height, respectively. The larger one is made of two pieces.

A fragmentary *spout*, made of two pieces riveted together and perforated, probably belongs to a coffeepot.

Two fragmentary stoppers of clear glass—one with a simple molded pattern, and the other with a ground shank—may have belonged to *cruets*. Another stopper of clear brown glass, with ground surfaces, may have come from a cruet or a medicine bottle.

The top of a salt or pepper *shaker*, 1 inch in diameter, has four perforations.

A metal *basin* is 10 inches in diameter and 2½ inches high.

A cylindrical *spittoon*, made of three crimped pieces of metal, is 7 inches in diameter and 2½ inches high. The top funnels into a central opening, 2½ inches in diameter.

Three *inkwells* are present. One, of gray stoneware, measuring 2½ inches in height, is conical (fig. 72e). Another, of clear greenish glass, 3¼ inches high, is an octagonal cone, with an enlargement at the shoulder (fig. 72d). The third specimen, also of greenish glass, is hemispherical and measures 2½ inches in diameter (fig. 72c). Opening at the side, it carries in relief the legend, "J. J. Butler, Cin[cinnati], O[hio]." James J. Butler was a prominent ink manufacturer of Cincinnati. He is listed as a druggist, as early as 1844, as an agent for ink in 1850, and as a factory owner in 1867; he died in 1874 (information from the Historical and Philosophical Society of Cincinnati, April 29, 1952). An inkwell identical with this last specimen was found at Fort Stevenson (G. H. Smith, 1960, p. 220 and pl. 53J).

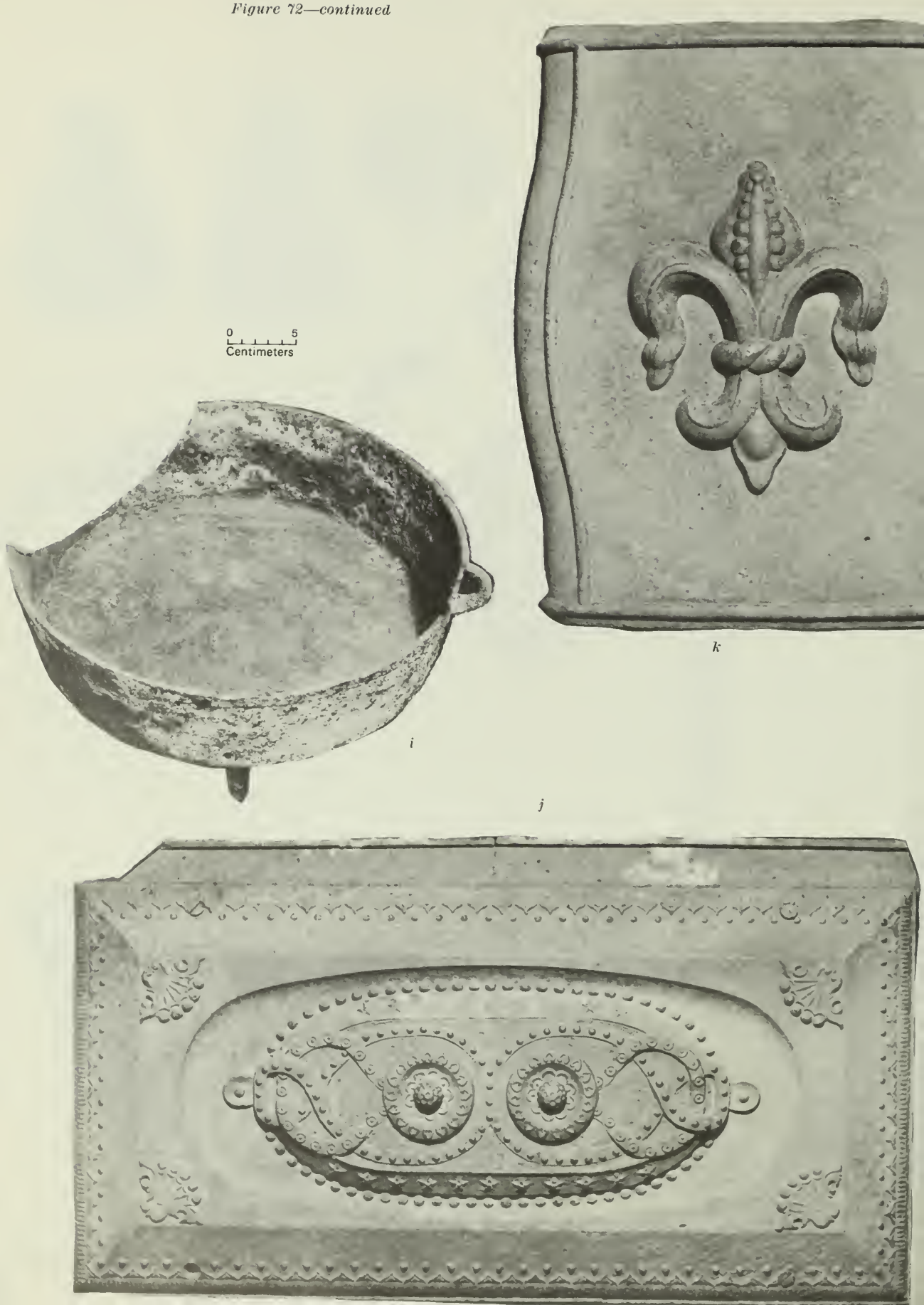
Fragments of machine-cut and polished *writing slates*, some with edges beveled to fit into wooden frames, and fragments of *slate pencils*, averaging three-sixteenths of an inch in diameter, are present. Some of the pencils appear to have been machine-cut and turned or dressed by hand.

Fragments of black *pencil lead* were collected. One specimen, though in a round wooden case, is about 0.2 cm. square.

Figure 72. Domestic furnishings and articles from Fort Berthold II.

(Figure continued)

Figure 72—continued



i

j

k

The lead of common pencils is now composed of graphite, clay, and other ingredients. According to tradition, square leads were manufactured for special purposes until the 1860's, and certain varieties were made even as late as 1890. The Eberhard Faber Pencil Co., the oldest factory of its kind in the United States, established in 1861 and related to the firm of A.W. Faber, founded in 1761 at Stein, near Nürnberg, Germany, still manufactures a pencil with square lead for draftsmen, known as a "chisel point" (personal communication from Eberhard Faber Pencil Co., Brooklyn, N.Y., April 7, 1955). Square leads are said to have been replaced by round leads for ordinary use because the former could only be assembled by hand.

Fragments of another round pencil retains a pink substance, probably red crayon, which is also rectangular.

Three sheet-brass *tags* (fig. 73a-c), 1-inch square, bearing the large die-stamped numbers "431," "624," and "883," and provided with punched holes for fastening, were probably used for marking bales of robes and furs, or merchandise received by steamboat. A similarly numbered tag obtained at Fort Berthold I has already been noted.

One pair of steel *shears*, 7 inches long (fig. 73e), and fragments of two pairs of similar size have one large and one small loop each, like those used by tailors. Another pair, 6¼ inches long, with loops of equal size, resembles barbers' shears.

The fragment of an iron *cabinet lock*, originally measuring 2¾ inches by 1¾ inches by ½ inch, is present.

Several brass and iron *escutcheons* were collected. One specimen of brass, with beveled edges, a large keyhole, holes for fastening to a box or chest, and a hole for a sliding keyhole cover (lacking), is 2¾ inches in height and 1⅞ inches in width. The reverse face bears the die-stamped number "42". Another specimen of iron, with a large keyhole, is 3 inches in length and 1¼ inches in width.

An incomplete *hinge* of wrought iron, for a box or chest, is an excellent example of hand craftsmanship (fig. 72a).

An iron *catch*, suitable for use with a cabinet, measures 2¼ inches in height, 1⅛ inches in width, and ½ inch in thickness.

Two iron *keys*, with hollow stems, for chests or trunks, are 2⅛ inches and approximately 1½ inches in length.

There are two heart-shaped *padlocks* of iron, with brass escutcheons of fanciful shape. One is large and complete, the other smaller and fragmentary. The former, measuring 2¾ inches in height, 3¼ inches in width, and ⅞ inch in thickness, has an escutcheon cover bearing the cast or etched letters, "W W & C°" (fig. 72f). These specimens may be of British manufacture. Another padlock of iron, with brass escutcheon, is shield-shaped. It is 4¾ inches in height and 3 inches in width, and is fitted for a special hollow key having a curved bit.

The fragment of a clear, greenish glass cover for a *preserving jar* ("Mason jar"), 2¾ inches in diameter, carries in relief on the upper surface an incomplete legend, ". . . Pat^{d} Feb. 12, [18]56 . . ./Dec. 22 [18]68".

Fragments of several *salt dishes* of heavy molded glass are present. Four clear-glass pieces of similar pattern may be from one vessel. Other fragments include one of clear glass, unlike the other four, two of clear violet glass, and two of white milk glass. The clear-glass fragments appear to be of a superior quality of flint glass frequently used for salt dishes and other vessels.

Fragments of *stemmed glasses* represent plain and paneled goblets and a paneled wineglass, of clear glass, and a goblet, possibly of pattern glass, having six panels filled with hobnail and ray designs.

There are fragments of *water glasses* or tumblers of clear glass, chiefly six-sided, and one fragment of a molded water glass of pattern glass, with a band in relief below the lip and an oval beaded panel on a pebbled field.

Sherds of white glazed *earthenware* for table use were found in quantity. A full account of this material is not attempted here. Most of the pieces appear to be of the common heavy variety, off-white or grayish white, often called ironstone. Vessel shapes include platters of several sizes, vegetable dishes, gravy bowls, sugar bowls (some with handles and covers), pitchers, dinner plates, tea plates, soup plates, cups (with and without handles, and of different sizes), saucers, and sauce dishes. Several simple molded designs occur on the margins of plates and saucers, and a few have simple transfer decoration. A saucer has a molded decoration of a harebell in low relief, and bears the transfer


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Figure 73. Domestic articles from Fort Berthold II.

mark. "Iron[stone] / Manufactured / by A. S. [&]W. / For H. D. B[. . .]ge & Co.", without device or crest. The initials may be those of an American manufacturer. Other manufacturers' marks, largely of English firms, of the Staffordshire area, include: J. & G. Meakin, Ironstone China; Meakin Bros. & Co., Ironstone China, Burslem (now part of Stoke-on-Trent); Powell & Bishop, Ironstone China; J. W. Pankhurst & Co., Ironstone China; T. & R. Boote, Ironstone Patent; George Johnson, Stoke-on-Trent (with prize award device, Paris, Napoleon III); Felspar [sic], J. Edwards & Son, Dalehall, Opaque China; Cookson, Chetwynd, Cobridge; and Porcelain Opaque, Bridgewood & Son. Most of these marks are transfers; a few were die-stamped before firing.

One fragment (fig. 73d), bearing the British arms and the legends "Berlin Ironstone" and "Liddle, Elliot & Son" in a transfer mark, has the lozenge-shaped official British registration mark, employed from 1842 to 1883, recording the manufacture of the object. This mark includes the symbol "IV" signifying the class (earthenware), and the code marks "Z" for the year 1860, "C" for January, and "23" for the day of the month, indicating the piece was made on January 23, 1860. Another incomplete and illegible fragment has the official registration mark and manufacturer's name impressed on the base, rather than a transfer mark.

In addition to ordinary whiteware ("ironstone"), there are examples of transfer-decorated wares. Three sherds from a teacup and two from a dinner plate bear an Oriental scene on both exterior and interior in blue transfer, and resemble "Willow ware." Two small sherds from a bowl or cup have a pseudo-Gothic scene on both exterior and interior in dark brown transfer, and two small sherds from a teacup have an obscure arabesque design and a deep blue, overall glaze.

At least one whiteware sherd from a saucer is hand-decorated, having simple floral sprays on the margin in brown, green, blue, and red.

One sherd of a cup, apparently lacking a handle, appears to be of bone china and is decorated with a plain gold band on the exterior, near the lip.

A kitchen knife of steel, with wooden fittings fastened with brass pins, is approximately 10 inches long (fig. 73i). Similar specimens and portions of blades and shanks having pins of brass or steel for the fittings are also present. Some of the blades are much worn with use.

Table knives of steel, with or without handles of wood or bone, are present (fig. 73j–1). One of these, with bone fittings engraved with crosshatching, is probably machine-tooled (fig. 73m), and another has a plain recessed cast handle, originally lacquered (fig. 73j). Similar specimens carry the cast letters in relief in the recess, "M H & Co."

Three-tine *table forks* of steel are present. Some of these have bone or wood fittings with various designs on them (fig. 73g and h). Two specimens (fig. 73f) have solid cast handles, recessed, similar to the knife mentioned above. They may have been items of military issue.

There are *soup spoons* of base metal, iron, and silver-plated brass (fig. 73o and p). Those of base metal are roughly cast and undecorated except for one specimen, which has a shell-like design on the under surface of the bowl and a die-stamped mark on the under surface of the handle, ". . . TAW". The single soup spoon of silver-plated brass, represented by the handle only, is die-stamped on the under surface, "[H]all & Elton". Hall and Elton are said to have been silversmiths at Geneva, N.Y., as early as 1841 (Ensko, 1948, vol. 3, p. 66).

Teaspoons of iron and base metal are present. The handle of one iron specimen is ridged and decorated with a chevron or wedge. A teaspoon of base metal has a fiddle-back pattern (fig. 73n).

TRADE GOODS AND PERSONAL POSSESSIONS

No class of objects obtained from Fort Berthold II is better represented than that of *glass beads*, which were essential articles of the Indian trade. The collection, comprising more than 8,000 specimens, has been described and illustrated elsewhere (G. H. Smith, 1953). The present statement is based upon that account, and includes some additional observations.

The beads, of glass or glassy frit, fall into two major groups: the larger and more showy beads, particularly suitable for necklaces; and the smaller ones used for ornamenting hides

or fabric, called "seed beads" or, by the traders, "pound beads" (McDonnell, 1940, pp. 200–201, 210). Varieties named by the traders, and probably represented in this collection by certain larger specimens, include Pigeon Egg, in red, blue, and white; Agate, in blue and white; and Barleycorn, in white.

The seed beads are predominantly oblate spheroid or subcylindrical, and ordinarily have a dull surface texture. Seventy percent of them are in four colors: pale blue (24 percent), white or colorless (18 percent), yellow (14 percent), and green (14 percent). Of the rest, the more frequent colors are buff, pink, red, and black. A limited number of beads are in dark violet. Though the frequencies of colors, and also of sizes and types, would have been controlled by the manufacturers and the traders' supplies rather than by the ultimate consumers, attempts must have been made to furnish kinds particularly desired. The rarer colors and types may have been more highly valued by both traders and buyers.

Measurements, taken at right angles to the perforation, range from 0.12 to 0.42 cm., or slightly greater. The smallest beads, from 0.12 to 0.17 cm., would have required very fine needles for threading. Whether such needles were available is not certain; they do not seem to be listed in the trading post inventories. Probably fine sinew was often employed with these beads in decorating objects. It is also probable that the smaller beads were frequently acquired in strands and were used without rethreading.

The larger glass beads were individually made—this variety is sometimes referred to as wire-wound—and some were hand decorated by the application of bits of glass or frit, viscid glass, or pigment before they were fired.

The largest bead, approximately 2.5 cm. in diameter and somewhat less in length, is in opaque blue. Three specimens, 0.9 to 1.0 cm. in diameter and 1.1 to 1.2 cm. in length, have a dull white matrix into which were pressed small round fragments of opaque blue glass, possibly broken waste from the manufacture of seed beads. Another bead with a white matrix, measuring 0.9 cm. in diameter and length, has blue and pink fragments arranged in horizontal rows. A fragmentary bead with an opaque black matrix has bits of white frit impressed into it. Three opaque brown beads, 1.1 cm. in diameter and 1.0 cm. in length, have white spots with blue dots, probably applied with a brush. A specimen of opaque dark blue glass, 0.8 cm. in diameter and length, is decorated with large white dots and wavy bands of dull yellow. One of the more striking beads, 1.4 cm. in diameter and length, and flattened at the ends, is of dull white frit spattered with blue.

A small group of beads are painted with thin pigments. A unique specimen, 1.1 cm. in diameter and 1.2 cm. in length, has an off-white matrix with a floral design in pale red. The fragment of another unique bead, barrel-shaped and measuring 0.9 cm. in diameter and approximately 1.8 cm. in length, has a matrix of painted opaque blue with painted bands of red, blue, and white, which give the effect of marbling. The fragment of another unique specimen, barrel-shaped and measuring 0.8 cm. in diameter and approximately 1.5 cm. in length, has a translucent dark red matrix with a white thread of frit, resembling a twisted cord, applied while the matrix was still viscid.

Among the larger undecorated beads, barrel-shaped specimens are less numerous than globular ones. The 25 barrel-shaped beads range from 0.5 to 0.8 cm. in diameter and 0.9 to 1.5 cm. in length; the matrices are opaque white (14), translucent red (7), and opaque green (4). Surface textures vary from dull to vitreous.

The 39 large, undecorated, globular beads present range from 0.6 to 1.8 cm. in diameter and from 0.7 to 1.3 cm. in length. The matrices are pale blue (13), translucent dark blue (9), black (5), white (5), translucent green (3), translucent red (2), opaque green, (1), and opaque pink (1).

In addition to seed and wire-wound beads, the collection includes glass beads made from tubing—long beads, sometimes called bugles; and short beads, both plain and faceted. Two long beads of white and black hexagonal tubing are 0.6 cm. and 0.3 cm. in diameter and 2.0 cm. and 3.5 cm. in length, respectively. Eleven short beads made of colorless hexagonal tubing, some with rough ends, measure from 0.3 to 0.5 cm. in diameter and from 0.4 to 0.6 cm. in length. Some of these specimens have hand-cut facets, presumably to enhance their appearance. Seventeen short beads of hexagonal tubing, with or without facets—13 in translucent dark green and 4 in translucent amber—

range from 0.3 to 0.8 cm. in diameter and from 0.3 to 1.7 cm. in length. Twenty-three short specimens made of faceted hexagonal tubing—18 in translucent blue and 5 in black—vary from 0.4 to 1.0 cm. in diameter and from 0.5 to 0.9 cm. in length.

There are only three long beads made of round glass tubing—one in black and two in white. They vary from 0.2 to 1.1 cm. in diameter and from 2.2 to 2.7 cm. in length.

Technical studies of glass-bead manufacture at Murano (Venice) and elsewhere, and of bead collections of known provenience from such industrial centers, are needed in order to trace historical developments in this field of manufacture and in the channels through which these objects reached Indian consumers in the West.

Metal beads were also made for the Indian trade. A tubular bead fashioned from a disk-shaped piece of sheet brass, with one side rolled over the other, is 0.6 cm. in diameter and 1.6 cm. in length. The ends are ground or smoothed, and the resulting shape is not unlike that of an olive pit. A cylindrical specimen, 0.7 cm. in diameter and 2.1 cm. in length, is a crudely rolled piece of sheet brass incised with two curved lines. These beads are comparable to the brass fringe clips found in Arikara graves of the 1820's near Mobridge, S. Dak. (Wedel, 1955, p. 159 and pl. 69f). Beads could be used as fringe clips merely by pressing them tightly against threads or thongs.

Of the 18 specimens of *Dentalium* present, three appear to be complete. The longest measures 3.2 cm. Dentalium shells, found particularly on the Pacific coast of North America, are known to have been traded to the tribes of the interior by native and white traders, who obtained them from coast tribes, or from eastern importers who seem to have called them "Iroquois shells." The high value placed upon such shells at Fort Berthold II by the traders was recorded by Matthews (1877, p. 28), who noted that, as late as 1866, 10 such shells, valued at 1 cent each, could be exchanged for a buffalo robe, whereas only 2 or 3 shells were exchanged for a robe previously. Hayden (1862, p. 269), probably using data provided by traders, referred to the use of *Dentalium* by the Blackfoot and the Cheyenne as "ornaments for the head." The inventory at Fort Benton, in 1851, listed "Spotted Sea Shells" and "California Shells" (probably abalone), and the inventory at Fort Union, in the same year, mentioned these as well as "St. Lawrence Shells"—perhaps the same as Mathews' "Iroquois shells" (McDonnell, 1940, pp. 201, 211, 228).

Three pendants and several worked pieces of abalone are present. One pendant, 2.7 cm. in length, 1.6 cm. in width, and 0.2 in thickness, is rhomboidal in outline and has a drilled hole for suspension, 0.4 cm. in diameter, near the smaller end (fig. 74c). This specimen retains its natural inner gloss, with the rough exterior somewhat worked down. Another pendant, 4.4 cm. in length, 1.1 cm. in width, and 0.6 cm. in thickness, has a small hole, 0.2 cm. in diameter, drilled near one end (fig. 74b). It had been partially shaped by sawing or filing and by chipping. The third pendant, which is fragmentary and measures about 2.8 cm. in length, has part of a drilled perforation. It had been crudely chipped. Mathews (1877, p. 28) stated that fragments of abalone available at Fort Berthold II in the 1860's were supplied to the traders under the name "California shells," and that one of these unpolished shells was the equivalent in trade of a good buffalo robe.

Of three *hair pipes*, two of shell and one probably of domestic (beef?) bone, only the latter is complete, having a maximum diameter of 0.8 cm. at the midsection and a length of 9.2 cm. These tubelike beads were often of white manufacture, lathe-turned, highly polished, and tapering slightly from the midsection toward the ends. One broken specimen, trimmed and smoothed near the middle after breakage, may have been reused. The other broken specimen appears to have been discarded.

Hair pipes of shell and bone are familiar in the adornment of the Plains Indians, who wore them in several ways. Wedel (1955, pp. 165–166) describes specimens from the Arikara graves previously mentioned, and Ewers (1957) provides useful comparative data. Though hair pipes are popularly regarded as characteristic of Plains costume, they may actually have been adopted at a late date. The bone specimen from Fort Berthold II may represent a trade article of the 1880's (personal communication from John C. Ewers, U.S. National Museum, March 28 and April 28, 1955).

A fragmentary *coil* of brass wire, 0.15

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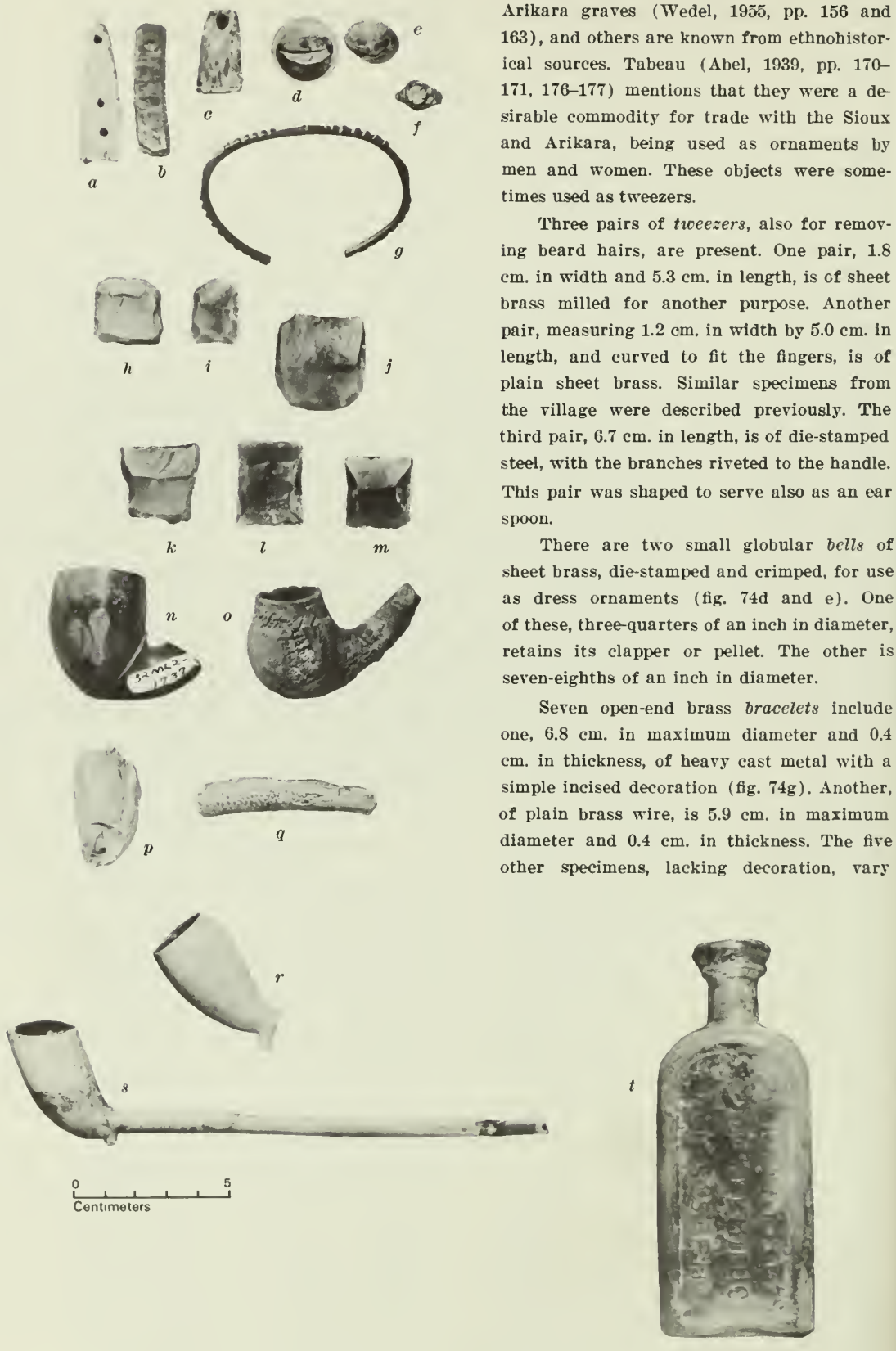
Figure 74. Trade goods from Fort Berthold II.



cm. in diameter, has two loops with interior diameters of 1.17 cm. Similar specimens, of brass and iron, have been reported from Arikara graves (Wedel, 1955, pp. 156 and 163), and others are known from ethnohistorical sources. Tabeau (Abel, 1939, pp. 170–171, 176–177) mentions that they were a desirable commodity for trade with the Sioux and Arikara, being used as ornaments by men and women. These objects were sometimes used as tweezers.

Three pairs of *tweezers*, also for removing beard hairs, are present. One pair, 1.8 cm. in width and 5.3 cm. in length, is of sheet brass milled for another purpose. Another pair, measuring 1.2 cm. in width by 5.0 cm. in length, and curved to fit the fingers, is of plain sheet brass. Similar specimens from the village were described previously. The third pair, 6.7 cm. in length, is of die-stamped steel, with the branches riveted to the handle. This pair was shaped to serve also as an ear spoon.

There are two small globular *bells* of sheet brass, die-stamped and crimped, for use as dress ornaments (fig. 74d and e). One of these, three-quarters of an inch in diameter, retains its clapper or pellet. The other is seven-eighths of an inch in diameter.

Seven open-end brass *bracelets* include one, 6.8 cm. in maximum diameter and 0.4 cm. in thickness, of heavy cast metal with a simple incised decoration (fig. 74g). Another, of plain brass wire, is 5.9 cm. in maximum diameter and 0.4 cm. in thickness. The five other specimens, lacking decoration, vary

Projectile Points

(Estimates in parentheses)

Total length (*cm.*)	*Maximum width* (*cm.*)	*Stem*	*Length/width proportion:* (*approx.*)
12. 6	2. 1	Straight	6. 0
10. 7	1. 8	Notched	5. 9
(8. 0)	(1. 9)	Straight	(4. 2)
(8. 0)	2. 1	Notched	(3. 8)
(7. 5)	2. 0	?	(3. 7)
6. 3	1. 7	Straight	3. 7
(8. 0)	2. 2	Notched	(3. 6)
(6. 5)	1. 8	?	(3. 6)
7. 8	2. 2	Straight	3. 5
(7. 5)	2. 1	?	(3. 5)
6. 6	(2. 0)	Straight	(3. 3)
6. 9	2. 2	Expanding	3. 1
5. 2	1. 7	Straight	3. 0

from 4.5 to 6.4 cm. in maximum diameter and from 0.5 to 1.0 cm. in thickness.

Seven *finger rings* of brass were collected. A child's ring, with simple die-stamped beaded decoration and a setting of faced pale amber glass, is a good example of the cheap jewelry or "brummagem" often supplied by the traders (fig. 74f). Two rings for men, and one complete and one incomplete ring for women, appear to be of commercial manufacture also. A man's ring and a child's ring, with overlapping ends and no decoration, may have been made locally.

Another ring, probably for a woman, is a narrow band of hard, polished rubber, probably machine-cut.

Six complete and seven incomplete stemmed *projectile points* of iron or steel were collected (fig. 75a-c). The actual or estimated total length and maximum width, the form of the stem, and the approximate length/width proportion (actual or estimated) of the 13 specimens are given in the accompanying tabulation. Measurements and proportions suggest that these points fall into two classes: longer and relatively narrower lance points (2 specimens), and shorter and relatively broader arrow points (11 specimens). The nature of the stem could not be determined in three cases. In the rest, the stem is straight (six specimens), notched (three specimens), or expanding and barbed at the shoulders (one specimen; fig. 75b).

The value of such points in the trade at this period is recorded in post inventories elsewhere. Thus 617 "Arrow Points" on hand at Fort Benton in 1851 were listed at 1½ cents each (McDonnell, 1940, p. 204).

The single *half ax*, or woman's ax, is an example of another important trade item (fig. 75d). It is approximately 6¼ inches long and weighs 2 lbs. 5 oz. The blade is 3¾ inches in maximum width, and its cutting edge is curved. The heavy eye has a straight lip. Although the cutting and fore edges are damaged, apparently by hammering, the tool seems to have been little used. A similar specimen obtained in 1862 by Morgan at the Fort Clark Village site, and referred to as an iron tomahawk, bore a manufacturer's mark which appeared to be "8 R" (Morgan, 1871, p. 38 and pl. V, fig. 15). The values of this type of ax are given in post inventories. At Fort Union, in 1851, 12 "Squaw axes," weighing 2½ lbs., were listed at 80 cents each (McDonnell, 1940, p. 214).

Two steel *fishhooks* are present. One of these, with a large eye but without barb, is 3¼ inches long. The other, with a large eye and a barb, is 2 inches in length.

There are three *thimbles*. An open-end specimen of brass, like those sometimes used by tailors, is 1.2 cm. long and 1.3 cm. in diameter. The other two are common thimbles: one, of brass, is 2.2 cm. long and 1.5 cm. in diameter; the other, of steel, is 2.2 cm. long and 2.0 cm. in diameter. The former appears to have manufacturer's marks (illegible) near the lip.

A bagging *needle* of steel, lacking the eye portion and having the tip flattened and slightly curved, has an estimated length of 3 inches.

A small, round *snuff jar* of white-glaze earthenware, 2 inches in diameter and ½

Figure 75. Trade goods from Fort Berthold II.

inch in height, contains a small amount of powdered tobacco.

The upper surface of a metal *tobacco tag*, five-eighths inch in diameter, is enameled in red and bears the printed legend, "Lorillard's Climax Plug". About 1870, the Lorillard Co., of New York, a leading manufacturer of plug tobacco, began marking individual plugs with metal tags, and by 1875 "Climax" and a number of other brands were put on the market, so marked. Marking was intended to protect the manufacturer, and the device appears to have been patented. In 1885, a suit for infringement of patent rights led to a court decision that tin tags were not patentable (personal communication from H. E. Gercken, P. Lorillard Co., Feb. 16, 1955). Patents cover both the processes of manufacturing plug tobacco and the machinery required for its manufacture (U.S. Patent Office, 1872, vol. 1, p. 218; and vol. 2, p. 695).

Tobacco pipes of molded clay are represented by one complete specimen and many fragments. The complete pipe measures 7 inches in total length and retains fragments of the original dottle (fig. 74s). The stem is 5½ inches long and tapers from the bowl, where it is ¼ inch in diameter, to the bit, which is 3/16 inch in diameter. The bit has a band of red glaze, 1 inch in width. The bowl is 1½ inches in height and ¾ by ⅞ inch in diameter at the lip. Made in a 2-part mold, with traces of surplus clay visible at the spur, the pipe bears in relief the molded letters "T D" encircled by 13 six-pointed stars, on the side of the bowl toward the stem. On either side of the mold joints, opposite the stem, is a floral design of tiny sprays in relief There is no manufacturer's mark. The two letters have serifs, and are 3/16 inch in height. "T D" is sometimes thought to stand for the name of Timothy Dexter, the famous eccentric of Newburyport, Mass., but the attribution is dubious. Fragments of pipe bowls and heels with identical decorations were also found, as were plain, unmarked bowls.

The bowl and bowl fragments of pipes having marked spurs are present. The bowl specimen is bulbous and undecorated, and is placed at an angle of 45° to the stem, rather than nearly upright (fig. 74r). The spurs are straight columns of clay measuring three-sixteenths of an inch in length and diameter, at a right angle to the stem. The flat lower surface of the spur carries a manufacturer's mark, "J G", made with a die. The incuse letters have serifs and are encircled with dots. A fillet of clay, possibly accidental, is on the left side of the spur, with the pipe held in smoking position.

Other fragmentary bowls are decorated with an Irish harp (?); with a floral design and 8-point stars about the lip; with diagonal ridges in low relief, stars at the lip, and small leaves at the mold joint; and with the seal of the U.S., leaves at the mold joint, 6-point stars about the lip, and a floral design at the junction of bowl and stem, extending over the spur (fig. 74p).

Two fragments of short-shanked bowls of unglazed grayish and reddish clay have an enlargement for the insertion of a reed stem. Identical pipes have been found at many other sites, and this variety may have been made in part for the Indian trade.

An incomplete bowl having a brick-red glaze over a red clay body, and a diameter of 1 inch, has decoration in full relief, the bowl being an effigy, perhaps a woman's head, with the hair prominently modeled.

Fragments of other pipe bowls of white clay have such decorative elements as rouletting about the lip, while some appear to have lacked any lip decoration.

A fragment of curved pipestem, near the bit, is decorated in relief with a pebbled or hobnail surface and leaves. The design suggests an ear of corn with its husk (fig. 74q).

Fragments of another variety of pipestem are undecorated, but bear impressed manufacturer's marks encircling the stem: "Gambier / à Paris / M . . . H". The letters employed are both upper and lower case, with serifs. Specimens of molded clay pipes produced by the firm of Gambier, of Paris, are often found at other mid-19th-century sites, and the firm is known to have been in existence in 1860 (personal communication from the French Embassy, April 29, 1956).

That clay pipes were in steady demand is demonstrated by inventories at other posts. At Fort Union, in 1850, two gross were listed at a cost price of 33⅓ cents per gross; and at Fort Alexander, in 1851, 2½ gross were listed at the same figure (McDonnell, 1940, pp. 195, 214).

Brier pipes are represented by two bowls with stems. The bowls are 5.0 and 3.6 cm. in height and 4.0 and 3.0 cm. in maximum diameter, respectively. The smaller pipe (fig.

74o) is machine-cut and appears to have been fitted with a cap or cover.

A pipe bowl and part of a curved pipestem of hard rubber are present (fig. 74n). The thin-walled, octagonal bowl, probably once provided with a liner of meerschaum or similar material, is 1⅝ inches high and 1⅛ inches in diameter at the lip. A molded ridge separates the bowl and the stem, and the latter appears to have been fitted to a separate section curved in the opposite direction. Fragments of other curved pipestems of hard rubber were also collected.

Numerous *glass bottles* of various shapes and sizes, which once contained pharmaceutical or household preparations, reveal another aspect of the trade. Specimens of particular interest are described below.

One flat, clear-glass bottle, 2¾ inches in height, bears in relief on one face the legend, "By the / Kings / Royal / Patent / Granted / to"; on the opposite face, "Robt / Turli / ngton / For his / Invented / Balsom / of life"; and on the sides, "London" and "Jan^{y} 28 [sic] 1744 [?]". This specimen is a two-mold blow bottle with a diagonal mold joint; the pontil mark on the base was left rough, but the lip is straight and smooth. The bottle may be of American manufacture (illustrated in Wedel and Griffenhagen, 1954, p. 412). Parts of three other bottles from this post, and one previously described from Fort Berthold I, seem to be identical. A specimen of the same size, having a more flattened lip, obtained with other trade goods from Arikara burials of an earlier period, may be of English manufacture (Wedel, 1955, pp. 153–154 and pl. 68j). The original English "Balsam of Life," for which a patent was granted to Robert Turlington on January 18, 1744, was similar to compound tincture of benzoin. It seems to have been a widely imitated panacea, frequently handled at 19th-century posts (e.g., McDonnell, 1940, pp. 202, 217).

A flat, clear greenish bottle, 5 inches in height, bears in relief, in a slightly recessed panel on one face, the legend, "Dr. D. Jayne's / Tonic Vermifuge / 84 Ches[tnut] S^{t} Ph[i] l^{a}[delphia]" (fig. 74t). David Jayne (1798–1866), of Philadelphia, introduced his first medicines in 1831. He opened a drug store in 1836, and his business expanded to such proportions that in 1850 an eight-story building was erected on Chestnut Street (personal communication from the Historical Society of Pennsylvania, March 26, 1955).

A portion of a clear greenish bottle of similar size and shape has in relief on one face the legend, "F. Brown's / Ess[ence] of / Jamaica Ginger / Philad^{a}". Frederick Brown, chemist and druggist, started his business in 1823. The firm was continued as Brown and Company from 1891 to 1920 (personal communication from the Historical Society of Pennsylvania, April 5, 1955). Thus it is possible that this style of container antedates 1891.

A portion of another clear greenish bottle of similar size and shape bears in relief the legend, "Meilliers / Ess[ence] of Jamaica Ginger / S^{t} Louis". A. A. Melliers, for some years previous associated with others in the drug business, was first listed in St. Louis directories in 1870 as an importer and wholesale dealer in drugs, chemicals, and dyestuffs. In 1887 the firm was listed as Mellier Drug Company, and it is still in business (personal communication from the Missouri Historical Society, April 5, 1955).

A flat, clear greenish bottle, 4½ inches in height, carries in a depressed panel on one face the name "Davis'", and in panels on either side the legends, "Vegetable" and "Pain Killer"; and the base of a cylindrical brown bottle has in relief the legend, "McKesson & Robbins New York". This pharmaceutical firm, established in 1833, became known as McKesson and Robbins in 1840 (Anon. 1940, p. 73).

Part of a molded, clear-glass stopper, 6.4 cm. in diameter, for a wide-mouthed jar, bears on its upper surface, within a beaded circle, the legend, "N. Malinau Invent[eur?] Bordeaux". The jar may have contained spirits of ammonia or toilet water.

The base of a small greenish bottle, seven-eighths of an inch in diameter, is probably from a container for a narcotic. Similar specimens were obtained from Fort Stevenson (G. H. Smith, 1960, p. 213 and pl. 50*n*). Another small vial of clear glass, 2 inches in height, may also have held a narcotic. Laudanum and other opiates were often handled by the traders of this period (McDonnell, 1940, p. 196).

A wide-mouthed, clear greenish bottle, 7½ inches in height, with traces of the original lead seal, carries in relief on the depressed base the legend, "C. B / K / 1295". Modern containers of comparable form are used for

infants' foods.

A translucent, dark blue bottle of rectangular shape and 7 inches in height, bears in relief on one face the legend, "J & C. Maguire". The location and date of this firm are not known. The bottle retains a small quantity of oily liquid, perhaps creosol. Another specimen, bearing in relief on the shoulder the unidentifiable mark, "H. T. & Co.", may have contained household bluing.

Fragments of several clear-glass cylinders and plungers of urethral *syringes* were found. Little is known of the incidence of venereal diseases at the nearby village, but these diseases were mentioned as a problem in hospital records at Fort Stevenson, from the site of which specimens of medical syringes were also obtained (Mattison, 1951, p. 22; G. H. Smith, 1960, p. 213 and pl. 50*m*).

A small fragment of an iron *jew's-harp* is 1½ inches in width.

There are 24 round-headed, ½-inch *tacks* of brass. Such tacks were used particularly for decorating gun stocks and other wooden articles. Their importance in the trade is shown in the Fort Union inventory of 1851, which itemizes 1½ M (thousand) brass tacks at a value of 90 cents. (McDonnell, 1940, p. 211).

A large and varied group of objects may be regarded as typical personal possessions of the occupants of Fort Berthold II.

Part of the crown and wide brim of a man's *hat*, of brown felt, appears to be of civilian style.

A fragmentary *hat ornament* in the form of a bugle, in die-stamped brass, is 3½ inches in length. This object is similar to one found at Fort Stevenson (G. H. Smith, 1960, p. 211 and pl. 50*l*). The bugle was the infantry insignia prior to 1875, when the crossed-rifle insignia was adopted (Adjutant General's Office, Gen. Order 96, Nov. 16, 1875). The present specimen may have been brought to this place about 1864, when Sully's troops were stationed here, or at a later date as surplus military goods. Military clothing was probably issued to Indian children at Fort Stevenson about 1883–94, when that former military post was used as a Government school for the Fort Berthold Indian Reservation. Since these children were from families living at Like-a-Fishhook Village, many such objects may have been brought here at that time.

An incomplete *shoulder scale* of brass, approximately 4 inches in width, is of a type worn by enlisted men of the U.S. Army prior to about 1872 (Ludington, 1889, pp. 47, 50). The remaining portion is the outer end, which hung over the the acromial process. Similar specimens have been found at Fort Stevenson and other military sites.

Belt hooks of brass, 1¾ inches in length, were used to attach belts to military uniform and supporting accouterments.

Several metal *buckles* of various kinds were collected. The smallest of three nickle-plated suspender buckles measures 1 by ⅝ inch and has a double tongue. Part of a brass buckle, lacking the tongue, 1 1/16 inches by 5/16 inch, is marked with the die-stamped legend, "Smith and Griggs". Another slightly larger brass buckle, with separate double tongue, bears in relief on the upper bar the cast mark, "Patent A[pplied] F[or]". Small buckles of iron may derive from harness rather than garments.

Numerous *garment buttons* of metal, bone, earthenware(?), shell, molded glass, and molded hard rubber are present. A unique specimen of die-stamped brass, 3.7 cm. in diameter, is of regulation U.S. Army style, suitable for an overcoat. The obverse face only is preserved. In relief on a fine horizontally milled field, the spread eagle, head to left, holding an olive branch and three arrows in its talons, and with a shield at its breast, is surrounded by 25 five-point stars near the border, which is a finely twisted fillet.

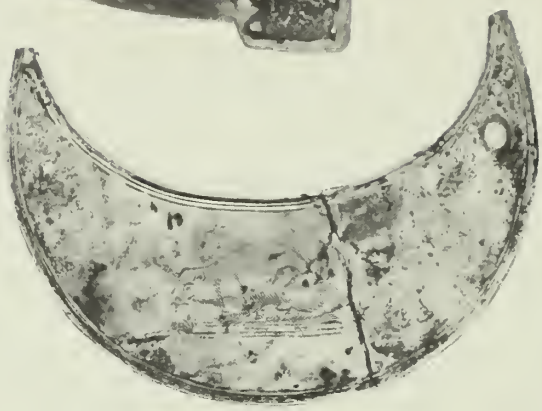
A regulation Army button of die-stamped brass in two parts, with brass loop, 2.0 cm. in diameter, is suitable for a blouse. The reverse is marked, "Scovill Mfg. Co. / Waterbury". This corporation, successor to the first brass-rolling enterprise in the United States—that of Abel and Levi Porter, 1802, which made buttons from sheet brass—was incorporated in 1850 (Lathrop, 1926, pp. 88, 101–102), and is still one of the leading manufacturers of uniform buttons and various other brass and metal products.

A similar uniform button is marked on the reverse, "Waterbury Button Co.", on a finely pebbled field. The emblem is somewhat sharper than that on the Scovill specimens. The Waterbury Button Company was in existence as early as 1849 (Lathrop, 1926, p. 88). A slightly smaller button is marked

a

0 5
Centimeters

b



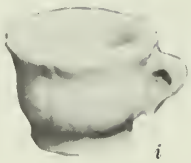
c

0 5
Centimeters

d

c

f

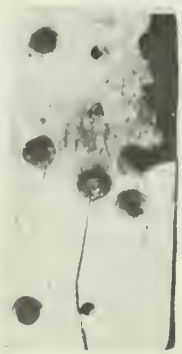


i

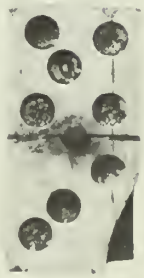
g

h

j

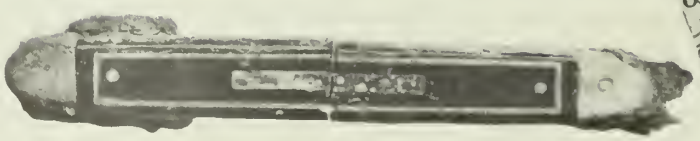


k



l

m



n

0 5
Centimeters

Figure 76. Personal possessions from Fort Berthold II.

on the reverse, "Evans & Hassall", but nothing is known of the history of the company. Two others, also slightly smaller, are similar to the Scovill specimens, though the lettering is less well done, and they carry only the legend, "Extra/Quality". Two others are similar, but are not marked on the reverse.

One comparable uniform button is a Navy rather than an Army button (fig. 76e). The spread eagle, head to left, on a vertical anchor, is in a finely milled field. The eagle is encircled by 13 five-point stars in a plain band, and the edge is a twisted fillet.

An unusual button (fig. 76f), die-stamped and gilded, has a brass loop, the mark, "Extra/Quality", and two small five-point stars on the reverse. The decoration on the obverse, in relief, consists of a landscape with sun and rays, at the right; a building on an elevation, at the left; and a man plowing with a single horse, moving to the right, in the foreground. The scene is bordered by two bands, and the edge is finely milled. This appears to be the device of the Office of Indian Affairs. The button was probably made about 1878, when the Indian police system was established.

Among garment buttons of civilian style, three specimens of flat brass, with a brass loop brazed on the reverse, are of an early style. They measure 1.47, 2.15, and 2.30 cm. in diameter, and are not marked.

A unique decorated brass button, die-stamped in two parts and approximately 1.38 cm. in diameter, has, in relief on a finely milled horizontal field, a spread eagle, head to left, holding a plain shield with its right wing. Another brass button, die-stamped and 2.23 cm. in diameter, has in relief, in a concave central area, a group of three fruits with leaves, bordered by two plain bands.

Two decorated buttons of base-metal over a core of iron, with four holes, are 1.4 and 1.7 cm. in diameter. The decoration is crosshatching in relief on the margin, within a narrow border. Two specimens of base metal, with four holes, are disks measuring 1.53 and 1.64 cm. in diameter; each has a twisted fillet, in relief, on the inner edge of the margin. Another button, 1.82 cm. in diameter, has a beaded fillet, in relief, on the inner edge of the margin. Several other specimens, varying in diameter from 1.4 to 2.6 cm., are plain and unmarked.

Twelve lathe-turned bone buttons, with two or four holes and with or without separate margins, vary in diameter from 1.45 to 1.82 cm.

One buff-colored button, probably of earthenware, 1.2 cm. in diameter, has a flattened globular shape and a hole in the reverse, possibly for insertion of a loop.

Many lathe-turned buttons of freshwater shell are present. They vary from 0.8 to 1.7 cm. in diameter and have two or four holes. Three are decorated with engraved lines or dots. Some of the specimens are of mother-of-pearl quality.

There are many buttons of molded glass, varying from 0.96 to 1.3 cm. and having two or four holes. The commonest are in milk glass, either plain or very simply decorated. The latter bear transfer prints on the margin, consisting of wavy lines in black, dots and wavy lines in blue or black, and small flowers in light green or light brown. Other specimens are in opaque green, blue, white and red, or white and brown. A few of these specimens have molded dots or rays on the margin. Specimens in translucent red, green, and blue glass are also present. Two of the opaque buttons have fanciful molded designs—a series of crosses on a hobnail field, and a series of six-point stars on a field of concentric ridges.

Three plain, molded hard-rubber buttons, having four holes and varying from 2.37 to 3.14 cm. in diameter, are probably overcoat buttons. One of these bears, in relief on the reverse, the legend, "Novelty Button Co. / New York. / Goodyear's Patent. / 1851". A patent was issued May 6, 1851, to Nelson Goodyear, of New York, for a process of hardening India rubber with sulphur, and with or without shellac or other substances (U.S. Patent Office, 1852, pp. 54, 162). His brother, Charles Goodyear, of New Haven, Conn., had previously been issued a patent, which was reissued in 1849, for curing caoutchouc, or India rubber, by subjecting it to heat (U.S. Patent Office, 1850, p. 394). These important patents were probably widely infringed upon.

Several *shoe buttons* of brass and of glass were found. Those of brass, varying from 0.87 to 1.17 cm. in diameter, are spherical

and hollow. Die-stamped in two parts, they were originally provided with metal loops. Shoe buttons of glass, also once provided with metal loops, are conical or hemispherical and range from 1.0 to 2.26 cm. in diameter. They are in translucent or opaque white, red, green, blue, and brown glass. One variety has a single fillet of white glass encircling the cone, and two specimens have a molded band and dot pattern on a hobnail field.

Numerous fragments of *boots and shoes* include soles, heels, uppers, and other parts. Two more complete, sewed and pegged specimens (fig. 76a) are a pair of men's high-top, square-toed boots of military style. The length of the sole is approximately 9½ inches and the total height is about 13 inches. They may derive from the military occupation of the post. Two other specimens, probably also a pair, are men's shoes of a civilian style. The length of the sole is about 10½ inches and the total height is about 5 inches. An incomplete shoe, with a narrower sole and smaller, higher heel, is apparently for a woman. The sole is about 9½ inches long.

Of several specimens of children's shoes, one with a square toe and a high heel may be a girl's shoe. The length of sole is about 7¼ inches and the total height is about 3½ inches. Another shoe of comparable size still retains its copper toe-plate. Parts of a tiny heel, not more than 1⅛ inches in length, are from an infant's shoe.

A pair of *spurs*, of cast brass with steel rowels, measure 3½ inches in width and 5 inches in length each (fig. 76b). They retain portions of their original leather straps. Though found on the surface at this site and donated by Ben Opsahl, of Minot, N. Dak., the spurs appear to belong to a late period of the post's use.

A crescent-shaped *gorget* of thin silver, with holes for suspension and probably provided originally with welded bosses at these points, has a maximum width of 5⅝ inches and a maximum height of 5⅛ inches (fig. 76c). It has plain rolled edges and rulings near the edges, and carries the engraved figure of a beaver on a stylized ground. No touch mark is visible. When found, the specimen was bent double and somewhat flattened. It may have been an heirloom piece. C. Marius Barbeau, of the National Museum of Canada, an authority on silver ornaments used in the Indian trade, kindly inspected a photograph of this specimen. He judged the piece to be the work of a Montreal silversmith and offered the suggestion that it may have come from the shop of Robert Cruickshank (active 1775–1809), where quantities of silver objects were produced for the Indian trade (personal communication, June 17, 1953; Quimby, 1937, p. 21; Traquair, 1938, pp. 4, 6; Barbeau, 1940, p. 32). Some students have suggested that animal figures on such pieces as this were intended to represent totems. But Barbeau believes the beaver figure in the present instance may have had some connection with the North West Company (ca. 1785–1821), whose seat was Beaver Hall, Montreal, and whose traders reached the upper Missouri at an early date. The design of a beaver with head to right, which closely resembles the image on the gorget, appears on the reverse of an official token of the company minted in 1820.

Two silver gorgets in the Museum of the American Indian, Heye Foundation, seem to be closely comparable to the gorget from Fort Berthold II in both design and style of decoration (Woodward, 1926, pp. 242–243 and fig. 83). One of these, carrying the engraved figure of a squirrel and also lacking a touch mark, is said to have been obtained from the Chippewa of Walpole Island, Ont. The other specimen, showing the engraved figure of a bear and, below it, the touch mark "F N" or "T N", was obtained from the Shawnee in Oklahoma (personal communication from E. K. Burnett, Museum of the American Indian, April 30, 1953).

These and other silver objects, bearing designs of animals and birds, suggest that various creatures were used for decoration without regard to their possible totemic significance. Horses are also shown on such pieces. A distinctive feature appears to be the technique of engraving: the greater part of the design was probably accomplished with a running drill; the rest may have been done with gravers or burins, in separate strokes.

Denig, writing about the use of silver objects by peoples of the upper Missouri around 1854, mentions that gorgets were worn particularly among the Sioux, whereas the "upper nations"—i.e., tribes such as the Arikara, Hidatsa, and Mandan—preferred shells (Denig, 1930, p. 591). Maximilian had previously recorded that Dipauch, or The Broken Arm, perhaps a Mandan, wore a sil-

ver gorget he had received as a present from the Whites (Wied-Neuwied, 1906, vol. 22, p. 357). Representatives of the Federal Government also used such objects as gorgets for gifts to important individuals, sometimes on the occasion of councils and treaty proceedings. A case in point is that of the Atkinson-O'Fallon Expedition which, on June 9, 1825, presented two Ponca chiefs with medals, presumably of President John Quincy Adams, and gave gorgets to seven of the soldiers, probably leading warriors (Reid and Gannon, eds., 1929, p. 19).

Two Roman Catholic *medals* were found. One of these, made of brass, is oval in outline and has a loop for suspension. It measures 3.3 cm. in width, 4.5 cm. in total height (including loop), and 0.3 cm. in thickness (fig. 76g and h). On the obverse, in high relief within a beaded margin, is the legend, "S^{t} Louis de Gonzague", with a portrait of the saint, who holds a cross and an open book. On the reverse, within a beaded margin, are the symbols of the heart entwined in thorns, flames, and the Cross, surrounded by four winged cherubs and enclosed by olive and palm branches. The Jesuit Saint Aloysius Gonzaga (1568–91), the patron of students, was canonized in 1726 (Catholic Encyclopedia, 1907, vol. 1, pp. 331–332). The use of medals of this saint was probably not confined to his Order.

It is likely that this medal is of French manufacture. At least two of the 19th-century missionaries on the upper Missouri who had visited this community—the Jesuit Father de Smet and the Oblate Father La-Combe—were French-speaking. The latter, an early member of the Pembina Mission for the *métis*, or Red River halfbreeds, visited this place in 1851 (Kurz, 1937, p. 83), and religious medals, perhaps of this general kind, were distributed here on at least one occasion by de Smet (Boller, 1959, pp. 345–346).

The other Catholic medal, also of brass, oval in outline and having a loop for suspension, is 1.9 cm. in width, 2.7 cm. in total height (with loop), and 0.1 cm. in thickness. On the obverse, in low relief within a plain margin, is the legend, "O Mary, conceived without sin, / pray for us who have recourse to you", surrounding the image of the Virgin, with rays of light coming from her hands; below the figure is a date (illegible). On the reverse, in low relief within a plain margin, are 12 five-point stars, surrounding the letter "M," upon a cross, above two hearts bearing flames and imposed upon a second cross. The first medal of this type is said to have been struck on June 30, 1832, in France (Catholic Encyclopedia, 1913, vol. 10, p. 115). Usually referred to as the Miraculous Medal, it is still commonly used. The English legend on the present specimen suggests that it is relatively late.

Of three U.S. copper-nickel, 5-cent *coins* found, two have the date 1868 and the third the date 1869. It is of interest that all three coins, the only ones found at Site 32ML2, would have been current during the early 1870's, the period of perhaps the heaviest use of the post.

Four machine-made *dominoes* make an interesting contrast with three handmade specimens, possibly of native manufacture, described previously (pp. 72 and 114). One of the present group a "four-two" (fig. 76k), is made of ivory or bone and ebony fastened together with three brass pins and measures 4.5 cm. in length and 2.3 cm. in width. The dots are drilled and penetrate the ivory or bone. Two dominoes, measuring 4.4 and 4.5 cm. in length and 2.1 cm. in width, are provided with two small brass pins. The fourth domino, a "five-three" (fig. 76m), 3.1 cm. in length and 1.7 cm. in width, is fastened at the center with only one large brass pin. Similar specimens of machine-made dominoes were obtained from Fort Stevenson (G. H. Smith, 1960, p. 227 and pl. 54*m*).

Two fragments of a single *tiddly-wink* of Celluloid, machine-cut and polished, measuring 0.1 cm. in thickness and approximately 3.2 cm. in diameter, have hand-engraved lines on one face. The piece may have been broken in an attempt to drill a hole at the center. Celluloid is the trade name for an early commercial cellulose plastic invented by John W. Hyatt, Jr., and Isaiah S. Hyatt, of Albany, N.Y. A patent for treating and molding this material was issued them on July 12, 1870 (U.S. Patent Office, 1872, vol. 1, p. 122, and vol. 2, p. 567; McDonald, 1932, vol. 9, pp. 447–449). The trademark was registered to them, as the Celluloid Manufacturing Company, on January 14, 1873 (U.S. Patent Office, 1873, vol. 3, p. 82/2). Novelties and toys of this substance were once made in vast quantities, but true Celluloid has now been largely replaced by nonflammable plastics.

There are three children's *marbles*. One, measuring 1.84 cm. in diameter, appears to be of stone, pale buff mottled with reddish brown, and shows evidence of wear. Another, 0.98 cm. in diameter, appears to be of earthenware and has a dull black surface finish with some discoloration. The third, 1.7 cm. in diameter, is of translucent glass with a spiral design in pink, blue, and white. The original poles seem to have been ground smooth, as a last step in manufacture.

There are two fragments of a hollow, jointed "china" *doll*. Made of white glazed earthenware, one is an arm and hand, approximately 2⅜ inches in length (fig. 76j), and the other is a small part of a leg.

Miniature dishes of plain white earthenware are represented by two tiny cups with solid handles, five-eighths of an inch in height (fig. 76i), and the handle fragment of a slightly larger cup.

Part of one face of a *harmonica*, made of brass, is die-stamped with a decorative design and the manufacturer's mark, "Wilhelm Trie / [awards: Philadelphia, 1876, and elsewhere] / in Wien".

A thin, copper mat with an oval opening, used to protect a *ferrotype* or tintype, is 3¼ inches long and 2¾ inches wide. Die-stamped with a floral design on a milled field, it is typical of the style of the 1870's and 1880's. On the narrow side margins, originally hidden by the case, is the manufacturer's mark, "Booth and Haydens Superfine / Waterbury, Conn. No. 43".

Fragments of one or more *mirrors*, of clear plate glass, 0.75 cm. in thickness, but lacking silvering, are present. The edges were carefully cut but not ground. The surface of one fragment shows accidental scratches, possibly as a result of use as a palette for mixing pigments or drugs.

Fragmentary covers for two identical *shaving soap containers* of white glazed earthenware (fig. 76n) bear on the upper surface a transfer-printed label, "W. C. Taylor's / New Size / [Sap]onaceous / [Sha]ving / . . . [Comp]ound / . . . [Awards] . . . Institute of Penna. / . . . Institute of N.Y. . . . / . . . World's Fair, 1851". This fair was probably the famous Crystal Palace, held in London. It is usually regarded as the first world's fair.

Part of the base of a *shaving mug* of milk glass, having an original diameter of approximately 3½ inches, carries an arabesque design on the side, in relief.

A portion of the neck and lip of a *hair-tonic bottle* of milk glass suggests a type of bottle still used by barbers.

Two incomplete *combs* of thin bone, with fine teeth on each side, are about 1½ inches in width. Machine-cut and polished, they are of a style often used for infant's hair. A comb of hard rubber, 2½ inches long and 1⅝ inches wide, carries on one face the die-stamped mark, "[I] R Comb C° Goodyear/Patent May 6 1851". The patent referred to is that of Nelson Goodyear, mentioned previously. Another hard-rubber comb, approximately 8 inches in length and 1⅝ inches in width, with both fine and coarse teeth, also bears the mark of the I. R. Comb Co. A similar comb was obtained at Fort Stevenson (G. H. Smith, 1960, p. 227 and pl. 54*d*).

Part of four machine-finished *toothbrushes* of bone, with rows of holes for bristles, are present. One fragment bears on the handle the hand-engraved letter "P", probably a personal initial.

An oval lens of green-tinted glass, in a stamped brass frame, is a part of a pair of *spectacles*. The glass has no magnifying power. Ophthalmic diseases formerly were sometimes treated by using green spectacles. An inventory of goods on hand at Fort Benton in 1851 includes a pair of "Green Goggles" valued at 46 cents (McDonnell, 1940, p. 203).

Parts of several pocket *watches* are present. One is a lunette-shaped plate of brass, 1⅝ inches in diameter, with holes for screws and mechanism but no visible marks. Three are die-pressed parts of cases, varying from 1¼ to 2¼ inches in diameter, and another part is of green-enameled brass.

A small object of cast brass, symbolizing a rattlesnake and measuring 3.4 cm. in length, appears to be part of a pocket *watch chain* (fig. 76d). The head forms one end of an open loop and the body an eyelet. The die-stamped name "Noel" occurs on both sides of the body. Molded clay pipes produced by the firm of Noël Frères, of Lyon, France, have been found on many mid-19th-century sites in the United States. This firm, which made brier as well as clay pipes, was still in existence in 1960 (personal communication from the French Embassy, April 21, 1956). Lyon, long one of the chief manufacturing centers in France, is particularly noted for its metal trades, in-

cluding jewelry. The present specimen may have been made by the Noël firm for export. This supposition is strengthened by the fact that surviving business papers show that the Chouteau Company had contacts with this firm (personal communication from Miss Barbara Kell, Missouri Historical Society, Feb. 14, 1956).

The die-pressed leaf or side of a *locket*, 1⅝ inches in diameter, has a small perforation in the center.

The brass cover of a pocket *matchbox*, 1½ inches in width and ⅝ inch in height, has a crudely hand-scored striking surface. The matchbox was designed to hold friction matches, which were invented by an English chemist, John Walker, in 1827.

Several complete and incomplete *pocketknives* are present. One complete knife, with two blades and mother-of-pearl fittings, is 3½ inches long; another, with two blades and bone fittings, is 3⅜ inches in length. Fragmentary fittings include one of molded hard rubber, inlaid with brass (fig. 76o).

Three die-stamped *collar buttons* of brass and iron are 0.83 cm. high and 1.70 cm. in diameter. One of them appears to have been lacquered.

A straight, nickel-plated *common pin*, 1$^{3}/_{16}$ inches long, exhibits only slight corrosion and may be of recent origin.

FIREARMS, GUNFLINTS, AND AMMUNITION FROM FORT BERTHOLD II

BY G. H. SMITH AND C. S. SMITH

FIREARMS

Relatively few parts of firearms and fittings were recovered from the excavations of the site of Fort Berthold II in 1952. Flintlocks are represented by a steel side plate and frizzen, not measurable; two frizzens of differing design, one of which is 3 inches in length; and part of a cast brass butt plate, 1¾ inches in width.

Percussion pieces are represented by two side plates with cock (fig. 75e and f); two steel butt plates, each 1¾ inches wide, similar to those of the U.S. Army Springfield; and a cast brass butt plate for a rifle or musket, 1¼ inches in width, with the die-stamped letters "E. T." faintly visible on the reverse. A section of the plate had been cut out for another purpose. Other parts of percussion pieces include an iron trigger guard, 7½ inches in length, with an iron screw; a brass ferrule for holding a ramrod on the barrel of a piece; two rear sights of iron, comparable to those of the Springfield, though of somewhat different design, approximately 2⅛ and 3 inches in length; and a portion of a steel ramrod, with the broken rear end pointed and the forward end, about three-eights of an inch in diameter, slotted to hold a cleaning patch.

GUNFLINTS

All but one of the 15 gunflints collected were of two varieties of foreign flint. One variety is opaque black, probably from the quarries near Brandon, Suffolk, England; the other is of honey-colored flint or chalcedony believed to be from quarries in the departments of Loir-et-Cher and Indre, France. Both varieties are notable for their homogeneity. The supposed English flints in the collection are thin and finished with few primary flakings, whereas the French pieces exhibit abundant secondary flaking and retouching or "gnawing" of the margins.

Six dark-colored gunflints (fig. 74i, l, and m), from ⅝ by ⅞ inch to ⅞ inch by 1⅛ inches, appear to be of pistol size (cf. Woodward, 1951, p. 36). Eight light-colored gunflints (fig. 74j and k), which range from 1 inch by 1⅛ inches to 1⅛ by 1¼ inches, were apparently made for muskets.

One pistol-size gunflint (fig. 74h), seven-eighths of an inch square, is of opaque light gray flint of good quality, possibly from a North American source.

Three or four gunflints may not have been used, but the rest show clear evidence of use and a few of these had been so thoroughly battered that they were probably discarded.

AMMUNITION

The cartridges and bullets collected at Fort Berthold II, though limited in numbers, augment considerably the information derived from the few gun parts in regard to the various kinds of firearms used at the post.

Rim-fire cartridges

1—*.44 Henry, copper, plain base. Many of the 51 specimens present have double firing-pin marks, typical of Henry and Winchester rifles chambered for this cartridge. Five have wooden plugs inserted in the empty cartridge, probably to carry premeasured charges of powder for use in a muzzle loader. One specimen retains the lead bullet.*

2—*.44 Henry long, copper, plain base, or single-shot rifle. One specimen.*

3—*.56 Spencer, copper, plain base. One straight case, unmarked. Made for use in the 7-shot Spencer repeating rifle or carbine, and used after 1862 in the Civil War and well after the 1870's on the frontier.*

Center-fire, internally primed cartridges

1—*.45 Government (.45–70), copper, plain base. Benét cup primer. One specimen, unmarked. Made from about 1873 to 1882 for use in U.S. Springfield single-shot rifles, Model 1873, and for other weapons made on contract for the U.S. Army.*

2—*.50 Government (.50–70), copper, plain base. Bar anvil primer. Eleven specimens. Made at the Frankford Arsenal from October 1866 to March 1868 (Logan, 1948, pp. 78–79, 97), for use in U.S. Springfield rifle, Model 1866, and in Sharps and Remington arms made for the U.S. Army.*

3—*.50 Government (.50–70), copper, plain base. Benét cup primer. Eight specimens. Manufacture began in March 1868 and probably continued until about 1880, at Frankford Arsenal (Logan, 1948, pp. 79, 97). Made for use in U.S. Springfield rifle, Models 1866, 1868, and 1870, and for Sharps, Remington, and other arms made for the U.S. Army. One specimen retains its bullet, and appears to have misfired and not exploded.*

4—*.50 Government (.50–70), copper, deep annular depression in base. Martin primer. Four specimens. Manufactured from May to December 1871, at Frankford Arsenal (Logan, 1948, pp. 80–81, 98). Made for use in the same weapons as three, above.*

Center-fire, externally primed cartridges

1—*.44 Winchester (.44–70), brass, with raised center on base. Eleven specimens. Two are marked "W. R. A. Co./ .44 W. C. F.", for Winchester Repeating Arms Company, .44 Winchester Center Fire. Made especially for Winchester Model 1873 and many other rifles and revolvers, and still manufactured. The Model 1873 Winchester rifle was made from 1873 until 1919 (Amber, 1952, p. 216). The unmarked cartridges probably date from about 1880, the marked specimens probably from a later period.*

2—*.44 Smith & Wesson American, brass, plain base. Berdan primer. One specimen, unmarked. Made for use with the Smith & Wesson army revolver, .44 caliber, introduced in 1871, prior to the .45 caliber model. Manufactured ca. 1870–80.*

3—*.45 Government, copper, raised center on base. Winchester. One specimen, marked as having been manufactured "12 [i.e., Dec.] [18]78".*

4—*.45 Government (.45–70), brass, plain base. Seven specimens. Maker unknown. Manufactured for use in Springfield rifles and carbines, Models 1873 and 1888, which were made until 1892, and for other weapons made on contract for the U.S. Army.*

5—*.45 Government (.45–70), brass, raised center on base. Berdan primer. Three specimens. Maker unknown. Manufactured for use with the same weapons as four, above. The Berdan primer, an adaptation by Col. Hiram Berdan of an invention of Col. S. V. Benét in 1866, employs an anvil that is an integral part of the case (Logan, 1948, pp. 8, 79–80).*

6—*.45 Government (.45–70), brass, slightly raised center on base. Three specimens. Maker unknown. Manufactured for use with the same weapons as four and five, above.*

7—*.45 Government (.45–70), copper, raised center on base. The single specimen is marked (clockwise): "R–82–F–4", for rifle (R), Frankford Arsenal (F), April (4), 1882 (82). Carbine cartridges were made in the same caliber, but holding 55 grains of powder instead of 70, hence the need for marking. Manufactured for use with the same weapons as four to six, above.*

8—*.45 Government (.45–70), brass, raised center on base. Berdan primer. The single specimen obtained is marked (clockwise): "R–70–B–45", for rifle (R), Bridgeport (B), .45–70, on the evidence of similarly marked specimens in an original box, manufactured by the Union Metallic Cartridge Co., Bridgeport, Conn. (personal communication from Platt P. Monfort to Caryle S. Smith, Jan. 15, 1953). Such cartridges apparently were made on contract for the U.S. Army, for use with the same weapons as four to seven, above.*

9—*.45 Government (.45–70), brass, rounded base. Two specimens. Logan (1948, p. 141) illustrates and describes a similar cartridge, which he attributes to the Phoenix Cartridge Co. Date unknown. Made for use with the same weapons as four to eight, above.*

10—*.50 Government (.50–70), brass, raised center on base. Berdan primer. Six specimens. Manufactured for use with U.S. Springfield rifles, Models 1866, 1868, and 1870, and for use in Sharps, Remington, and other arms made for the Army prior to 1873. One of the specimens has not been fired, but the bullet and powder have been removed.*

11—*.50 Government (50–70), brass, plain base. Two specimens. Maker unknown. Manufactured for use with the same weapons as ten, above. One has not been fired, but the bullet and powder have been removed.*

Unusual forms of cartridges

In the search for a suitable metallic cartridge, and in order to circumvent various patented designs, many peculiar forms of cartridges appeared in the 1860's. Two varieties, cup primer and lip fire, are represented in this collection. Both are related to rim-fire cartridges used today in that the hammer or firing pin crushes the fulminate at or near the edge of the base.

1—*.45 Plant revolver, copper, concave base. Cup primer. Two specimens, unmarked. Patented in 1863 for use with the Plant Army revolver. The cartridge was placed base downward in front of the cylinder. Most of these cartridges were made by the American Metallic Cartridge Co., for the Eagle Revolver Co., ca. 1863–65.*

2—*.44 Allen revolver, copper, flat base with projecting lip. One specimen, unmarked. Patented in 1860 for use with the Allen and Wheelock Army revolver. The cartridge was loaded at the rear of the cylinder in the conventional manner. Manufactured ca. 1861–65.*

Miscellaneous cartridges

1—*.41-caliber cartridge, rim-fire, for a derringer pistol. One specimen.*

2—*.32-caliber cartridge, rim-fire, for a revolver. Two specimens.*

3—*.22-caliber short cartridge, rim-fire, possibly of the late 1860's. One specimen.*

4—*.30–30 Winchester cartridge, with bullet in place. One specimen. Manufactured after 1890.*

Bullets

1—*.58-caliber Minié. Thirteen specimens. This bullet was designed for use in U.S. military muzzle-loading muskets, Models 1855, 1861, 1863, and 1864, and in weapons made on contract during the Civil War.*

2—*.58-caliber Minié ball, with special base. Seven specimens. Williams patent bullets, used to shoot out the fouling in muskets of this caliber.*

3—*.44-caliber balls. Two spent bullets present, for Winchester arms.*

4—*.44-caliber conical pistol balls. Four specimens.*

5—*.36-caliber conical pistol ball. One specimen.*

6—*.31-caliber conical pistol ball. One specimen.*

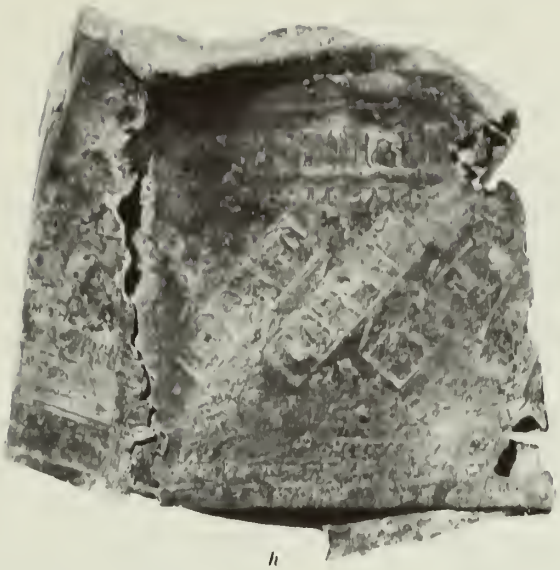
Twenty-three spherical lead balls, used with other muzzle-loading arms, were collected. Corrosion and irregularities make it impossible to judge original size in all cases. Fifteen are approximately .58-caliber, and two are approximately .44-caliber. One ball has been flattened in firing, and others show mold marks or traces of the trimming away of irregularities left by the mold.

Seventeen shot of various sizes, for fowling pieces, were also obtained.

FOOD AND DRINK

Large quantities of animal bones and other faunal remains were obtained in the excavations at Fort Berthold II. Identified native mammals include bison or cattle, elk, deer, antelope, wolf, coyote or dog, badger, beaver, northern red fox, kit fox, gray fox, white-tailed jackrabbit, cottontail, ground squirrel, and deer mouse. Native birds comprise prairie chicken, sharp-tailed grouse, raven, turkey vulture, golden eagle, Canada goose, and geese and ducks of undetermined species. Identified fish include catfish, perch, and carp. Painted turtle, snakes, and the un-

Figure 77. Articles illustrating food and drink at Fort Berthold II.



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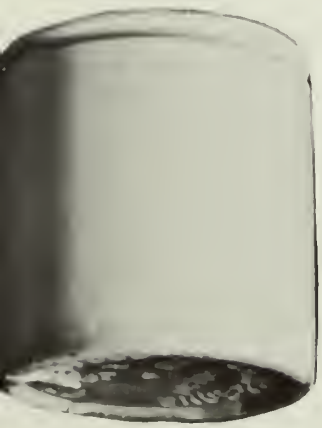

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worked shells of fresh-water mollusks are also present. Many of these animals were probably taken for food.

The absence of wild turkey from the list of identified forms is not surprising since the earlier range of this species apparently did not extend this far up the Missouri. Poultry is also absent. This circumstance is odd in view of the recorded use of chickens at the village nearby.

Horses, swine, and domesticated cats are also represented in the osteological materials. Swine may have been brought in in the form of salt or dried pork rather than as livestock. The presence of cats corroborates documentary evidence that these creatures were occasionally imported to combat rodents. Although no bones of rats were identified in the present collection, the prevalence of rats at trading posts was noted by several writers. For instance, Maximilian mentioned the Norway or brown rat as a pest at Fort Union in the 1830's (Wied-Neuwied, 1906, vol. 23, pp. 235–236; cf. Chardon, 1932, p. 284, n. 295).

Evidences of bulk food commodities available at Fort Berthold II include quantities of charred sugar and coffee, encountered in the area of the burned warehouses on the southerly side of the post, and fragments of sheets of lead foil such as were once used to line boxes of tea.

Numerous tinned iron containers ("tin cans") are further evidence of imported foods available. The various shapes and sizes are of kinds long used for meats, fish, vegetables, milk products, lard, baking power, and other comestibles. Only a few of these containers retain recognizable manufacturers' marks. A container for green peas, a favorite item, has a brass label, affixed with solder, bearing the die-stamped legend, "Conserves Alimentaires/Duclos/Petit Pois Fins/Au naturel/Paris". A lard container has the stamped label of the firm of N. K. Fairbank & Co., of Chicago and St. Louis. A tapering rectangular container (fig. 77h) is of special interest in that it retains a portion of the original paper label, bearing the legend in gold on a red and blue field, "Libby, McNeill, & Libby/Compressed/Cooked/Corned/Beef/Chicago/ . . .", with a view of the packing plant of this well-known firm. Libby, McNeill, and Libby was established in 1863 as the partnership of A. A. Libby and Co.

In 1868 the name of the firm was changed to its present form, and in 1888 the firm was incorporated in Illinois under the new name. Subsequently, it was separated from the parent company, Swift and Company (Moody, 1954, p. 1755). The label on the present specimen appears to be in one of the earliest styles used by the firm, definitely as early as 1875 (personal communication from F. Posten White, Libby, McNeill, and Libby, Feb. 16 and 28, 1955).

Small samples of native foods found in the excavations include squash seeds and plum and chokecherry pits.

The use of marmalade, flavoring extracts, condiments, and the like is indicated by earthenware and glass containers, stoppers, and seals.

A cylindrical jar of off-white glazed earthenware (fig. 77g), 3¾ inches high and 3⅜ inches in diameter, probably for marmalade, bears on the slightly depressed base the die-stamped legend, "Gray & Sons/Patent/1 lb/Portobello". The manufacture of pottery at this Scottish center was begun at an early date.

A flat, clear-glass bottle, 4 inches high, carries in panels on opposite edges the marks in relief, "Rochester" and "Chemical Works". The original paper label on the face of the bottle bears the legend, "Cinnamon" and the manufacturer's name (illegible) and address, probably "Chester, Pennsylvania".

Fragments of three flat, clear-glass bottles, each 4½ inches high, are marked on the face and sides, in relief, "Hope's/Flavoring Extract/New York". A bottle of the same size bears on the sides, "Merrill & Shute" and "Chicago". Another bottle, 4 inches in height, is marked on the sides, "Preston & Merrill" and "Boston".

A flat, clear-glass bottle, 4¾ inches in height, bearing on the sides, "Leamons" and "Aniline Dyes", probably contained coloring matter for kitchen use. Aniline dyes, though poisonous, were once widely used in pharmaceutical preparations.

A round, glass jar, 2½ inches high, lacking the original screw-top, bears on the side, in relief, the legend, "J. Schwab/New York". This squat jar resembles those used today for prepared mustard.

Part of a triangular, clear-glass bottle (fig. 77e), 6 inches high, having pseudo-Gothic designs in recessed panels on two faces, is probably for a condiment such as steak sauce. Designs of this sort, on factory-made objects such as glass, became common in both the United States and Britain about the period of the Crystal Palace (London, 1851).

Fragments of six wide-mouth clear-glass bottles, each 4 inches high, in the form of miniature barrels, probably held condiments. Manufacturers' marks on the bases are illegible.

Two of three greenish glass stoppers for narrow-mouth bottles are marked on the upper surface, "Lea & Perrins". The name of this New York condiment firm has been known for more than a century.

Several complete and fragmentary lead-foil seals for bottles, with lip diameters of 2 inches, carry the die-stamped legend, "Crosse & Blackwell/Purveyors to Her Majesty/[British arms]/21/Soho Square/London", within a plain or beaded margin. A seal for a larger bottle carries this legend in somewhat larger letters. The containers probably held pickles or condiments, both of which are still supplied under this well-known name.

Fragments of only three oval, clear greenish glass flasks, of a style used for whiskey, were found. Two flasks were of quart-size and the third was of pint-size. Each has a circular molded depression in the base, and the two larger ones have panels on one or both faces. One fragment bears a manufacturer's mark, in relief in the circular depression in the base, "L & W". This may be the mark of a glass factory in Louisville, Ky. Glass factories were operating in that city as early as 1850 (McKearin, 1941, p. 606). The scanty evidence of bottled spirits suggests that whiskey and other liquors may have been supplied ordinarily in wooden kegs rather than in bottles.

Of the several wine bottles obtained, one of clear green glass, quart-size and with a deeply recessed base, is of a type often used for fine wines (fig. 77b). The lip had been roughly cut and the neck shows traces of the original lead seal. A pint-size wine bottle of dark green glass has a deeply recessed base also (fig. 77a). A somewhat larger, incomplete bottle of clear greenish glass shows traces of the original lead seal.

A brown glass bottle of one-quart size for bitters (fig. 77d), suggesting a log cabin,

bears the molded legends in relief, "S. T. Drake's/1860/Plantation/X/Bitters", on one shoulder, and "Patented/1862", on the opposite shoulder. Parts of a similar bottle were found at Fort Berthold I. The design patent for this bottle was issued to P. H. Drake, of Binghamton, N.Y., on February 18, 1862 (U.S. Patent Office, 1864, vol. 1, p. 741; not illustrated). P. H. Drake may have been related to Edwin L. Drake (1819–80), discoverer of oil on Oil Creek near Titusville, Pa., who had struck oil in quantity on February 1, 1860, the year commemorated on this bottle (Tarbel, 1904, vol. 1, p. 10). Contemporary photographs show that timber and rough plank siding were used on wellhouses and derricks at Oil Creek, but the bottle design appears to follow the designs of earlier log-cabin bottles. The most famous of these were made during the presidential campaign of William Henry Harrison in 1840, which is specially remembered for its use of the log-cabin symbol (McKearin, 1941, pp. 461–462, 564–565).

A fragmentary hexagonal bottle of clear greenish brown glass for bitters bears parts of the legend, "C. Lediard/St. Louis", which appears on a similar complete bottle from Fort Stevenson (G. H. Smith, 1960, p. 213). The firm of Hastings, Lediard, and Company, including Charles Lediard, is listed in the St. Louis city directory of 1866 as manufacturers of "Lediard's mixed liquors and bitters." Lediard appears to have been a New York member of the firm (personal communication from the Missouri Historical Society, April 9, 1952). A rectangular bottle of brown glass bears on one side the legend, "D. Hostetter's/Stomach Bitters", and in a circular depression in the base, "W. McC. & Co./6". The manufacturer is undoubtedly the well-known firm of William McCully and Company, of Pittsburgh (McKearin, 1941, pp. 564, 600).

Several complete and fragmentary earthenware bottles, probably for ale, are present. A bottle of cream-and-buff-glazed earthenware, 7½ inches in height, shows traces of the original lead seal (fig. 77f). The bottle is unmarked but is probably of Scottish manufacture. A fragment of a similar bottle has a small oval mark impressed near the base, "Murray & Buchan/1/Portobello". A pottery works was established in 1786 at Portobello, now part of Edinburgh, and after having been used for other purposes was re-established in 1830. The business came into the possession of the firm of A. W. Buchan and T. F. Murray, subsequently known as A. W. Buchan and Company, and it continues under that name (Anon., 1952, p. 1413). Fragments of another similar bottle show traces of the hand-throwing process of manufacture. A fragmentary red or gray, unglazed earthenware bottle may be of Dutch manufacture and perhaps was used for gin.

Beer and ale bottles of glass are also well represented. A quart-size beer bottle of clear brown glass, with traces of the lead seal, is marked in relief in a depressed area of the base, "A. & D. H. C." Another bottle, is identical except that periods are lacking after the initials. These bottles were probably produced by Alexander and David H. Chambers, of Pittsburgh, a firm established in 1843 (McKearin, 1941, p. 604). In a new factory built in 1852, and known as the Pittsburgh Glass Works, this firm produced window glass, vials, and bottles. The factory was in existence as late as 1886.

Other beer bottles are marked on the base, "D. S. G. Co./11"; "M. G. Co./6"; and "M G Co L/A" (fig. 77c). A bottle of opaque green glass is marked in part, "A. Arbogast".

Some lead seals from beer and ale bottles were obtained. One specimen, in place on the neck of a dark greenish bottle and covering the cork, bears the stamped legend, "London & Burton/Limited/[small red triangle, perhaps indicating the type of contents]/Bass & Co./London/Bottled Beer Co./. . ." Another specimen is marked, ". . . Pale Ale/Bass & Co./[ ] & Hibbert/London". The brewing firm of Bass, of London and Burton-on-Trent, is said to have been established in 1777.

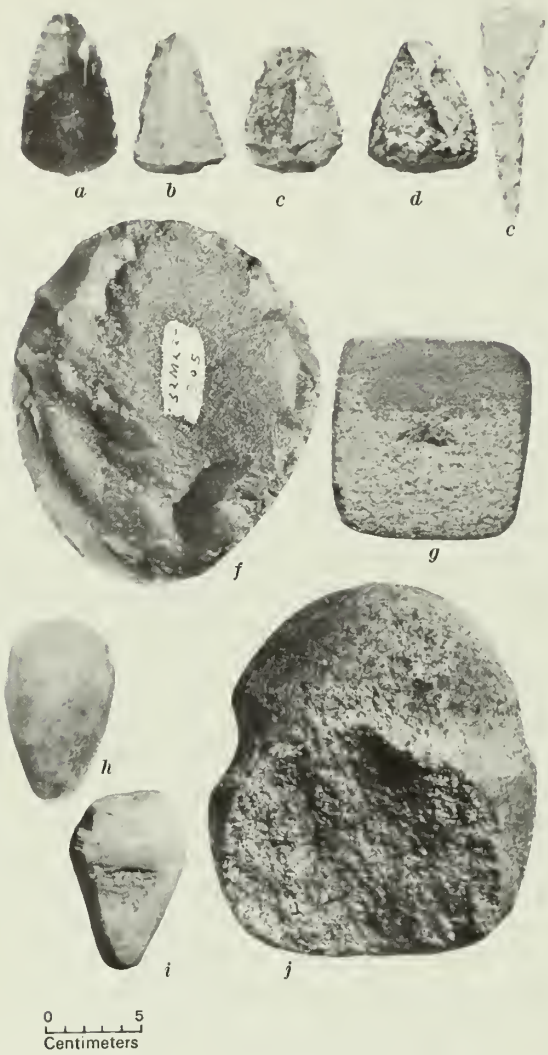
OBJECTS OF NATIVE MANUFACTURE

The presence of Indians at Fort Berthold II, as customers, employees, and dependents of the traders, is attested by the various native-made objects recovered there.

POTTERY

Only eight *sherds* were collected at the site of the post. The lip of the single rim fragment is decorated with close-set, twisted-cord impressions running diagonally across the exterior surface and horizontally around

Figure 78. Artifacts of native manufacture from Fort Berthold II.



the interior surface. The exteriors of the seven body sherds are paddled and wiped or brushed in three cases, and wiped or brushed in the other four.

STONE

There are two fragmentary *projectile points* of chipped stone. One of these, made of gray chert, is a stemless triangular point, lacking the tip. It measures 2.0 cm. in width and approximately 4.5 cm. in length, and is well flaked. The other, of yellowish-gray quartzite, is the midsection of a large, less skillfully made point.

Three *flake knives* are present. One, of white quartzite, measuring 9.0 cm. in length and 7.7 cm. in width, is retouched around the perimeter on the inner surface (fig. 78f). Another, of gray-brown chalcedony or chert, is 7.5 cm. in length and 5.5 cm. in width. The third, a thick flake of Knife River flint, is 4.3 cm. in length and 3.0 cm. in width.

A *drill* of Knife River flint, 5.4 cm. in length and 1.6 cm. in width at the base, is triangular in cross section (fig. 78e). It is carefully retouched along the shaft.

Eight *end scrapers* are of thumbnail size (fig. 78a-d). Seven specimens are complete and range in length from 3.3 to 4.2 cm. and in width from 2.0 to 2.9 cm. One end scraper is made of pinkish gray chert (fig. 78c); the rest are of Knife River flint. All show some evidence of use.

A fully grooved *maul* of granite, circular in cross section, is 8.5 cm. in diameter and approximately 9.5 cm. in length (fig. 78j). The flattened ends are battered by use.

Two *hammerstones* are present. One, a kidney-shaped cobble of granite, 10.0 cm. in length and 7.2 cm. in diameter, shows only slight evidence of use at each end. The other specimen, a discoidal cobble of granite, 10.3 cm. in diameter and 2.9 cm. thick, is slightly battered around the margins.

A fragmentary *grinding stone* of sandstone, 7.5 cm. in diameter and approximately 15.0 cm. in length, shows some evidence of wear. The implement may have been broken in the course of secondary use as an anvil.

A number of fragmentary *tobacco pipes* of catlinite and serpentine are present. The polished bowl of an elbow pipe of catlinite, having an exterior diameter of 1¼ inches, an interior diameter of ½ inch, and a height of approximately 3 inches, was probably lathe-turned (fig. 79j). The bowl was appar-

ently broken when its base was being prepared for metal inlay. Fragments of other pipe bowls of catlinite with exterior diameter of about 1 inch appear to be machine-turned also.

During the 2 years previous to 1866, the Northwestern Fur Company, of St. Paul, Minn., is said to have "manufactured" nearly 2,000 catlinite pipes for trade with the Indians of the upper Missouri (Hayden, 1867, p. 274). Actually, these pipes were probably made by Yankton Dakota craftsmen at the well-known quarries in southwestern Minnesota, for exchange with white traders rather than for direct trade with other Indian tribes. The appearance of catlinite pipes in post inventories confirms the fact that they were items of trade. At Fort Union, in 1851, two "Red Stone Pipes" were listed at $1 each (McDonnell, 1940, p. 212). It seems likely that the present specimens were commercial objects of native origin.

Five fragmentary tobacco pipes are made of serpentine. One of these, the polished bowl of an elbow pipe, with an exterior diameter of 1⅜ inches, an interior diameter of ½ inch, and a height of approximately 3 inches, may have been lathe-turned (fig. 79i). Another fragment is from a bowl, 1 inch in exterior diameter and ½ inch in interior diameter, which is flattened on one side (fig. 79h). Another piece is from a bowl with an exterior diameter of 1½ inches and an interior diameter of ½ inch. The fourth fragment is from a bowl with an exterior diameter approximately 1 inch and an interior diameter of ½ inch. An incised band, ¼ inch in width, encircles the lip. This pipe was apparently carved and polished by hand. The fifth fragment appears to have come from the forward part of a pipe, beyond the bowl and away from the smoker.

Comparable tobacco pipes of catlinite and serpentine, some with lead inlay, were recovered from the village.

Three *tops* are made of gray or reddish limestone or sandstone. The two complete specimens measure 4.5 and 4.7 cm. in length and 2.5 and 3.5 cm. in diameter, respectively (fig. 78h and i). One has a small depression in the larger end (fig. 78i). These tops may be local copies of machine-made articles. Similar objects were obtained from the village and Fort Berthold I.

Part of a *chunkeystone* of serpentine is present. The object measures 2.6 cm. in thickness and approximately 7.5 cm. in diameter. The central perforation is biconically drilled and the surfaces show some polish.

Another possible gaming piece is a flat pebble, 1.7 cm. thick and approximately 5.2 cm. square, slightly shaped by pecking and provided with a depression in the center of each face, probably for thumb and forefinger (fig. 78g).

Three thick-walled, cylindrical *beads*, of material similar to quartzite, are 0.8 to 1.5 cm. in diameter and 0.6 to 0.8 cm. in length. They are polished, perhaps through long use, and may have been heirloom pieces.

BONE AND ANTLER

There are three bone *dominoes*, probably of local manufacture. One of these, a "four-three" (fig. 79d), was made from a flat section of animal bone. Measuring 4.5 cm. in length, 1.8 cm. in width, and 0.4 cm. in thickness, it is hand-cut, carved, and polished. It has holes, 0.3 cm. in diameter, for the spots. Another specimen, a "six-three," measuring 4.1 cm. in length and 2.2 cm. in width, is a bone splinter with the cancellous tissue on the under surface left rough (fig. 79c). The third domino, a "six-five," is similar to the preceding one except that the under surface is scored diagonally (fig. 79b). Dominoes from the village were described previously.

A cut section of animal rib, with finely engraved lines and opposed triangles filled with vertical lines, is probably part of an *ice-glider* or "snow snake."

Two fragmentary *whistles* of bird bone are present. One of these, 1.5 cm. in maximum diameter, is cut diagonally at one end in the manner of the fipple of a wind instrument. The other, 1.8 cm. in maximum diameter, has a series of round holes or dots and an incised line at one end.

There are two fragmentary *pendants* made from animal teeth. One of these, 7.2 cm. in length, apparently part of a canid incisor, is perforated for suspension. The other, 3.6 cm. in length, probably a split tooth of elk, is also perforated.

Two pieces of cancellous tissue, bearing traces of bright red pigment, may be identified as *paintbrushes*.

Five antler-tip *flakers*, ranging in length from 8.6 cm. to more than 9.5 cm., are present. In each case, the base has been cut or sawed and the body has been shaved. None of them show clear evidence of use.

Figures 79 and 80 (opposite page). Artifacts of native manufacture from Fort Berthold II.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Twenty-eight *gaming pieces*, fashioned from bits of glazed earthenware or glass, are present. Nineteen round or oval pieces, of earthenware, vary in diameter from 1.1 to 4.2 cm. (fig. 80e-j and m-w). A subrectangular piece, also of earthenware, measures 5.2 by 6.2 cm. (fig. 80k). Some of these objects are flat, and others have curved surfaces. Wares represented include queensware in white and dark brown, buff, and blue and white; transfer ware in dark blue, red, and other shades; and hand-decorated white ware with designs in red and green. The subrectangular specimen is undecorated but carries the manufacturer's mark, the British arms. Similar gaming pieces of white glazed earthenware obtained from early 19th-century Arikara graves (Wedel, 1955, p. 155) are somewhat larger than the present specimens.

Seven gaming pieces in the collection are made from thin window glass (fig. 80a-d), and one is made from bottle glass. All were apparently pressure-flaked, ordinarily from one side only.

Similar pieces from the village were described previously.

Two end scrapers of native manufacture are fashioned from bottle glass. One of these, made from the base of a bottle of clear brown glass, is 3.2 cm. in length, 3.0 cm. in width, and 1.0 cm. in maximum thickness (fig. 79e and f). The under surface, shaped by pressure flaking, retains in relief the initials, "[A. & D.] H. C." The same mark occurs on a complete bottle from Fort Berthold II, described above. The other scraper, made from part of the wall of a bottle of clear brown bottle glass, measures 2.8 cm. in length and width, and 0.6 cm. in maximum thickness (fig. 79g). The interior surface of this specimen was modified by pressure flaking. Artifacts of glass, of native manufacture, have been found elsewhere in the New World. For example, Griffin (1949, p. 56) describes a scraper from Florida which was made from green bottle glass of the 17th century.

METAL

Two objects of metal, of native manufacture, are present in the collection from Fort Berthold II. One of these is a fragmentary *scraper* of tinned iron, measuring 3¾ inches in width and approximately 5 inches in length. It is folded over along one edge, presumably for protection in holding the tool against the palm of the hand.

The other object is a *whistle*, fashioned from a section of the muzzle of a steel gun barrel (fig. 79a). It is 14¾ inches long and 9/16 inch in diameter at the muzzle end. The hole, ⅜ inch in diameter, is 3 inches from the muzzle end, on the side opposite the original fixed sight. A whistle made from a section of gun barrel, which was found in stripping the alinement of the village palisade, was described previously.

8

CULTURAL CHANGE AT LIKE-A-FISHHOOK VILLAGE

Inasmuch as the structural and artifactual evidence obtained through archeological investigations at Like-a-Fishhook Village is of both native and non-native origin, some discussion of native culture change during the occupation of the village is warranted. As has been suggested, the material remains, though indicating diverse and varied changes during the period as a whole, are seldom associated with distinct levels or stages in the development of the community. Unfortunately, observers who might have recorded evidence of the kind while it was still fresh seem rarely to have done so.

Lacking abundant physical evidence needed to document changes in the native culture in detail, we can nevertheless draw certain inferences about these changes from the material remains and surviving records. A few comments by contemporary observers, though restricted in scope, suggest something of the nature of the cultural forces once in operation, and thus have a special significance at this distance from the reality of the former community and from the humans who created and used it as their home.

Although in external characteristics the settlement appears at the outset to have rather closely resembled ancestral villages elsewhere on the upper Missouri, it is clear that subsequently it came to differ strikingly from them. By the year 1845, when the Hidatsa and Mandan first started to cluster at this place, the two peoples could scarcely have been the autonomous and self-sufficient groups they had previously been. The third group, the Arikara, may well have changed in similar ways at a still earlier time. With the establishment of the town, influential white traders

took up residence in or near it, some with Indian-white families. This fact suggests that a measure of economic and probably political and social reorganization of village life had already begun.

Thereafter, fundamental shifts from a state of economic independence occurred, perhaps largely as a result of the regular participation of the separate ancestral villages in an export trade in furs, hides, and other native products. The export trade offered new supports for their economy, then reasonably well balanced by regular imports of weapons and tools, household goods, ornaments, yard goods, cheap garments, foodstuffs, and spirits. Such a change must soon have entailed changes of other kinds. If this was the case, these peoples would seem to have here passed one of the chief milestones on their historic path—that of actual dependence upon an export-import trade that was managed and controlled by alien Whites.

Sustained contacts between these Indians and resident traders, as has been seen, had in fact been established before the once independent Hidatsa and Mandan came together at Like-a-Fishhook Village. With the building of Fort Clark in 1830, the Mandan and Arikara appear to have been brought under the effective control of the traders and integrated into the then flourishing commerce. Probably on the basis of discussions with both traders and villagers during his brief visit of 1862 to Like-a-Fishhook Village, Morgan stated that until about the year 1800 these two tribes "had substantially been shut out from intercourse with our people and were still practicing their primitive arts and ancient usages" (Morgan, 1871, p. 30). Though these tribes, as he noted, had previously been reached by traders, he believed that as late as 1829 they had been "so remote and inaccessible that trade had made little or no impression upon their mode of life." That they were then still using mauls and hammers, bone implements, and pottery of their own manufacture was, he felt, demonstrated by the presence of such objects in old and abandoned dwellings near Fort Clark.

Morgan was apparently not aware of the extent of alien influence to which the village peoples had been exposed, even before the establishment of Fort Clark, evident in accounts such as that of Pierre-Antoine Tabeau (Abel, 1939), who had traded among the Arikara before 1804. Ewers' study (1954) of the earlier contacts between these and other native peoples and the traders, and of the organization and system of the earlier trade, also clearly reveals the long-standing integration of the villagers into the alien commercial system.

Morgan's brief comments on the changing culture of these peoples may be compared with those of Matthews, who visited them at Like-a-Fishhook Village soon afterward and had better opportunities to consider such matters. Matthews stated:

Although these Indians have so long known the Whites it is only within the last twelve or thirteen years [i.e., since ca. 1865] *that our intercourse with them has been sufficiently extensive to materially modify their customs and ideas. Previously, excepting two or three small military expeditions and an occasional traveler, the only whites they saw were the few connected with the fur-trade; and these persons, as a rule, sought to produce no change in the Indian, but, on the other hand, learned the Indian languages, adopted Indian customs, and endeavored to assimilate themselves to the Indians as much as possible, often vying with one another in their efforts to become amateur savages. Before the period to which I refer, we had traded to them woven fabrics and many trinkets of little value, had taught them the use of firearms and iron tools, had given them an opportunity for acquiring a taste for coffee and ardent spirits, but, in other respects, had wrought little change in their minds or manners. Eight years ago* [i.e., about 1869], *they knew nothing of the use of money, and nothing of the English language except a few oaths and vulgar expressions, which the more docile had learned. The conservatives were still much the same as their grandfathers were* (Matthews, 1877, pp. 30–31).

Matthews also drew attention to events of the period beginning in 1862, contemporary with the outbreak of the Minnesota Sioux, such as the visits of large military expeditions and the establishment of military posts nearby, the emigration of Whites by way of the Missouri to the Montana gold mines, and the more frequent visits of steamboats each year. He concluded:

The Indians were thus brought into more intimate contact with the Americans, the seclusion of their country was ended, and a

change more general and rapid in their affairs initiated. Since then, the game has been killed off, they have grown weaker, poorer and more dependent, and, in many other respects, they have altered for the worse. As yet, no sustained effort has been made to Christianize them; and but little has been done to advance them in civilization. On the other hand, they have, according to some standards of excellence, bettered in many respects. They have of necessity given increased attention to the cultivation of the soil. The men, as before stated, have learned to perform labor, which, in earlier days, they deemed degrading. Many of their savage customs and ideas have been abandoned; and many of their ceremonies have been simplified or have fallen into disuse. They are generally less superstitious than they were ten years ago, and more skeptical with regard to their old myths (Matthews, op. cit., p. 31).

A further example of important change in the village culture cited by Matthews was that of the enlistment in the U.S. Army of scouts from the settlement. He was struck by what he deemed the beneficial effect upon these men of military camp discipline, through which they had learned the responsibilities of soldiers, and had splendidly performed their duties, even at the sacrifice of their lives.

Whether the dependence of the Three Tribes upon an export-import trade with Whites should be understood as having been firmly established by 1830, as Morgan believed, or at some earlier or later time, once such regular trade had been established, their dependence upon it probably increased steadily. The process of change appears to have been irreversible, and a decisive cultural transformation occurred before the village was abandoned. This economic dependence may have been substantially complete by the year 1862, when the three tribal groups came together here. Thus it seems probable that within a single generation after 1845—approximately coincident with a decline in the export-import trade and its partial replacement by agency issues of annuity goods and rations in times of direst need, and through the parceling out of tribal lands by family allotments for subsistence farming of the kind then practiced by Whites elsewhere—the economic system of the village was basically altered. Concurrently, patterns of community life other than those of purely economic nature doubtless changed, in keeping with the new regime.

The preceding is not intended to suggest that the export-import trade was the sole factor tending to induce change in the traditional culture. There were other significant factors, such as the disastrous decline in the sources of furs and hides, which was so great as to lead to impoverishment of the village. A further potent influence made itself felt in the late 1860's, when Indian agents and their assistants took up residence at the village. With the authority of the Federal Government and with unrelenting pressure, these agents strove to effect changes in basic patterns of food production, housing, and dress, as well as in other spheres of village life. In time, their influence came to outweigh that of the traders. Trade in furs, robes, hides, and other native products had long been carried on, and may therefore have been the most sustained single influence for change in the native culture. In the absence of documentary evidence revealing pertinent details in full, the material remains from the village and the trading posts reveal the extent of change that was taking place and something of its direction.

Unanswerable questions are suggested by the exchanges, between these Indians and traders, of countless commodities and articles sought and received, concerning methods and operations of the traders, and on the local effects of the trade. Though some general information is available, there appear to be no consecutive business records for these posts, comparable to those embedded in surviving records for other contemporary establishments (e.g., inventories of imported trade goods, local purchases, and equipment at Forts Alexander, Benton, and Union, in McDonnell, 1940, pp. 195–230). Only the briefest remarks on the conduct of trade here are known, such as those of Kurz (1937, pp. 234–237), who in 1851 served briefly as clerk at the first Fort Berthold and at Fort Union; of Boller (1959), who in 1858 served at the second Fort Berthold; of Larned (in Collins, 1925), who late in life described the trade at the same post in the late 1860's; and of Van Ostrand (1942), in the 1870's. But these remarks afford little more than hints of what was taking place within the native culture.

About 1854, Denig (1930, pp. 457–466), who for many years represented the Chou-

teau firm at nearby Fort Union, replied at length to official inquiries concerning the Indian trade, basing his remarks upon long experience with the many tribes of the upper Missouri. But his responses, like the other comments mentioned, are too generalized, as well as too clearly partial to the interests of white traders and of his firm, to shed light directly upon circumstances and results of the trade at Like-a-Fishhook Village. The tenor of his opinions on the trade and its effects among the native clientele of the region is shown in his opening remark, "There is no doubt that the trade has promoted the general cause of civilization" (Denig, op. cit., p. 457). Denig did not comment on the fact that the trade had already lead to the loss of economic independence by the various peoples of this region.

More revealing, for present purposes, are some of Denig's more specific comments, such as those regarding the use by the Arikara of pottery vessels of their own manufacture, which he deemed "tolerably good and well shaped," and of stone mortars for crushing corn and other hard substances. Though he regarded such equipment as clumsy, he noted that this pottery was preferred by the Arikara to metallic utensils, whereas the latter could be had at what he regarded as "a trifling cost," and added that the Indians continued the manufacture of their pottery utensils, and would scarcely exchange them for others, "to us more convenient and durable" (Denig, 1961, p. 51; also in Hayden, 1862, p. 355). Denig's testimony as to resistance on the part of the Arikara women to adopting such articles as metal kettles, of unquestioned usefulness to Whites, suggests that the commonly held view that once trade goods became available they were immediately sought and adopted by Indians, and instantly replaced native equivalents, may be misleading. It seems probable that most such new articles and commodities would have been accepted and adopted only after a period of trial and adjustment, unless in the native view they were clearly more effective than native equivalents. Firearms and metal knives, axes, awls, and the like seemingly would have belonged in the latter category.

Precise information on the use at the village of domestic objects of metal was obtained by Wilson (1917, p. 120) from the recollections of Buffalo-bird Woman (born about 1839), a Hidatsa who had lived there. She recalled that the first metal pots or kettles obtained by the Hidatsa were of yellow tin (i.e., brass) and that the French and "Cree" also traded them kettles of red tin (i.e., copper). However, as long as they could obtain their own clay pots, her father's family "did not use metal pots much, because the metal made the food taste." She recalled that when, as a small girl, her family had been given food cooked in an iron pot, they could at once detect the fact because they could taste and smell the iron in the food. Buffalo-bird Woman added that when she was about 18 years old (about 1857) her family began to cook in an iron pot, though they had had a great iron kettle before she was born.

At the same time that the villagers showed a reluctance to obtain and use metal utensils of foreign design and manufacture, their own production of equivalent articles seems to have declined, as is suggested by the scanty pottery fragments recovered in excavation. Moreover, the craftsmanship of Arikara, Mandan, and Hidatsa potters degenerated steadily throughout the 19th century (Wedel, 1957).

Another manifestation of change in the material culture of the Three Tribes is the village palisade, probably suggested by, and built under the supervision of, the trader Kipp. The rectilinear plan of the palisade sets it apart from enclosures of earlier historic and prehistoric villages of the upper Missouri that were provided with such protective devices. Though the matter is in doubt, the provision by the Arikara, in 1862, of an open ceremonial area in their own settlement, a provision not evident in previous community plans of this tribe elsewhere, may have been borrowed directly from the plan of the older Hidatsa-Mandan settlement.

Physical change within the village was recorded in the census of dwellings of 1872, previously cited. This showed the use of both earth lodges and log-wall structures of non-native style. The latter structures eventually came to have windows, chimneys, and other provisions, as alien to native building traditions as were the cabins themselves. The adoption of this new type of dwelling may be the most far-reaching change in the material culture of these peoples. Log cabins are still favored by the descendants of these villagers.

Another manifestation of culture change at this place was the replacement, by the Hidatsa and Mandan, of their ancient custom of exposing human remains on scaffolds, sometimes followed by interment of skeletal parts, with primary interment in the flesh (Alden in Yarrow, 1881, p. 161). Primary burial appears to have been practiced by the Arikara at an earlier date. This noteworthy change in Hidatsa and Mandan custom may have come about through the urging of the traders and of the missionaries, who also lived here after 1876.

With respect to subsistence, alien foods such as small grain and potatoes came to be planted here, the latter at least by 1867 (Smet, 1905, vol. 3, p. 885), while beef and pork in dried or salted form were probably available at the posts on occasion, before the inauguration by the agents of issues of such rations and, occasionally, of live oxen for slaughter. The presence of chickens and cattle was noted as early as 1853 (Saxton, 1855, p. 251). Horses, acquired long before 1845, were owned in considerable numbers by the villagers and were important to them in trade with Whites and other Indian tribes. That horses no longer useful for trade or on the hunt were consumed in times of want cannot be doubted, but such sacrifices would probably have been made under no other circumstances.

Few facts can be cited concerning traffic in alcoholic liquors, which undoubtedly accompanied the trade in hard goods at this village as it did elsewhere. The introduction of liquor into the Indian country, beyond the organized states and territories of the Union, was forbidden by various statutes and regulations, before and after the Act of Congress of July 9, 1832, which established within the War Department the Office of the Commissioner of Indian Affairs (commonly referred to as the Office of Indian Affairs). However, it has been observed that "while the government steadfastly maintained on its statute books a regulation designed to protect the Indian, it was never able to carry it into effect" (Chittenden, 1902, vol. 1, p. 31). That such should have been the case is but a reflection of customary methods of the Indian trade at this period, methods in which liquor was an essential ingredient or accompaniment of the trade, wherever and whenever it could be provided. Contemporary documentary evidence from any source concerning such illegal trade at the village and its posts is understandably scanty. It is possible that this traffic was of lesser importance in the present instance than at certain other centers of native trade on the upper Missouri, such as Forts Pierre and Union, for which there is an abundance of relevant evidence, frequently implicating the traders. Since its existence here must be inferred, probably from the outset, it is safe to assume that traffic in liquors was a factor of major significance in facilitating, and often doubtless encouraging, native culture change.

It is logical to believe that trade with Whites acted as a strong stimulus to changes in political, religious, and social organization. The facts concerning the changing roles of chiefs, priests, and other leaders are, however, obscure. As has been noted, some of the village leaders were not native here, nor even members of the tribes by direct descent. Although this had unquestionably been true from aboriginal times, these historic cases suggest that aboriginal patterns of tribal adoption were reinforced, and perhaps even expanded, by the trade itself, inasmuch as full adoption into the village would have offered ambitious males hope of material advancement and added prestige.

Some details concerning the career of at least one such person are known. This individual, though of different tribal affiliation and perhaps not a full member of this community, had resided here for some years, first ensconced in a remnant of an early opposition post, and he was specially remembered because of his role as a medicine man or curer. This was the Santee, E-ten-ah-pen-ah. This "old doctor" and the women of his extensive domestic establishment appear to have enjoyed special privileges from both traders and villagers. In his contemptuous account of this man, Boller (1959, p. 91) states that, upon being forced to give up the "architectural pile" that had served as his dwelling, the Santee had "purchased" a lodge in the village with his two horses. It thus seems probable that he had succeeded in becoming an adoptive member of the village.

Paralleling the adopting of certain males, perhaps ordinarily as adults, was the recruitment of marriageable girls and young women, especially from Sioux bands, by means of raids conducted by young men of the village.

Women were responsible for the actual processing of robes and hides, as well as for propagating and preparing agricultural commodities. They were needed in even greater numbers in order to meet the increasing market demand for these and other items.

Indian "soldiers" at the trading posts served as hunters and police. Among them was Raising Heart, probably a Hidatsa, who served at Fort Berthold II in 1858 (Boller, 1959, p. 55). Soldiers, like chiefs and priests, had been part of the aboriginal patterns, but the fact that the position was adapted by the traders to their own purposes is of note, since these representatives of the alien neighbors undoubtedly exerted strong influences for change by reason of their special authority and importance.

Trade between villagers and Whites led to important changes in marital and kinship patterns, sometimes with an increase in polygyny. Data on the composition of family units at this place, recorded by lodges and showing tribal affiliations, are preserved in unpublished census schedules of the Office of Indian Affairs, in the National Archives. These schedules appear to be systematic and comprehensive, but they nevertheless may prove inconclusive in view of the relatively late date at which they were made.

Complementing the scanty documentary evidence of culture change at the village is the meager testimony to changes that had occurred within the culture of the resident Whites. By living near, and frequently with, the villagers these men were likewise exposed to influences fundamentally different from those characterizing the social groups from which they had come. Isolated for long periods in such remote places as this, the traders were forced to adapt, or in some cases chose to adapt, to the customs of their native neighbors. An example is James Kipp, who lived in this region from about 1822 to about 1860, and is said to have had several Indian families, as well as a white wife and children elsewhere (McDonnell, 1940, p. 270, n. 75).

It is scarcely surprising that, like Kipp, other traders should have accepted native customs as their own, sufficiently to allow for new marital connections, and Kipp's adaptation could be matched by other examples. Although such manifestations of acculturation to native ways as establishing new kinship ties may sometimes have been merely superficial, or motivated by a hope of greater profits, still further steps were, on occasion, undoubtedly taken by some of the traders. Referring specifically to Kipp, by whom he felt that the painter George Catlin had been strongly influenced to romanticize the Mandan, Matthews wrote with conviction:

I have often observed on the frontier that white men, who have lived long with any particular tribe of Indians, acquire a great sense of loyalty to such tribe, that they hate its enemies, love its friends, sound its praises and maintain its superiority to all other tribes (Matthews, 1888, p. 269).

Adjustments made by the traders to other men's ways are but vaguely discernible in such material spheres as housing, subsistence, and dress. These pioneers of an alien civilization were key agents in a thinly dispersed but closely integrated economic system, itself then undergoing drastic changes as a result of technological and industrial developments. The conditions, processes, and results of historical trends manifested in these frontier settings, though they can perhaps be more readily reconstructed from collateral evidence than can those surrounding native culture change, are not always easy to trace. Such matters as the general organization and conduct of the trade have not been ignored by economic historians (e.g., Lippincott, 1916), and certain recent studies embodying more specific details (e.g., Sunder, 1963 and 1965) have shed new light on this fundamental topic in the history of the West.

9

CONCLUSIONS

The foregoing account of the composite community known as Like-a-Fishhook Village to its native builders and occupants, and as Fort Berthold Indian Village to Whites who also built and lived nearby, has surveyed documentary and archeological evidence of its physical history, taking note of the presence of both Indians and Whites. The documentary evidence has been derived from the more readily accessible sources. Other primary records, such as those preserved in the National Archives, have not been examined. Inasmuch as further investigation of the site itself is no longer possible, emphasis has been given to the fresh evidence acquired during the archeological salvage work undertaken there.

No attempt has been made to place the available material evidence of the Indian village in any framework of long-term cultural development. Nor, for the related trading establishments, has a systematic review of parallel evidence from comparable posts been offered. Comprehensive studies of developments within native cultures, represented there in late historic forms, have been initiated by others (e.g., Bowers, 1960 and 1965; Bruner, 1961; Wood, 1967), and future research will undoubtedly reveal still more of the scope and variety of those developments during relatively long spans of time, thus opening vistas of great interest to historical anthropology. By contrast, little progress has been made thus far in studies of material evidence of the earlier non-native settlements in the West.

For the site itself, a contour map is now available on which recognizable physical evidence of human effort of whatever kind is recorded. The village area was sampled by excavation of selected structures deemed representative or worthy of attention in view of their distinctive nature and use, and this

work yielded groups of associated artifacts and specimens—the only large collections of the kind extant. The sites of two trading posts were also exposed—the evidence on the precise location and nature of the earlier one being wholly new—and from both of them structural and artifactual evidence was gathered. Inextricably associated with the materials of native affiliation, these alien remains reveal important parts of the context in which the village existed, as well as certain physical characteristics of these less well-known trading establishments themselves. The evidence on structures of several kinds and the array of artifacts and specimens—though each category is somewhat random as a result of the manner in which deposits had been created and preserved—relate to matters in both native and alien affairs for which contemporary written records are frequently lacking. The material data that have been reviewed are in large measure new, despite an interest in the village and its peoples sustained over a considerable period.

This former community is of special interest with respect to the complex intertribal and interracial relationships established within it. At this place, two previously independent native tribes, the Hidatsa and certain remnants of the Mandan, chose to settle together in a single village which, though it endured for several decades, was to undergo revolutionary changes. Here, Whites also took up residence, in trading posts subsequently used for other purposes, and they remained as householders in the extended community throughout its life. The relatively long survival of the joint settlement of Indians and Whites is not the least remarkable facet of its kaleidoscopic history. And at this place, these Indian peoples were to give up the greater part of their traditional culture.

Notwithstanding elements in the natural and cultural environment inimical to Indians and Whites alike, the nucleus of the village grew in size and additions were made to the facilities for trade, though even then trade was declining in the region. Physical expansion of the village was soon to result in congestion and almost total disarrangement of the original community plan. Construction of the initial trading post for a time precluded growth of the village northward, and the building of a second post, on the opposite side, prevented growth in that direction. Only the burial area, on the east, remained inviolate. Thus when the Arikara came to settle here, the sole remaining space was that which had been occupied by the first post, recently destroyed. Still later construction by Whites further aggravated the problem of living space, and the community appears to have been approaching a state of strangulation, cultural as well as physical.

Overcrowding, precarious subsistence and periodic famine, appalling incidences of disease and death, exploitation by others, and countless other grievous burdens had somehow been borne by the villagers. Now, however, an unprecedented, irresistible force was to bring about actual extinction of the village and its appendages. This took the form of an official order requiring that the community be abandoned and that the villagers resettle on separate land allotments elsewhere on their reservation. The drastic measure was justified in official quarters as the only effective way of improving the lot of this long-suffering group. By an irony of history, the measure was to impose new hardships in exchange for the old.

Consideration has been given to the effects of the acceptance of alien ways by the villagers, as manifested in certain material aspects of their culture while living at this place. The effects of alien ways in the nonmaterial realms may have been even more profound. In view of the relatively brief time allowed them for adjustments in their mode of life, these peoples exhibited an extraordinary capacity for culture change. When the community came into being, they were still living in essential accord with traditions and customs fashioned during the course of centuries of adaptation to delicately balanced and hostile natural and cultural environments. When the villagers were forced to give up the settlement, those customs and traditions could no longer be perpetuated. Nevertheless, these peoples continued to preserve their separate identity.

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Abel, Annie Heloise, ed.
1939. Tabeau's narrative of Loisel's expedition to the upper Missouri. Translated by Rose Abel Wright. Norman.

Amber, John T., ed.
1952. The gun digest. 7th ed. Chicago.

Anon.
1898. Description and rules for the management of the Springfield rifle, carbine, and Army revolvers; Caliber .45. Washington.
1940. McKesson & Robbins: its fall and rise. Fortune, vol. 21, no. 3, pp. 72–75 ff. Jersey City.
1952. Craftsmanship in stoneware. Pottery Gazette and Glass Trade Review, vol. 74, pp. 1413–1415. London.

Bannerman, Francis (Sons)
1949. Military goods catalog, no. 27. New York.

Barbeau, C. Marius
1940. Indian trade silver. Transactions, Royal Society of Canada, ser. 3, vol. 34, sect. 2, pp. 27–41. Ottawa.

Boller, Henry A.
1959. Among the Indians; eight years in the far West, 1858–1866. New edition, ed. by Milo M. Quaife. Lakeside Classics. Chicago. Original edition, Philadelphia, 1868.
1966a. The letters of Henry A. Boller: upper Missouri River fur trader. Ed. by Ray H. Mattison. North Dakota History, vol. 33, no. 2, pp. 106–219. Bismarck.
1966b. Journal of a trip to, and residence in, Indian country [1858]. Ed. by Ray H. Mattison. North Dakota History, vol. 33, no. 3, pp. 260–315. Bismarck.

Bowers, Alfred W.
1950. Mandan social and ceremonial organization. Chicago.
1965. Hidatsa social and ceremonial organization. Bureau of American Ethnology. Bulletin 194. Washington.
MS. A history of the Mandan and Hidatsa. Unpublished Ph. D. dissertation, 1948. University of Chicago.

Bruner, Edward M.
1961. Mandan. *In* Perspectives in American Indian culture change, pp. 187–277, ed. by Edward H. Spicer. Chicago.

Bryan, John Albury
1943. Molded iron in the middle West. Antiques Magazine, vol. 43, no. 2, pp. 79–81. New York.

Bushnell, David I., Jr.
1922. Villages of the Algonquian, Siouan, and Caddoan tribes west of the Mississippi. Bureau of American Ethnology, Bulletin 77. Washington.

Canfield, Sarah E.
1953. An Army wife on the upper Missouri [Diary, 1866–68]. Ed. by Ray H. Mattison. North Dakota History, vol. 20, no 4, pp. 191–220. Bismarck.

Catholic Encyclopedia
1907–12. Ed. by Charles G. Herbermann, and others. New York.

Chapel, Charles E.
1951. The gun collector's handbook of values. 2nd ed. New York.

Chardon, Francis A.
1932. Journal at Fort Clark, 1834–1839. Ed. by Annie H. Abel. Pierre.

Chittenden, Brig. Gen. Hiram M.
1902. The American fur trade of the Far West. 3 vols. New York.

Collins, Ethel A.
1925. Pioneer experiences of Horatio H. Larned. Collections, State Historical Society of North Dakota, vol. 7, pp. 1–56. Bismarck.

Culbertson, Thaddeus A.
1952. Journal of an expedition to the Mauvaises Terres and the upper Missouri in 1850. Ed. by John F. McDermott. Bureau of American Ethnology, Bulletin 147. Washington.

Culin, Stewart
1907. Games of the North American Indians. 24th Annual Report, Bureau of American Ethnology, 1902–03, pp. 3–846. Washington.

Curtis, George Louis
1889. The last lodges of the Mandans. Harper's Weekly, vol. 33, no. 1684, pp. 246–247 and 249. New York.

DeLand, Charles E.
1902. Notes on "Old Fort Pierre and its neighbors," by Frederick T. Wilson. South Dakota Historical Collections, vol. 1, pp. 317–379. Pierre.

DeLand, Charles E., ed.
1918. Fort Tecumseh and Fort Pierre Journal and Letter Books [1830–

1848]. Notes by Doane Robinson. South Dakota Historical Collections, vol. 9, pp. 69–239. Pierre.

Denig, Edwin T.

1930. Indian tribes of the upper Missouri. Ed. by J. N. B. Hewitt. 46th Annual Report, Bureau of American Ethnology, 1928–29, pp. 375–628. Washington.

1961. Five Indian tribes of the upper Missouri: Sioux, Arickaras, Assiniboines, Crees, Crows. Ed. by John C. Ewers. Norman.

Densmore, Frances

1923. Mandan and Hidatsa music. Bureau of American Ethnology. Bulletin 80. Washington.

1948. A collection of specimens from the Teton Sioux. Museum of the American Indian, Heye Foundation, Indian Notes and Monographs, vol. 11, no. 3, pp. 163–204. New York.

Dillon, Capt. John G. W.

1924. The Kentucky rifle. National Rifle Association of America. Washington.

Dingman, R. J., and E. D. Gordon

1954. Geology and ground-water resources of the Fort Berthold Indian Reservation, North Dakota. Geological Survey, Water-Supply Paper 1259. Washington.

Donelson, Lt. Andrew J., Jr.

1855. [Report, May–July, 1853.] *In* U.S. War Dept., Reports of explorations and surveys to ascertain the most practical route for a railroad from the Mississippi River to the Pacific Ocean, 1853–54 (Pacific Railroad Reports), vol. 1, pt. 2, pp. 231–247. 33d Congr., 2d sess., S. Ex. Doc. 78 (serial 758–768), and H. Ex. Doc. 91 (serial 791–801). Washington.

Dunbar, John B.

1880. The Pawnee Indians; their history and ethnology; their habits and customs. Magazine of American History, vol. 4, no. 4, pp. 241–281, and vol. 5, no. 5, pp. 320–345. New York.

Dunn, Adrian R.

1963. A history of old Fort Berthold. North Dakota History, vol. 30, no. 4, pp. 157–240. Bismarck.

English, Sgt. Abner M.

1918. Dakota's first soldiers; History of the First Dakota Cavalry, 1862–1865. South Dakota Historical Collections, vol. 9, pp. 241–307. Pierre. Original ed., Yankton, S. Dak., and elsewhere, 1900–01.

Ensko, Stephen G. C.

1927–48. American silversmiths and their marks. 3 vols. New York.

Ewers, John C.

1954. The Indian trade of the upper Missouri before Lewis and Clark. Missouri Historical Society Bulletin, vol. 10, no. 4, pt. 1, pp. 429–446. St. Louis.

1955. The horse in Blackfoot Indian culture; with comparative material from other western tribes. Bureau of American Ethnology, Bulletin 159. Washington.

1957. Hair pipes in Plains Indian adornment; a study in Indian and white ingenuity. Anthropological Papers, no. 50, Bureau of American Ethnology, Bulletin 164, Washington.

Fenenga, Franklin

1954. The interdependence of archeology and ethnology as illustrated by the ice-glider game of the Northern Plains. Plains Anthropologist, no. 1, pp. 31–38. Lincoln.

Folwell, William W.

1921–30. A history of Minnesota. 4 vols. St. Paul.

Forrest, James T.

1961. "What a sight it was!" (Article on William de la Montagne Cary.) American Heritage, vol. 12, no. 2, pp. 46–55. New York.

Fuller, Claude E.

1930. Springfield muzzle-loading shoulder arms. Francis Bannerman Sons. New York.

1949. The Spencer arms. The Gun Collector, no. 29, pp. 325–332. Madison.

George, John Nigel

1947. English guns and rifles. Plantersville, S.C.

Griffin, John W.

1949. An authentic glass artifact. American Antiquity, vol. 15, no. 1, pp. 56–57. Menasha.

Hayden, Ferdinand V.

1862. Contributions to the ethnography and philology of the Indian tribes of the Missouri Valley. Transactions, American Philosophical Society, n.

s., vol. 12, pp. 231–461. Philadelphia.

1867. (Remarks at a stated meeting, Nov. 2, 1866). Proceedings, American Philosophical Society, vol. 10, no. 76, pp. 274–275. Philadelphia.

Heldt, F. George

1876. Sir George Gore's expedition. Contributions, Historical Society of Montana, vol. 1, pp. 146–147. Helena.

Hoffman, Walter J.

1882. List of birds observed at Fort Berthold, D. T., during the month of September, 1881. Proceedings, Boston Society of Natural History, vol. 21, pp. 397–405. Boston.

1884. La fête annuelle des Indiens Arikaris. Bulletin, Société d'Anthropologie de Paris, ser. 3, t. 7, pp. 526–532. Paris.

1886. Remarks on Indian tribal names. Proceedings, American Philosophical Society, vol. 23, pp. 294–303. Philadelphia.

Howard, James H.

1960. Butterfly's Mandan winter count: 1833–1876. Ethnohistory, vol. 7, no. 1, pp. 28–43. Bloomington.

Hurt, Wesley R., Jr., and James H. Howard

1952. A Dakota conjuring ceremony. Southwestern Journal of Anthropology, vol. 8, no. 3, pp. 286–296. Albuquerque.

Hurt, Wesley R., Jr., and William E. Lass

1956. Frontier photographer: Stanley J. Morrow's Dakota years. Lincoln and Vermillion.

Kane, Lucile M.

1955. New light on the Northwestern Fur Company. Minnesota History, vol. 34, no. 8, pp. 325–329. St. Paul.

Kappler, Charles J., comp.

1902. Indian affairs (laws and treaties). et seq. 5 vols. Washington.

Kelly, Luther S.

1926. "Yellowstone Kelly"; the memoirs of Luther S. Kelly, Ed. by Milo M. Quaife; foreword by Lt. Gen. Nelson A. Miles. New Haven.

Kurz, Rudolph Friederich

1937. Journal . . . during the years 1846 to 1852. Translated by Myrtis Jarrell; ed. by J. N. B. Hewitt. Bureau of American Ethnology, Bulletin 115. Washington.

1862. The Ordnance manual for the use of the officers of the United States Army. Philadelphia.

Larpenteur, Charles

1898. Forty years a fur trader on the upper Missouri. Ed. by Elliott Coues. 2 vols. New York.

Lathrop, William G.

1926. The brass industry in Connecticut. Rev. ed. Mt. Carmel, Conn.

Lehmer, Donald J.

1954. Archeological investigations in the Oahe Dam area, South Dakota, 1950–51. River Basin Surveys Papers, no. 7, Bureau of American Ethnology, Bulletin 158. Washington.

Letellier, Louis D.

1908. Autobiography. Ed. by Constant R. Marks. South Dakota Historical Collections, vol. 4, pp. 217–270. Pierre.

Libby, Orin G.

1906a. (Biography of) Frederick F. Gerard. Collections, State Historical Society of North Dakota, vol. 1, pp. 344–348. Bismarck.

1906b. A Mandan woman's game. Collections, State Historical Society of North Dakota, vol. 1, pp 444–445. Bismarck.

1908. (Biography of) Bad Gun (Rushing-after-the-eagle). Collections, State Historical Society of North Dakota. vol. 2, pp. 465–470. Bismarck.

Lippincott, Isaac

1916. A century and a half of fur trade at St. Louis. Washington University Studies, vol. 3, no. 2, pt. 2, pp. 205–242. St. Louis.

Logan, Herschel C.

1948. Cartridges—a pictorial digest of small arms ammunition. Huntington.

Lossing, Benson J.

1876. History of American industries and arts. Philadelphia.

Lundington, Lt. Col. Marshall I.

1889. Uniform of the army of the United States, illustrated, from 1774 to 1889. U.S. Army Quartermaster's Dept. Washington.

Mandelbaum, David G.

1940. The Plains Cree. American Museum of Natural History, Anthropological Papers, vol. 37, pt. 2. New York.

Matthews, Washington (See also "Medicus.")

1877. Ethnography and philology of the

Hidatsa Indians. U.S. Geological and Geographical Survey of the Territories (Hayden Survey), Miscellaneous Publications, no. 7. Washington.

1888. Two Mandan chiefs. American Antiquarian and Oriental Journal, vol. 10, no. 5, pp. 269–272. Chicago.

1902. The earth-lodge in art. American Anthropologist, n. s., vol. 4, no. 1, pp. 1–12. New York.

Mattison, Ray H.

1951. Report on historic sites in the Garrison Reservoir area, Missouri River (North Dakota). National Park Service, Region Two. Omaha. Publ. in part in North Dakota History, vol. 22, nos. 1 and 2, pp. 5–73, 1955. Bismarck.

McDonald, Philip B.

1932. (Biography of) John Wesley Hyatt (1837–1920). Dictionary of American Biography, vol. 9, pp. 447–449. New York.

McDonnell, Anne, ed.

1940. The Fort Benton journal, 1854–1856, and the Fort Sarpy journal, 1855–1856, with appendices and notes. Contributions, Historical Society of Montana, vol. 10. Helena.

McKearin, George S., and Helen

1941. American glass. New York.

McLaughlin, James

1910. My friend the Indian. Boston and New York.

"Medicus" [Washington Matthews?]

1951. Indian village at Fort Berthold. Minnesota Archaeologist, vol. 17, no. 1, pp. 3–9; ed. by Wesley R. Hiller. Minneapolis. Originally publ. in Frontier Scout, Fort Rice, Dakota Territory, Sept. 14, 1865.

Metcalf, George

1953. Appraisal of the archeological and paleontological resources of the Garrison Reservoir, North Dakota; Supplement. Missouri Basin Project, Smithsonian Institution. Lincoln.

1960. Star Village: a fortified historical Arikara site in Mercer County, North Dakota. River Basin Surveys Papers, no. 27, Bureau of American Ethnology, Bulletin 185. Washington.

Moody's Investors Service

1954. Moody's industrial manual: American and foreign. New York.

Morgan, Lewis Henry

1871. The stone and bone implements of the Arickarees. 21st Annual Report, Regents, University of the State of New York, pp. 25–46. Albany.

1881. Houses and house-life of the American aborigines. U.S. Dept. of the Interior, Geographical and Geological Survey, Rocky Mountain Region (Powell Survey), Contributions to North American Ethnology, vol. 4. Washington.

1959. The Indian journals, 1859–62. Ed. by Leslie A. White. Ann Arbor.

Myers, Francis

1936. Soldiering in Dakota, among the Indians, in 1863–64–65. Reprinted by South Dakota Historical Society, Pierre. Originally publ., Huron. Dakota Territory, 1888.

Norton, Sister M. Aquinas

1931. Catholic missions and missionaries among the Indians of Dakota. North Dakota Historical Quarterly, vol. 5, no. 3, pp. 149–165. Bismarck.

Palliser, Capt. John

1853. Solitary rambles and adventures of a hunter in the prairies. London. Reprinted as: The solitary hunter; sporting adventures in the prairies. London, 1856 and 1857.

Point, Nicholas, S. J.

1967. Wilderness Kingdom: Indian Life in the Rocky Mountains: 1840–1847. The journals and paintings . . . Translated and introduced by Joseph P. Donnally, S. J. With an appreciation by John C. Ewers. New York.

Poor Wolf (Hidatsa Indian)

1906. Autobiography. Collections, State Historical Society of North Dakota, vol. 1, pp. 439–443. Bismarck.

Powell, John Wesley

1884. (Report of Director.) Third Annual Report, Bureau of Ethnology, 1881–82, pp. xiii–xxix. Washington.

Quimby, George I., Jr.

1937. Notes on Indian trade silver ornaments in Michigan. Papers of the Michigan Academy of Science, Arts, and Letters, vol. 22, pp. 15–24. Ann Arbor.

Quimby, George I., Jr., and Alexander Spoehr

1951. Acculturation and material culture. Fieldiana: Anthropology, vol. 36, no. 6, pp. 1–42. Chicago Natural History Museum.

Ramsay, John

1947. American potters and pottery. New York.

Rathbone, Perry T.

1946. Charles Wimar (1828–1862), painter of the Indian frontier. City Art Museum of St. Louis.

Raynolds, Bvt. Brig. Gen. William F.

1868. Report on the exploration of the Yellowstone River. 40th Congr., 1st (i.e., 2nd) sess., S. Ex. Doc. 77; serial 1317. Pp. 147–151: Journal (1860) of Lt. Henry E. Maynadier; reprinted in North Dakota Historical Quarterly, vol. 1, no. 2, pp. 41–50, 1927; ed. by Elmer Ellis. Bismarck.

Reid, Russell, and Clell G. Gannon, eds.

1929. Journal of the Atkinson-O'Fallon Expedition [1825]. North Dakota Historical Quarterly, vol. 4, no. 1, pp. 5–56. Bismarck.

Roe, Frank G.

1951. The North American buffalo: a critical study of the species in its wild state. Toronto.

Russell, Carl P.

1944. The trade musket. Muzzle Blasts, vol. 5, no. 10, pp. 4–5 and 11. National Muzzle-loading Rifle Association. Portsmouth, Ohio.

1957. Guns on the early frontiers: a history of firearms from Colonial times through the years of the western fur trade. Berkeley and Los Angeles.

Saxton, Bvt. Brig. Gen. Rufus

1855. Journal (1853). *In* U.S. War Dept., Reports of explorations and surveys to ascertain the most practical route for a railroad from the Mississippi River to the Pacific Ocean. 1853–54 (Pacific Railroad Reports), vol. 1, pt. 2, pp. 251–269. 33d Congr., 2d sess., S. Ex. Doc. 78 (serial 758–768), and H. Ex. Doc. 91 (serial 791–801). Washington.

Schulenberg, Raymond F.

1956. Indians of North Dakota. North Dakota History, vol. 23, nos. 3 and 4, pp. 119–230. Bismarck.

Sears, Louis

1906. (Recollections) Collections, State Historical Society of North Dakota, vol. 1, p. 349. Bismarck.

Shane, Ralph M.

1959. A short history of the Fort Berthold Indian Reservation. North Dakota History, vol. 26, no. 4, pp. 181–214. Bismarck.

Smet, Pierre-Jean de, S. J.

1905. Life, letters and travels of Father Pierre-Jean de Smet, S. J. (1801–1873). Ed. by Hiram M. Chittenden and Alfred T. Richardson. 4 vols. New York.

Smith, Carlyle S.

1955. An analysis of the firearms and related specimens from Like-a-Fishhook Village and Fort Berthold I. Plains Anthropologist, no. 4, pp. 3–12. Lincoln.

MS. Firearms, cartridges, and related items from Like-a-Fishhook Village. Unpublished manuscript, 1953. Museum of Natural History, University of Kansas. Lawrence.

Smith, G. Hubert

1953. Indian trade beads from Fort Berthold, North Dakota. Central Texas Archeologist, no. 6, pp. 41–56. Waco.

1960. Archeological investigations at the site of Fort Stevenson (32ML1), Garrison Reservoir, North Dakota. River Basin Surveys Papers, no. 19, Bureau of American Ethnology, Bulletin 176. Washington.

Strong, William Duncan

1935. An introduction to Nebraska archeology. Smithsonian Miscellaneous Collections, vol. 93, no. 10. Washington.

Stuart, Granville

1963. Diary and sketchbook of a journey to "America" in 1866, and return up the Missouri River to Fort Benton, Montana. Intro. by Carl S. Dentzel; ed. by Glen Dawson. Los Angeles. Originally pub. in Virginia City Post, Montana Territory, Jan. 1867.

Sunder, John E.

1963. The decline of the fur trade on the upper Missouri, 1840–1865. In the American West, an appraisal; pp. 128–137. Ed. by Robert G. Ferris. Conference on the History of West-

ern America. Santa Fe.
1965. The fur trade on the upper Missouri, 1840–1865. Norman.

Tarbell, Ida M.
1904. The history of the Standard Oil Company. 2 vols. New York.

Taylor, Joseph H.
1932. Frontier and Indian Life; and Kaleidoscopic Lives. Washburn, N. Dak.

Thomas, Norman
1949. John Blair Smith Todd, first Dakota delegate to Congress. South Dakota Historical Collections, vol. 24, pp. 178–219, Pierre.

Throne, Mildred, ed.
1959. Iowa troops in Dakota Territory, 1861–1864. Iowa Journal of History, vol. 57, no. 2, pp. 97–190. Iowa City.

Thwaites, Reuben Gold, ed.
1904–05. Original journals of the Lewis and Clark expedition, 1804–06. 8 vols. Cleveland.

Traquair, Ramsey
1938. Montreal and the Indian trade silver. Canadian Historical Review, vol. 19, no. 1, pp. 1–18. Toronto.

Trobriand, Gen. Philippe Régis de
1951. Military life in Dakota; the journal of . . . Translated and edited by Lucile M. Kane. Mississippi Valley Historical Association, Alvord Memorial Commission. St. Paul.

U.S. Army, Corps of Engineers
1943. Garrison Reservoir [maps]. 177 sheets. Omaha.

U.S. Census Office
1853. Seventh census of the United States, 1850. Washington.
1865. Manufacturers of the United States in 1860 (Eighth census). Washington.

U.S. Commissioner of Indian Affairs
1847–86. Annual reports. Washington.

U.S. Missouri River Commission
1892–95. Map of the Missouri River from its mouth to Three Forks, Montana. In 84 sheets . . . and nine index sheets . . . . Washington.

U.S. Patent Office
1850–72. Annual reports of the Commissioner, Washington.
1873–78. Official gazette. Washington.

U.S. Statutes
1845 et seq. The statutes at large of the United States. Boston and Washington.

U.S. War Department
1880–1901. The War of the Rebellion; a compilation of the official records of the Union and Confederate Armies. 3 series. 70 vols. in 128 pts.; and atlas in 3 vols. Ser. 1, vol. 48, pt. 1, pp. 979–981: Report of Brig. Gen. Alfred Sully to Maj. Gen. S. R. Curtis, Davenport, Ia., Feb. 25, 1865. Washington.

U.S. War Dept., Ordnance Department
1856. Reports of experiments with small arms for the military service. Washington.

U.S. War Dept., Surgeon General's Office
1870. A report on barracks and hospitals with descriptions of military posts. Circular no. 4. Washington.

Van Ostrand, Ferdinand A.
1942–43. Diary (1870–72). Ed. by Russell Reid. North Dakota Historical Quarterly, vol. 9, no. 4, pp. 219–242; and vol. 10, no. 1, pp. 3–46, and no. 2, pp. 83–124. Bismarck.

Van Ravenswaay, Charles
1943. Glass in old St. Louis. Antiques Magazine, vol. 44, no. 2, pp. 70–73. New York.

Walker, James F.
1953. Old Fort Berthold as I knew it. North Dakota History, vol. 20, no. 1, pp. 25–46. Bismarck.

Wedel, Waldo R.
1954. Earthenware and steatite vessels from northeastern Wyoming. American Antiquity, vol. 19, no. 4, pp. 403–409. Salt Lake City.
1955. Archeological materials from the vicinity of Mobridge, South Dakota. Anthropological Papers, no. 45, Bureau of American Ethnology, Bulletin 157. Washington.
1957. Observations on some nineteenth century pottery vessels from the upper Missouri. Anthropological Papers, no. 51, Bureau of American Ethnology, Bulletin 164. Washington.
1961. Prehistoric man on the Great Plains. Norman.

Wedel, Waldo R., and George B. Griffenhagen
1954. An English balsam among the Dakota aborigines. American Journal

of Pharmacy, vol. 126, no. 12, pp. 409–415. Philadelphia.

Wheeler, Olin D.
1904. The trail of Lewis and Clark. 2 vols. New York.

Wheeler, Richard P.
1952. A note on the "McKean lanceolate point." Plains Archeological Conference News Letter, vol. 4, no. 4, pp. 45–50. Lincoln.
1954. Two new projectile point types: Duncan and Hanna points. Plains Anthropologist, no. 1, pp. 7–14. Lincoln.

Wied-Neuwied, Maximilian Alexander Philip, Prinz von
1906. Travels in the interior of North America. *In* Early Western Travels, vols. 22–24. Ed. by Reuben Gold Thwaites. Cleveland.

Will, George F.
1924. Archaeology of the Missouri Valley. American Museum of Natural History, Anthropological Papers, vol. 22, pt. 6, pp. 285–344. New York.

Will, George F., and Thad C. Hecker
1944. The upper Missouri River Valley aboriginal culture in North Dakota. North Dakota Historical Quarterly, vol. 11, nos. 1 and 2, pp. 5-126. Bismarck.

Will, George F., and George E. Hyde
1917. Corn among the Indians of the upper Missouri. St. Louis.

Will, George F., and Herbert J. Spinden
1906. The Mandans; a study of their culture, archaeology, and language. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, vol. 3, no 4. Cambridge.

Wilson, Gilbert L.
1917. Agriculture of the Hidatsa Indians; an Indian interpretation. University of Minnesota Studies in the Social Sciences, no. 9. Minneapolis.
1924. The horse and the dog in Hidatsa culture. American Museum of Natural History, Anthropological Papers, vol. 15, pt. 2, pp. 127–311. New York.
1934. The Hidatsa earthlodge. Ed. by Bella Weitzner. American Museum of Natural History, Anthropological Papers, vol. 33, pt. 5, pp. 340–420. New York.

Winchester Repeating Arms Company
1903. Catalog no. 70. Springfield, Mass.

Wood, W. Raymond
1967. An interpretation of Mandan culture history. River Basin Surveys Papers, no. 39, Bureau of American Ethnology, Bulletin 198. Washington.

Woodward, Arthur
1926. Indian use of the silver gorget. Museum of the American Indian, Heye Foundation, Indian Notes and Monographs, vol. 3, no. 4, pp. 232–249. New York.
1951. Some notes on gun flints. Military Collector and Historian, vol. 3, no. 2, pp. 29–36. Washington.

Woolworth, Alan R., and W. Raymond Wood
1960. The archeology of a small trading post (Kipp's Post, 32MN1) in the Garrison Reservoir, North Dakota. River Basin Surveys Papers, no. 20, Bureau of American Ethnology, Bulletin 176. Washington.

Yarrow, Harry C.
1881. A further contribution to the study of the mortuary customs of the North American Indians. First Annual Report, Bureau of Ethnology, 1879–80, p. 161: Letter of E. H. Alden, agent at Fort Berthold. Washington.

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