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OBSERVATIONS ON SOME NINETEENTH-CENTURY POTTERY VESSELS FROM THE UPPER MISSOURI

By WALDO R. WEDEL

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By Waldo R. Wedel

INTRODUCTION

The passing of the potter's art, as one aspect of the general cultural decline among the Upper Missouri Indians during the 19th century, remains very imperfectly documented. It is generally recognized by students that here, as elsewhere throughout the New World, the importation of metal containers by traders in the 18th and early 19th centuries foredoomed the continued manufacture of earthenware by the native peoples. By contrast with the products of pre-white and early post-white contact potters, the ceramic wares postdating the first quarter of the 19th century are usually considered drab and uninteresting. Probably few workers in the area would quarrel with the general thesis put forth by Will and Hecker (1944, p. 70):

> . . . Beginning about 1750 the decline of the Mandan ceramics was fairly gradual until about 1825. The Arikara and Hidatsa, having better trade advantages, showed an equal degree of decadence in their ceramics about 25 years earlier. After 1825 the ceramics of the three tribes was reduced to coarse pots used as storage containers, unfit for cooking. Some pottery was still being made by the three tribes (Arikara, Mandan, Hidatsa) after their removal to the Fort Berthold Site (1850–55). This late pottery, poorly made and decorated, had lost its identity as to tribal culture and was of little value either for culinary use or as decorative accessories . . . .

Such details as we have today concerning the characteristics of the Arikara, Mandan, and Hidatsa potterywares prior to 1900 are derived largely from the observations of the archeologist. These, in turn, are based almost wholly on the analysis and interpretation of surface and subsurface sherd collections gathered from village sites whose tribal identity and time of occupancy can be determined with varying accuracy from documentary or other sources. As a logical starting point for his historical interpretations, the archeologist seeks to determine the material culture complex, including ceramics, characteristic of particular tribal groups in early historic times—the earlier, the better; thereafter, his major concern is the earlier, longer, and much

less well known period preceding, on the Upper Missouri, the year 1800. With few exceptions, the later period has been left to the ethnologist and the historian. Only in comparatively recent years, as the Federal water-control program on the Missouri threatens loss of the basic data of prehistory here, have the archeologists joined with the ethnologists and historians in a serious effort to define and salvage the remains of this late period of native history.

Interesting and informative, but of limited usefulness for purposes of analysis and synthesis, are the comments which were made from time to time by various eyewitnesses—military personnel, artists, scholars, and others—who traveled or resided briefly among the Upper Missouri village Indians, mostly after 1800. These accounts, insofar as they relate to pottery making before 1900, are generally so brief and sketchy that they give little help to the archeologist. The differences in details which might be expected to have existed between villages or tribal units are seldom or never set forth. The better known contemporary accounts, indeed, do little more than confirm what is already well established—namely, that these Indians made and used pottery vessels. Understandably, therefore, few students have troubled themselves with searching out such examples as might still be extant from the decadent village Indian cultures of the 1800's.

The pottery specimens with which we are here concerned are about 25 in number. Two, oldest in the group, are credited to the Lewis and Clark expedition and were presumably collected during the winter of 1804–5; both are fragmentary. The others all appear to be considerably later in origin, having been obtained by army personnel, Indian agents, and other individuals under circumstances that are not always clear. The records accompanying these pieces include references to Forts Berthold, Buford, and Stevenson as the points of origin of particular specimens; others allude simply to the "Upper Missouri." It is impossible, therefore, to determine exactly the provenience of each and every vessel, or to be certain of the correctness of the tribal identifications offered.

Despite these uncertainties, there are a number of interesting similarities among many of the pieces. Moreover, certain consistent traits link most of them with demonstrably older ceramic materials from the Upper Missouri. Whether or not the various assertedly Mandan or Arikara vessels were actually made by a member of the stated tribe, the group as a whole is without question from the Upper Missouri country in what is now the State of North Dakota. They are of interest, therefore, as a sampling of the wares produced during the final century of pottery making in that region.

The collections of five institutions have been drawn upon in connection with the materials discussed in the following pages. Presen

whereabouts of the various specimens described and illustrated are noted in the appropriate places in the text. I am under a debt of gratitude to the following persons and institutions for supplying me with photographs, descriptive notes, and provenience data relative to specimens in their custody: J. Alden Mason and Miss Frances Eyman, University Museum, Philadelphia; George G. Heye and E. K. Burnett, Museum of the American Indian, Heye Foundation, New York; J. O. Brew and J. H. Gunnerson, Peabody Museum of Archeology and Ethnology, Cambridge, Mass.; H. W. Krieger and R. A. Elder, Division of Ethnology, United States National Museum, Washington, D. C.; George F. Will, Russell Reid, and Alan Woolworth, North Dakota Historical Society Museum, Bismarck. I must also acknowledge many helpful discussions with George Metcalf, aide in the Division of Archeology, United States National Museum, who previously participated in three seasons of archeological salvage work with the Smithsonian's Missouri River Basin Survey in the Garrison Reservoir area. Now near completion, this great Corps of Engineers project will shortly drown most of the locality from which came nearly all the specimens considered herein.

In the following pages, the specimens are referred to by the catalog numbers assigned by the institution in whose custody the specimens now repose. In most cases, I have found it advantageous to accompany each catalog number by an abbreviation for the holding institution, thus: USNM, U. S. National Museum; UM, University Museum; PM, Peabody Museum; HF, Museum of the American Indian, Heye Foundation; ND, North Dakota Historical Society.

POTTERY MAKING AS REPORTED FROM THE UPPER MISSOURI

The evidence at present available indicates that the Arikara, Mandan, and Hidatsa fashioned their potteryware by the paddle-and-anvil method. Here, as Gifford (1928, p. 372) long ago noted, this was apparently a shaping, rather than a purely finishing, process. To the best of my knowledge, there is no archeological or other evidence that coiled pottery was made in the Upper Missouri region; and none of the eyewitness accounts I have seen mentions the practice. For such additional light as they throw on the potter's art here, it may be worthwhile to include some of the contemporary statements that have come down to us.

Lewis and Clark, who spent the winter of 1804–5 in the vicinity of the Mandan and Hidatsa villages, do little more than mention the fact that the nearby Indians had pottery (Thwaites, 1904–5, vol. 1, pp. 206, 281). A contemporaneous observer was Tabeau, resident trader in 1803–5 at an Arikara village just above Grand River, who wrote

(Abel, 1939, p. 149) that "They make a very hard but very coarse pottery which stands the heat well and suffices for all their cooking." More details are provided by another contemporary, Alexander Henry the Younger. Henry in the summer of 1806 visited the same Mandan and Hidatsa villages near which Lewis and Clark wintered 2 years previously; and while at Black Cat's Mandan village on the east bank of the Missouri, he wrote in part (Coues, 1897, vol. 1, p. 328):

> . . . They use large earthen pots of their own manufacture of a black clay which is plentiful near their villages. They make them of different sizes, from five gallons to one quart. In these vessels nothing of a greasy nature is cooked, every family being provided with a brass or copper kettle for the purpose of cooking flesh. Whether this proceeds from superstition or not I cannot pretend to say, but they assured us that any kind of flesh cooked in those earthen pots would cause them to split. One or more of the largest kind is constantly boiling prepared corn and beans, and all who come in are welcome to help themselves to as much as they can eat of the contents. The bottoms of these pots are of a convex shape; much care is therefore required to keep them from upsetting. For this purpose, when they are put to the fire a hole is made in the ashes to keep them erect, and when taken away they are placed upon a sort of coil made of bois blanc fibers. These coils or rings are of different sizes, according to the dimensions of the several pots. Some pots have two ears or handles, and are more convenient than those with none.

Five years later, in 1811, Bradbury and Brackenridge traveled to the Upper Missouri country with separate parties. At the Arikara village later shelled by Leavenworth, some 10 miles above Grand River, Bradbury (1904, p. 169) wrote:

> I noticed over their fires much larger vessels of earthenware than any I had before seen, and was permitted to examine them. They were sufficiently hardened by the fire to cause them to emit a sonorous tone on being struck, and in all I observed impressions on the outside, seemingly made by wickerwork. This led me to inquire of them by signs how they were made? when a squaw brought a basket, and took some clay, which she began to spread very evenly within it, showing me at the same time that they were made in that way. From the shape of these vessels, they must be under the necessity of burning the basket to disengage them, as they are wider at the bottom than at the top.

Brackenridge (1904, p. 116) noted merely that "They had a variety of earthen vessels, in which they prepared their food, or kept water."

Some 20 years later, when Catlin stopped briefly at the Fort Clark Mandan village in 1832, he reported (Catlin, 1841, vol. 1, p. 116):

> I spoke also of the earthen dishes or bowls in which viands were served out; they are a familiar part of the culinary furniture of every Mandan lodge, and are manufactured by the women of this tribe in great quantities, and modeled into a thousand forms and tastes. They are made by the hands of the women, from a tough black clay, and baked in kilns which are made for the purpose, and are nearly equal in hardness to our own manufacture of pottery; though they have not yet got the art of glazing, which would be to them a most valuable secret. They make them so strong and serviceable, however, that they hang them over the fire as we do our iron pots, and boil their meat in them with perfect success. I

have seen some few specimens of such manufacture, which have been dug up in Indian mounds and tombs in the southern and middle states, placed in our Eastern Museums and looked upon as a great wonder, when here this novelty is at once done away with, and the whole mystery; where women can be seen handling and using them by hundreds, they can be seen every day in the summer also, moulding them into many fanciful forms, and passing them through the kilns where they are hardened.

In the following year, Maximilian spent the winter of 1833–34 at Fort Clark, and among his observations the following is of interest (Maximilian, 1906, pp. 278–279):

> . . . These three nations [Arikara, Mandan, Hidatsa] understand the manufacture of earthen pots and vessels of various forms and sizes. The clay is of a dark slate color, and burns a yellowish-red, very similar to what is seen in the burnt tops of the Missouri hills. This clay is mixed with flint or granite, reduced to powder by the action of fire. The workwoman forms the hollow inside of the vessel by means of a round stone which she holds in her hand, while she works and smooths the outside with a piece of poplar bark. When the pot is made, it is filled and surrounded with dry shavings, and then burnt, when it is ready for use. They know nothing of glazing.

That there was still a considerable ceramic industry among these tribes as late as 1855–56 is suggested by Denig's account of the Arikara, who were then occupying the former Mandan village at Fort Clark. According to Denig (Ewers, 1950, p. 206):

> These Indians, although dull of intellect in many respects, show considerable ingenuity in manufacturing tolerably good and well shaped vessels for cooking out of clay, wrought by hand without the aid of machinery and baked in the fire, though not glazed. These consist of pots, pans, porringers, and mortars for pounding corn. They are of a grey colour, stand well the action of fire, answer their purposes, and are nearly as strong as ordinary potter's ware. For the shape of these vessels see plate [not included] . . ."

Unfortunately, the illustration that supposedly once accompanied the Denig manuscript appears to have been lost, so that the vessel shapes he saw can no longer be ascertained.

Concerning the pottery made by, or still in possession of, the Indians in the Fort Berthold community, I have four statements. Two of these, by Boller for the period 1858–66, and by Morgan for 1862, can be said to relate to products maintaining the old traditions. According to Boller (1868, p. 259):

> The Riccarees and Gros Ventres were, however, in more respects than one, in advance of the other prairie Indians. Out of a peculiar kind of clay they fashioned large pots of various shapes; after a time, from the effects of heat and use, these became hard and black like iron, and so strong that an ordinary blow with a stick or stone caused no injury. Some of the Rees still possess a few of these curious vessels, and regard them as relics of great value.

Morgan's comments (Morgan, 1871) have been given elsewhere in this paper and need not be repeated here.

From a much later period are the observations by Wilson and by Gilmore. According to the former (Gifford, 1928, p. 365), an old Mandan woman in 1910—

> . . . started the pot by making a big lump of clay and thrusting her thumbs down in the top and so beginning the inside of the pot. She built up the clay sides not by coiling, but working with her hands and thumbs. Also she used a small flat quartz stone inside for an anvil and pounded on the outside with a paddle made of a piece of rough-carved cotton-wood bark.

Gilmore (1925, pp. 286–289) gives the most detailed description extant of Upper Missouri pottery making; and while this pertains specifically to the Arikara, it presumably applies also to the Mandan and Hidatsa. He says:

> The materials used in pottery were a certain fine tenacious clay found in deposits in various places in the upper Missouri River region, together with a tempering of crushed and pulverized stone. Granite boulders of glacial origin were used to provide heat in the sweat-lodge. After being heated in fire many times for this use, they became friable, and in this condition were taken by the potters and crushed very fine. The potter took a quantity of the clay, sufficient for a pot of the size she had in mind . . . thoroughly kneaded it with her hands, and mixed with it what she judged to be a proper amount of the crushed stone for tempering. Now she shaped the tempered clay, working it out from the bottom upward to the top. When she had approximated the shape of the pot, she took in her left hand a smooth round cobblestone, which she inserted in the pot. In her right hand she took a wooden tool like a flat club, eight or nine inches long, with which she beat the clay against the shaping stone held in the other hand. When she had drawn up the clay to the proper shape and sufficiently thin, she applied the desired pattern of decoration by incision with a small pointed and edged wooden tool, or by pinching and crimping the edge of the pot with thumb and finger.
>
> When the shaping and decorating were finished, she set the pots away for 24 hours in a place where they were protected from air-currents and from jarring, during which time they became dry. For the purpose of firing the pots, a fire-bed of sufficient size, made of dry elm-wood, was laid. After kindling, this was allowed to burn to a good bed of coals. A place was hollowed out in the coals and the pot carefully placed therein. Then the coals were heaped around and in the pot, and more dry elm was laid on and around the pot, sufficient to make it red-hot. The fire was allowed to burn down, and the vessel to cool slowly and very gradually. The pot was then finished by greasing and rubbing it, which was said to give it a fine, black, glossy appearance.
>
> Elm-wood was used for the firing process for the reason that it burns quietly and steadily, not snapping and crackling as do some other species of wood.

How closely the pottery-making method detailed by Gilmore parallels that followed a hundred years before, I cannot say. The general procedure, however, is reminiscent of that briefly described by Maximilian in 1833, and there may thus be some warrant for assuming that it followed basically the aboriginal practices. As we shall see presently, however, the vessels produced in Gilmore's time, whether or not they were made in the old manner, were a sadly inferior product, and compare most unfavorably with those of a century or two earlier.

THE LEWIS AND CLARK MANDAN VESSELS

The two specimens credited to the Lewis and Clark expedition, according to the accompanying catalog data, are of Mandan origin and were collected on the "Missouri River, mouth of Knife River." An old handwritten note pasted in the paper container of one bears the following: "Ancient Mandan kettles. Their only culinary utensil." It would be interesting to determine whether this was written by Meriwether Lewis, to whom the pieces are specifically credited. I have no further direct data as to the circumstances under which these vessels were obtained.

The Lewis and Clark party wintered from November 1804 through March 1805 on the left bank of the Missouri opposite and a few miles below the Mandan village, then situated just above the site where Fort Clark was later established.[1] According to Clark, there were two Mandan villages 4 miles above Fort Mandan, on opposite sides of the Missouri; and 6 miles above the winter encampment was "Knife River on which the Minetarre and the Mahar has villages . . ." (Thwaites, 1904–5, vol. 6, p. 61). There was frequent contact between the Indians and expedition members during the winter, and it was evidently during this time that the pottery vessels, among other items, were acquired by Lewis. As a matter of fact, when the party was preparing to resume its journey upstream, Clark wrote under date of April 3, 1805, that ". . . we are all day engaged packing up Sundery articles to be sent to the President of the U. S." Then follows a listing of contents of the 4 boxes, 1 trunk, and 3 cages required for this material. Included in the list for box No. 4 is "1 Earthen pot Such as the Mandans manufacture and use for culinary purposes" (Thwaites, 1904–5, vol. 1, p. 281). I have no way of knowing whether this entry refers to one of the two pieces here under consideration, or how there came to be two specimens in the material that has survived under Lewis' name. In any case, the two pieces are at present deposited in the University Museum, Philadelphia, on a long-term loan from the American Philosophical Society and the Academy of Natural Sciences.

These two vessels, as already indicated, are fragmentary (pl. 38, *a*, *b*). One, bearing the catalog No. L–83–5a, consists of a nearly complete rim and neck, plus about 14 body sherds; the other, numbered L–83–5b, includes an incomplete rim and neck and 6 body sherds. In practically every essential detail, these two pieces parallel each other, and it would seem very probable that they are the products of a single potter.

[1] "Fort Mandan, the wintering-place of the expedition, was located on the left bank of the Missouri, seven or eight miles below the mouth of Knife River; it was nearly opposite the site of the later Fort Clark . . . [where] a fortified trading post was built in 1822 . . ." (Thwaites, 1904–5, vol. 1, p. 217, n. 1).

In both pieces, the paste is variable in color, ranging from gray to red brown. Inclusions consist of quartz and other siliceous particles; and this, plus the presence of flecks of mica, suggests that the tempering material was probably a crushed or burned granite. The ware impresses me as fairly hard and well fired, though no scratch tests were attempted. Surfaces are unevenly smoothed, and thickness of the vessel walls varies considerably.

Vessel shape cannot be fully determined; but full-bodied, medium-sized pots with constricted necks and small orifices seem to be clearly indicated. Vessel L–83–5a has a neck diameter of 11 cm. as mended; the other has a mouth diameter of 12 cm. Body surfaces from the neck downward carry an overall simple stamping, with the impressions seemingly running laterally rather than vertically to the upright vessel. The rim in each case consists of two slightly bulging parallel bands bearing diagonal single-cord impressions slanting downward to the right. These bands are separated by a plain shallow depressed zone about half as wide. From the lower corded band, two flattened handles on opposite sides of the vessel descend to the upperbody; each has crossed single-cord impressions forming an X. Alternating with the handles are two oppositely placed lugs or tabs protruding from the lower corded rim band, and each lug is ornamented with two oppositely slanted single-cord impressions to form a V.

Among the very limited and incompletely representative Mandan materials in the collections of the Division of Archeology, United States National Museum, there are none that parallel very closely the rim form and decoration of these two specimens. Search in the published literature on the Mandan region has also disclosed nothing similar, with possible exception of what appears to be a small rimsherd illustrated by Strong (1940, pl. 6, *k*) from one of the Hidatsa village sites on the Knife River. There is also a general resemblance to one or two rimsherds figured by Will and Hecker (1944, pl. 15, extreme right, second and fourth rows) in a series of Later Heart River pieces. So far as may be judged from the incomplete Lewis and Clark specimens, they appear to be closer to the Later Heart River period Mandan wares than to any other defined series; and they impress me as appreciably more like Mandan or Hidatsa pottery than like Arikara ware of the time period involved. The body treatment present is, of course, the same simple stamping so characteristic of central and northern Plains Indian potterywares of the historic period.

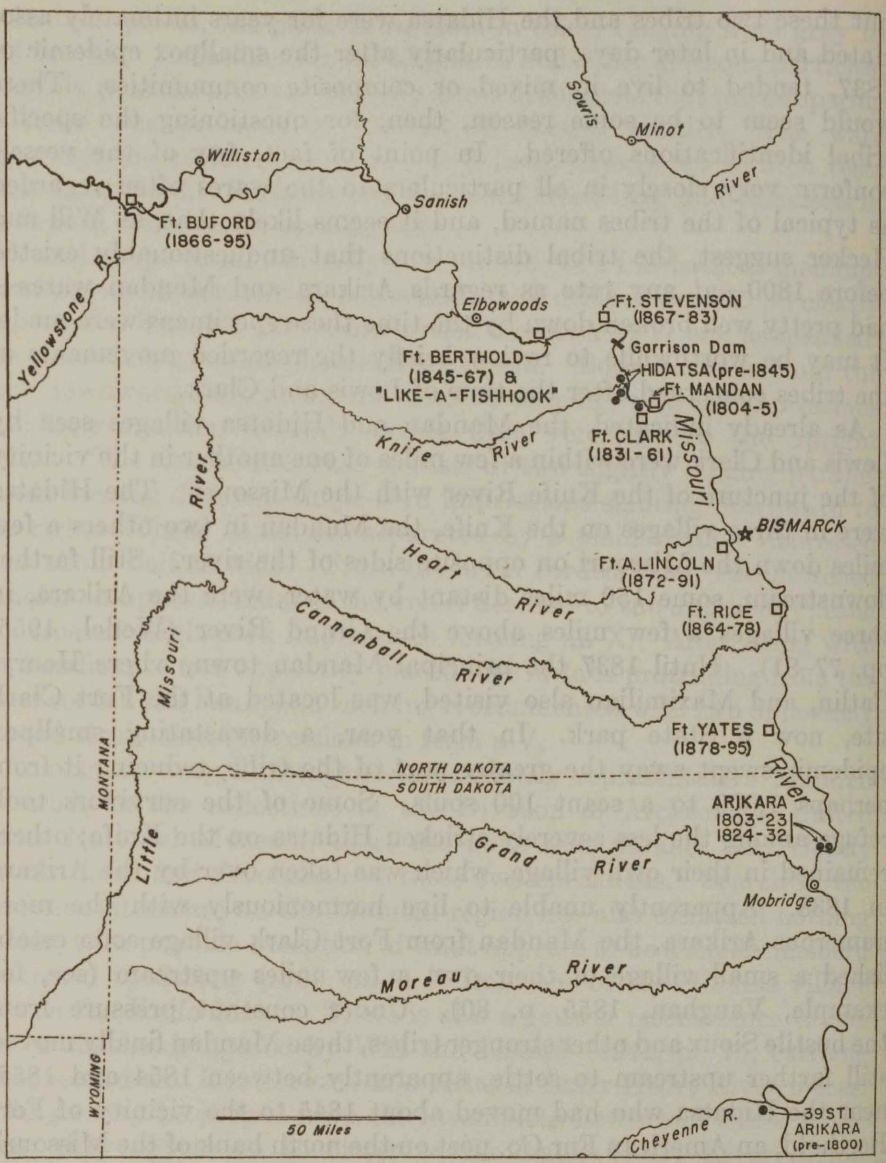
VESSELS FROM THE FORT BERTHOLD PERIOD

The remaining specimens, all probably manufactured many years after the time of Lewis and Clark, were collected in post-Civil War days. Some are specifically attributed to the Mandan or the Arikara;

but these two tribes and the Hidatsa were for years intimately associated and in later days, particularly after the smallpox epidemic of 1837, tended to live in mixed or composite communities. There would seem to be some reason, then, for questioning the specific tribal identifications offered. In point of fact, few of the vessels conform very closely in all particulars to the wares often regarded as typical of the tribes named, and it seems likely that, as Will and Hecker suggest, the tribal distinctions that unquestionably existed before 1800—at any rate as regards Arikara and Mandan wares—had pretty well broken down by the time these specimens were made. It may be worthwhile to review briefly the recorded movements of the tribes concerned after the time of Lewis and Clark.

As already indicated, the Mandan and Hidatsa villages seen by Lewis and Clark were within a few miles of one another in the vicinity of the juncture of the Knife River with the Missouri. The Hidatsa were in three villages on the Knife, the Mandan in two others a few miles down the Missouri on opposite sides of the river. Still farther downstream, some 150 miles distant by water, were the Arikara, in three villages a few miles above the Grand River (Wedel, 1955, pp. 77–81). Until 1837 the principal Mandan town, where Henry, Catlin, and Maximilian also visited, was located at the Fort Clark site, now a State park. In that year, a devastating smallpox epidemic swept away the greater part of the tribe, reducing it from perhaps 1,600 to a scant 100 souls. Some of the survivors took refuge among the less severely stricken Hidatsa on the Knife; others remained in their own village, which was taken over by the Arikara in 1838. Apparently unable to live harmoniously with the more numerous Arikara, the Mandan from Fort Clark village soon established a small village of their own a few miles upstream (see, for example, Vaughan, 1855, p. 80). Under constant pressure from the hostile Sioux and other stronger tribes, these Mandan finally moved still farther upstream to settle, apparently between 1854 and 1858, near the Hidatsa who had moved about 1845 to the vicinity of Fort Berthold, an American Fur Co. post on the north bank of the Missouri. Here the Mandan and Hidatsa were joined in 1862 by the Arikara, the latter having lived for a few months previously opposite them on the right bank of the Missouri before finally crossing and uniting with the other two tribes in a single large community.[2] Since that time,

[2] According to Washington Matthews, post surgeon at Fort Berthold (1865–66), at Fort Stevenson (1867–68), and at Fort Buford (1870–72), the Fort Clark Indian village was broken up in 1860, and the Arikara from there spent the winter of 1860–61 on a point about 8 miles above Fort Stevenson. In 1861–62, they wintered in temporary quarters above Fort Berthold, and in March 1862 they began construction of a permanent village nearly opposite that post. On August 3, before the village was finished or their crops harvested, the Sioux attacked and next day the Arikara crossed the river to join the Mandan and Hidatsa. (Report on Barracks and Hospitals, with Description of Military Posts, Surgeon General's Office, Washington, 1870.)



MAP 7.—Portion of the Upper Missouri River region in North Dakota and South Dakota, showing certain Indian village sites, military forts, and trading posts in the 19th century.

the three tribes have shared the tract designated in 1869 the Fort Berthold Reservation.

For the period with which we are here primarily concerned, then, the Mandan, Arikara, and Hidatsa were officially resident at and near Fort Berthold. It should be noted, however, that groups of varying size and composition apparently detached themselves from time to time and lived in other localities. Thus, in 1875, the agent at Fort

Berthold reported (Darling, 1876, p. 28) that "about 100 Gros Ventres [Hidatsa] . . . have spent all of their time for several years at and around Fort Buford, Dakota, 135 miles above this agency, on the Missouri River . . ."; and, further, that "quite a number of Rees and Gros Ventres enlisted as scouts at Forts Lincoln, Stephenson [sic], and Buford, having their families with them . . ." I have been unable to find any accounts concerning the native baggage such groups may have carried with them to these scattered posts.[3]

The Fort Berthold Indian village, Like-a-Fishhook, was the last of the native earth-lodge towns in the region. Shortly after the Arikara joined the community, it was visited by Lewis H. Morgan. Of interest is his observation (Morgan, 1871, p. 40) that—

> In 1862 the Arickarees were still using pottery of their own manufacture. It was of a dark color, nearly black. While at the new Arickaree village, I saw them use earthen pots to draw water from the river. One of these, which would hold about six quarts, with a string adjusted around the neck, was let down into the Missouri, filled and then carried to the lodge. It was of the usual shape of earthen pots or water jars, slightly contracted at the neck and bordered with a rim, around which the string was secured.

Morgan makes no mention of Mandan or Hidatsa pottery at this time, nor does he give any additional details regarding Arikara wares. His brief comments on vessel shapes and the use of a carrying cord are of especial interest in view of the several specimens about to be described from Fort Berthold.

VESSELS ASCRIBED TO THE MANDAN

In this group I have included 11 vessels, 7 of which are specifically attributed to the Mandan in the accompanying catalog or provenience records. For the others there are no tribal identifications, but since they share a good many characteristics with those called Mandan, I have chosen to consider them under this general heading. I have the impression that these 11 pieces tend to fall into two or more subgroups which may have chronological significance.

Four of the vessels are strikingly alike in size, form, and other details (pls. 39, 40). They include two specimens (USNM 6348 and USNM 8407) in the Division of Ethnology, United States National Museum; one (L–37–52) in the University Museum, Philadelphia; and one (87–11–10/40900) in the Peabody Museum of Archeology and Ethnology, Harvard University. One (or both?) of the National Museum specimens was received from the Army Medical Museum in

[3] Fort Berthold (1845–67) and its nearby Indian village, "Like-a-Fishhook", was situated about 16 miles downstream from present Elbowoods, N. Dak., on the north or left bank of the Missouri. Fort Stevenson (1867–83) was some 15 miles farther east, 9 miles southwest of present Garrison. Fort Buford (1866–95) was also on the north bank of the Missouri, opposite the mouth of the Yellowstone River and a few hundred yards east of the present Montana line. Fort Abraham Lincoln (1872–91) was 4½ miles south of present Mandan, on the right bank of the Missouri (map 7).

1868–69, in all likelihood within a year or so of the time they were actually collected. USNM 8407 (pl. 39, *a*) is identified in the accompanying catalog record as "Fort Stevenson. Mandans. Dakota Territory"; USNM 6348 (pl. 39, *b*) is designated "Mandan. Dakota Territory." Both are credited to Drs. C. C. Gray and Washington Matthews. In the annual report of the Smithsonian Institution for 1869, in an account of ethnological collections received, I find the following:

> . . . The post surgeons stationed at the military posts on the Upper Missouri, chiefly within the Territory of Dakota, have shown much zeal in collecting objects to illustrate the pursuits and customs of the numerous tribes occupying the country bordering on this river. First among these, in point of interest, are the collections of Surgeon C. C. Gray and Dr. Matthews, United States Army, stationed for some time at Fort Berthold . . .

In the listing of specimens that follows, there is mention of "an earthen pot," which would seem to be Gros Ventre, i. e., Hidatsa, in origin. If this refers to either of the two National Museum pieces, I am inclined to suspect it is USNM 8407.

The University Museum piece, L–37–52 (pl. 40, *a*), is cataloged merely as "Upper Missouri. Mandan"; and it is reported to have been "collected by Franklin Peale (Brevet General Alfred Scully)." So far as I have been able to ascertain, Franklin Peale was never in the Upper Missouri region; and my efforts to identify Brev. Gen. Scully through the military records at National Archives have been wholly unsuccessful. I suspect that the officer in question is actually Gen. Alfred Sully, who campaigned against the Sioux in the Upper Missouri country from, approximately, 1863 to 1866, and who established Forts Sully and Rice. In the course of his campaign from Fort Rice to Devils Lake in 1865, Sully wrote at least one letter, dated August 8, 1865, from Fort Berthold, signing this document as Brevet Major General. In 1867, reporting on a council with the Sioux at Fort Sully, he signed as Brevet Brigadier General, President of Commissioners. General Sully might, thus, have had opportunity to acquire materials from the Fort Berthold Indians; on his subsequent relationships with Franklin Peale I have no information (see also Peale, 1869, p. 433 and pl. 10, fig. 1).

The Peabody Museum specimen, 87–11–10/40900 (pl. 40, *b*), was collected by the Reverend C. L. Hall in 1886. The original entry in the catalog gives as its locality "Fort Berthold Mission, Sioux Reservation, Dakota"; but at some later date, the word "Sioux" has been crossed out and the following added: "Probably Mandan or Hidatsa." There is also a further notation in the catalog, "Made about 20 years ago—no longer in use." If, as seems likely, this note is from Hall, the piece would date from about the same time as the Gray-Matthews

vessels in the National Museum and the Sully-Peale specimen in the University Museum.

I have personally examined the first three vessels discussed above; data regarding the Peabody Museum piece have been furnished me by James Gunnerson through Dr. J. O. Brew. The first three are made of hard, well-mixed, and well-fired clay, ranging in color from light buff or orange gray to very dark gray. All are thick walled and relatively heavy. Firing clouds are apparent on all, especially on the National Museum specimens. Quartz and mica particles are visible in the paste, and tempering was probably derived from crushed or burned granite. In form the vessels may be described as full bodied and nearly globular, with constricted neck and wide mouth, a braced or collar-like rim 20 to 24 mm. wide, and a thick flat lip. All have the exterior body surfaces covered with simple stamping, in which the impressions run vertically toward or to the base. So far as I can judge, the Peabody Museum piece shares practically every feature so far enumerated here and fits well into the series. The following measurements indicate the relative uniformity in size and proportions:

	USNM 6348	USNM 8407	UM L–37–52	PM 40900
	Cm.	*Cm.*	*Cm.*	*Cm.*
Body diameter, maximum	16. 8	17. 8	17. 2	23
Diameter of orifice	13. 8	14. 5	16. 5	
Height, maximum	15. 8	16. 5	15. 2	22

The similarities also extend to the rim decoration and appendages, though there is some variation in details. On all four vessels, the panellike outer rim surface is decorated with slanting single-cord impressions. USNM 8407, UM L–37–52, and PM 40900 have two oppositely placed loop handles extending from the rim down to the upperbody; alternating with these and also oppositely placed are two triangular areas formed by drawing the lower edge of the rim downward to form short lugs or tabs. On the loop handles of the first two (USNM 8407 and UM L–37–52) and bordering the triangular areas above them are two crossed single-cord impressions forming an X. In the upper angle formed by these crossed impressions is a round punctate and still higher up, just below the vessel lip, is a row of 5 such punctates (UM L–37–52) or of 3 punctates (USNM 8407). The triangular space above the lugs on USNM 8407 has 3 round punctates, 1 below and 2 above; on UM L–37–52 there are 4 punctates in these spaces, 1 below and 3 above. PM 40900 has the upper part of the handles bordered by single vertical cord impressions; between these, the triangular area is filled with three rows of punctates. The lugs and the small area immediately above also carry punctate decoration. The fourth specimen, USNM 6348, resembles the above three, except that the two loop handles have been replaced

by two additional lugs. On these, the triangular area is set off by two parallel single-cord impressions forming a V with a single round punctate in the bottom angle and three round punctates across the top just below the lip. The other two lugs are marked, as in USNM 8407, with three punctates.

In all four of these specimens, the decorated areas just described above each handle and lug separate the rim panel into four equal segments in which the single-cord impressions slant downward to the right in one segment, to the left in the next, and so on alternately around the pot. PM 40900 is unique in having the flat inward-sloping-lip relieved by a line of punctates, and in having "four dots of red paint on the shoulder."

Of the three specimens I have handled, two seem to have been used very little and show no evidence of protracted service over the fire. The third, UM L–37–52, has a partial coating of charred organic matter, possibly scorched foodstuff. It would seem to me that, as utility or culinary vessels, any of these pieces would have been fully as serviceable and quite as durable as much of the pre-1800 potteryware found on Upper Missouri village sites. Except as to size, they could well be the sort of vessels Morgan saw in use among the Arikara in 1862.[4]

There is a fifth pot which closely resembles the foregoing pieces in its basic form, size, and proportions, but lacks rim ornamentation and appendages. It carries the United States National Museum No. 167144, and is one of a series of ethnological specimens acquired from the widow of Brig. Gen. W. B. Hazen, who was stationed at Fort Buford in 1872 and after. There are no other details as to provenience or tribal origin. The vessel (pl. 43, *a*) measures 17.6 cm. in maximum diameter, 16.3 cm. in height, and 14 cm. in orifice diameter. Simple stamping covers the entire body below the neck; the collared and slightly out-curved rim and the lip are plain. The piece is fire or smoke blackened, and bears traces of charred carbonaceous matter on the upper interior and exterior surfaces. I am inclined to suspect that the vessel is approximately contemporaneous with the four described in the foregoing series and may have been manufactured at about the same time.

A second series of three vessels from Fort Berthold includes pieces that are smaller and less carefully made than those just described, but

[4] In recent excavations for the North Dakota Historical Society at Like-a-Fishhook village, Howard (MS.) reports two kinds of potsherds, neither abundant, which he designates Fishhook A (unsmoothed) and Fishhook B (smoothed). He notes that "A highly decorated wedge-shaped rim, having a design consisting of chevrons and triangles formed by cord-impressed lines, and sometimes punctate dot designs in addition, is associated with the Fishhook A (unsmoothed) body treatment". There may be some relationship between Howard's Fishhook A (unsmoothed) ware and the four vessels just described, though both samples are rather limited for definitive comparisons.

still show certain definite similarities. One is in the University Museum and carries the No. 10884 (pl. 41, *a*); the other two are in the collections of the North Dakota Historical Society and are numbered 553 and 8294 (pl. 41, *b*, *c*). The University Museum specimen was collected by H. N. Rust and is said to have come "from the Mandans at Berthold, the only one I have ever had of the Sioux." I have no further information as to when or how it was gotten from the Indians; but a letter from Rust, dated May 9, 1877, in the correspondence files of the National Museum, says that he had gathered "many specimens in the past twenty years." Whether this particular vessel was obtained by Rust during the period specified or later, there appears to be no way of determining at this time. For the two North Dakota vessels, the source is given as Fort Berthold, but without date or tribal identification.

All three of these vessels have globular, somewhat asymmetrical, bodies, constricted necks, and wide mouths; the rims are thickened and heavy, with plain rounded lip. At four evenly spaced points, the lower edge of the rim has been drawn downward to form triangular lugs which rest flat against the neck. The bodies are simple stamped; in UM 10884 the impressions are vertical, whereas in ND 553 and ND 8294 they are horizontal and partially obliterated. In size, they range as follows:

	UM 10884 *Cm.*	ND 553 *Cm.*	ND 8294 *Cm.*
Body diameter	14. 2	15	13. 7
Height, maximum	13. 5	13. 7	14

Decoration, simple and crude, is confined to the rims and lugs. On UM 10884 it consists of two parallel horizontal single-cord impressions, uneven and sloppily done, which bend downward at each lug to form a double V; in this V, about on a line with the upper cord impression, are two carelessly made round punctates. On ND 8294 there are also two horizontal single-cord impressions which dip at each of the four lugs but lack the punctates here. On ND 553 each of the lugs is set off by an upward-bowed "rainbow" of two or three single-cord impressions; otherwise the rim is undecorated.

The general shape and size of these three pieces, the use of simple stamping on the body, the thickened rim with four flat lugs, and the use of single-cord impressions on rim and lugs, are all reminiscent of the better done vessels in the preceding series. Despite their crudeness and generally clumsy look, there is no doubt that they belong to the same ceramic tradition that produced the better made pieces. All three, and particularly the two North Dakota Historical Society pieces, can be fairly described as decadent. It would be most inter-

esting to know at what date they were obtained from the Indians, and how long they had been in use at that time.[5]

In marked contrast to the foregoing specimens are the next three (pl. 42), which are also attributed to the Mandan at Fort Berthold. These include one (pl. 42, *a*) from the University Museum (No. 38258B); and two (pl. 42, *c*, *d*) from the Museum of the American Indian.

The University Museum specimen was collected by Thomas Donaldson from John S. Murphy, Indian agent at Fort Berthold, in July 1890. An accompanying statement, evidently by Murphy, identifies it as a—

> Specimen of Mandan pottery. This kind of pottery has been used by the Mandans for centuries. The smallest of these three [sic] pots is said to be 62 years old. It was secured from Big [or Bad?] Gun, Chief of the Mandans.

This is a thick-walled globular piece with flattish bottom and heavy rounded lip, generally more or less reminiscent of the so-called "coconut" jars (pl. 42, *a*). It is heavily tempered with angular siliceous particles, and gives evidence of having been much used. Beginning at the lip and running down the sides are partially obliterated markings which I cannot certainly identify; they suggest cord roughening rather than simple stamping. Measurements include: body diameter, 12.2 cm.; orifice diameter, 10.5 cm.; height, 10 cm.

What is presumably another of the three pots mentioned by Murphy, originally bearing the University Museum catalog No. 38258A, was subsequently exchanged with the Museum of the American Indian and now carries that institution's No. 1/6697 (pl. 42, *d*). I am advised (Burnett to Wedel, letter of January 15, 1953) that the information supplied at the time of the exchange is that "this piece was a part of the Thomas Donaldson Collection." I have not seen the vessel; but the photograph provided by the Museum of the American Indian identifies it as "black ware," 12.7 cm. high, with a rim diameter of 12.7 cm. In form it is globular and round bottomed, with constricted neck, outcurving rim, and thick rounded lip. Below the neck there are partially obliterated markings, both vertical and crisscrossed, that suggest cord roughening but may be simple stamping. This piece would appear to be slightly larger than the University Museum piece, 38258B; which, if either, was the 62-year old vessel mentioned by Murphy I cannot say.

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[5] Since completion of this manuscript, I have had opportunity to examine briefly at the American Museum of Natural History another group of pottery vessels from the Upper Missouri. Among these, one collected by Wissler in 1904 and described as an "unfired Mandan pot," closely resembles the two in Bismarck (Weitzner to Wedel, letter of May 18, 1954). Less obvious resemblances are shown by other vessels, collected by Wilson in 1909–11. All this suggests that these "decadent" vessels were actually made and in use later than the several specimens (USNM 6348, USNM 8407, UM L–37–52, and PM 40900) I have described from the period of the 1860's at Fort Berthold.

The third piece, No. 13/7826 (pl. 42, *c*) in the collections of the Museum of the American Indian, is also described as "black ware"; it is 13.4 cm. high and has a rim diameter of 10.8 cm. The body is globular, the neck constricted, and the rim outcurved to suggest the familiar S-shaped rim found on earlier Mandan wares. It, too, appears to be a relatively thick-walled vessel with heavy plain rounded lip. Below the neck there are vertical impressions from a simple stamp, the markings apparently extending downward onto the base. No ornamentation is visible on the rim. There is no documentation for this piece, which was acquired in 1926 through purchase and is "presumed to be Mandan" (Burnett to Wedel, letter of January 15, 1953).

An interesting group of six pottery vessels is shown in an old photograph sent me by Alan Woolworth of the North Dakota Historical Society. According to Mr. Woolworth (letter of February 12, 1954), they are on "an old stereo photograph which was in the collection of a D. W. Longfellow, who was a trader at Fort Berthold reservation from 1877–79. The photographs were made by an O. S. Goff, who was a pioneer photographer at Bismarck in the 1870's and 1880's. On the back of this stereo was the notation, 'Pottery made by Mandan women.'" In a later letter, Woolworth observes that "I am quite sure that this photo was taken in the late summer of 1879 at Like-a-Fishhook Village. Several of the Goff photos of this same series bear dates of that period."

In the group shown here (pl. 43, *b*), there are two double-mouthed vessels that have no counterpart in form, so far as I am aware, in other late pottery reported to date from the Fort Berthold locality or elsewhere on the Upper Missouri. The other four pieces apparently present no anomalies, unless perhaps in the somewhat unusual type of lug suggested on the uppermost piece in the pile. The squarish rim on the specimen in the foreground is of some interest, but is probably within the range of variation that might be expected in the local tradition. Most or all of the vessels have body markings, which I would presume represent simple stamping or, less probably, cord roughening.

VESSELS ASCRIBED TO THE ARIKARA

These may be divided into two groups. One, consisting of two vessels, includes pieces made during the 19th century; the other, including about a dozen specimens, comprises products of the present century. Altogether, they may be said to epitomize the history of native pottery making on the Upper Missouri in the past century and a half.

The two earlier vessels include one in the Division of Ethnology, United States National Museum (No. 167141), and one in the Museum of the American Indian (No. 20/1401). The first (pl. 44, *a*) is among the objects presented in 1892 by Mrs. Mildred M. Hazen, widow of Brig. Gen. W. B. Hazen. The circumstances surrounding Brig. Gen. Hazen's acquisition of the vessel are not stated; but his service record indicates that he was stationed at Fort Buford, Dakota Territory, intermittently from 1872 until the mid-1880's. It is presumed that he secured the vessels during that period.[6] There is no tribal identification in the record.

The vessel is globular and round bottomed, with constricted and relatively high neck, narrow collared rim, thin sharpish lip, and wide mouth. The surface color is blotchy, ranging from dull orange to nearly black. Quartz inclusions, many of them rounded, suggest sand tempering; few mica flecks are visible. The piece is hard and well fired. Measurements are: body diameter 18.7 cm.; height 19.7 cm.; orifice diameter 13.5–15 cm. There is some restoration but this in no way affects the measurements or form of the piece. Traces of unburned organic matter adhere to the lower interior surface.

Beginning at the base of the high plain neck, the body is covered with simple stamping in which the impressions run vertically to the base. The rim is collared, 10–12 mm. wide, and bears short single-cord impressions slanting downward to the right. Two narrow, flattened strap handles, oppositely placed, extend from the lower edge of the collar to join the vessel about halfway down the neck. The slanted cord impressions are carried down over the upper part of the handles. Alternating with the handles are two slight projections from the lower edge of the rim collar—tabs rather than lugs, whose decoration is merely a continuation of that on the rim generally. The vessel, as a whole, is about as well made as any of those discussed in this paper, and the cord impressions are appreciably finer than those in the two "Mandan" pots in the national collections.

Despite the lack of any tribal identification in the record, it seems very probable that this vessel is Arikara. In shape and decoration, the rim is characteristically Arikara of the latter 18th century; and judging from the collections made by myself for the River Basin Surveys in a contact Arikara village site (39ST1) at the mouth of the Cheyenne River in 1951, small loop or strap handles and rim tabs or lugs also occur with some frequency. On the whole, the piece conforms much more closely to what is generally regarded as Arikara than it does to Mandan wares of the Upper Missouri region.

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[6] Bushnell (1922, pl. 41, *b*) illustrates this specimen but gives incorrectly both the catalog number and the collector. The legend accompanying his figure cited pertains to USNM 8407, described elsewhere in this paper.

The vessel in the Museum of the American Indian (No. 20/1401; pl. 44, *b*) is credited to De Cost Smith, with the further identification as Arikara from the Fort Berthold Reservation. Described as "brown ware," it was "made in June 1886 by a woman said to be the last potter in the tribe." The piece stands 19 cm. high and has a rim diameter of 12.7 cm. It has a globular body, constricted neck, and outcurving thickened (or S-shaped?) rim. The body is covered with simple stamping, but in contrast to the preceding piece, this has the impressions running horizontally. On the rim are single-cord impressions, apparently slanting downward slightly to the right. There are four evenly spaced tabs extending out from the lower edge of the collar; the only one clearly visible in front view has two crossed single-cord impressions which I presume are repeated on the other three tabs. My impressions, derived from the photograph, are that this piece is generally somewhat cruder than is the Hazen specimen described immediately above.

In sharp contrast to the 19th-century pottery we have been considering are the recent products of the Fort Berthold Indians. A series of these late creations, most of them collected by Melvin R. Gilmore for the Museum of the American Indian (Gilmore, 1925), is illustrated herewith (pl. 45); there is another specimen, collected by Frances Densmore in or before 1923, in the Division of Ethnology, United States National Museum (No. 361907).[7] Generally, they are thick heavy plainware pieces, ranging in maximum dimension from 8 to 13 cm., up to 12 or 15 mm. thick, and representing chiefly bowl forms or small globular jars. Rims show little or no elaboration and are without ornamentation; body stamping is absent or extremely rare. One small jar has two horizontally pierced lugs or small handles. The National Museum piece is red and highly polished, but very thick and heavy. All doubtless were fashioned by lump modeling, as described by Gilmore (1925, p. 287). By comparison with the 19th-century wares, this is a crude, clumsy, and generally unattractive product; and it shows little or no resemblance to the better pottery of the old days.

GENERAL OBSERVATIONS

The pottery vessels considered in this paper represent a time span of something more than a century—from Lewis and Clark in 1804 to M. R. Gilmore and Frances Densmore about 1920. To what extent they truly sample the potterywares produced on the Upper Missouri

[7] Attached to this specimen is the following handwritten label: "Jar made by 'Kate,' an Arickara woman living on the Fort Berthold reservation in N. D. She is said to be the only woman of her tribe, in this locality, who can make pottery. She makes it entirely 'in the old way.' She surrounds the process with considerable mystery. She makes very few pieces—only making one once in a while, 'when she feels just like it.' She allows no one to see a jar until it is finished."

during this period I am unable to say. In general, the fieldwork done here to date would seem to indicate that native pottery was both scarce and of poor quality. I would suppose, therefore, that the present series may give disproportionate prominence to the better pieces of the time as compared to the general run of such domestic ware as was still being made. For a wider random sampling and fuller details, we shall still have to await publication of full reports on recent archeological salvage operations at Fort Berthold and other mid-19th century village sites along the Missouri above Bismarck.

Whatever the shortcomings of the present series, it seems to me that the vessels nevertheless afford some interesting insights into the late stages of aboriginal pottery making on the Upper Missouri. The two pieces credited to Meriwether Lewis may or may not be representative of early 19th-century Mandan-Hidatsa wares; with respect to form, decoration, and workmanship, they still carry the marks of an industry in which there were both technologic competence and a measure of artistic ability. I suspect they would not be at all out of place in pottery collections from late 18th- and early 19th-century Mandan and Hidatsa village sites, though they might constitute a minority ware or rim style. The first group of vessels described from Fort Berthold (pls. 39, 40), perhaps related to Howard's Fishhook A (unsmoothed) ware, seems to carry on the old tradition with regard to paste, tempering, rim ornamentation, and the presence of handles and lugs; but the decoration is coarser, the workmanship less competent, and the product is utilitarian rather than esthetic. Since these pots were collected in the 1860's, they suggest that some of the potters, at least, were still fairly capable technologists, even though the artistic standards to which they labored were obviously lower than those of an earlier day. The cruder and more carelessly made pieces (pls. 41, 42), still retaining the quartered rim with four appendages, are yet further along the road to decadence in all particulars, although it is not entirely certain that they were all actually of later manufacture than the better Fort Berthold vessels. That these specimens were actually of Mandan manufacture, as a good many of the records allege, is by no means established; they may represent the dominance of a Hidatsa variant of the old Mandan-Hidatsa tradition, itself not yet very clearly or adequately defined.

The vessels ascribed to the Arikara illustrate even more strikingly the falling apart of the old tradition. The Hazen piece, which may be a well cared for heirloom or perhaps was made to order by some old potter, impresses me as close to the Arikara products of the late 18th century. The De Cost Smith vessel shows relationships in rim form and other details, but can hardly be called anything else than decadent, even though there is no way of saying how far apart this and the

Hazen piece were in time of manufacture. The last group of specimens, Arikara-made in the early 20th century, is a long way indeed from the traditional products of this tribe in early white and pre-white days.

As a group, the vessels here considered help to document the view of a steadily degenerating native craftsmanship throughout the 19th century among the Arikara, Mandan, and Hidatsa pottery makers. Whether this decline began as early as Will and Hecker (1944, p. 70) suggest will depend on studies of a larger sampling than is here available. It would appear, however, that their conclusion that after 1825, "the ceramics of the three tribes was reduced to coarse pots used as storage containers, unfit for cooking . . . and of little value either for culinary use or as decorative accessories . . ." is perhaps a bit too strong. Some, at least, of the native potters as late as the 1860's were capable of producing highly serviceable, if not very ornamental, potteryware.

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EXPLANATION OF PLATES

Plate 38

Fragmentary pottery vessels collected by Lewis and Clark near mouth of Knife River, N. Dak., about 1804–5. *a*, University Museum No. L–83–5a; *b*, University Museum No. L–83–5b. Photographs from University Museum.

Plate 39

Pottery vessels collected by Drs. C. C. Gray and Washington Matthews before 1868; probably from Like-A-Fishhook village, Fort Berthold, N. Dak., and said to be Mandan. *a*, United States National Museum No. 8407, height 16.5 cm.; *b*, United States National Museum No. 6348, height 15.8 cm.

Plate 40

Pottery vessels, probably from Like-A-Fishhook village, Fort Berthold, N. Dak. *a*, University Museum No. L–37–52, height 15.2 cm.; Franklin Peale collection. *b*, Peabody Museum of Archeology and Ethnology, Harvard University, No. 87–11–10/40900, height 22 cm.; collected by Rev. C. L. Hall on Fort Berthold Reservation, 1886, and said to have been "made about 20 years ago."

Plate 41

Pottery vessels from Fort Berthold, N. Dak. *a*, University Museum No. 10884, height 13.5 cm.; collected by H. N. Rust; *b*, North Dakota Historical Society No. 553, height 13.7 cm.; *c*, North Dakota Historical Society No. 8294, height 14 cm.

Plate 42

Pottery vessels from Fort Berthold, N. Dak. *a*, University Museum No. 38258–B, height 10 cm.; collected by Thomas Donaldson from John S. Murphy, Indian agent, Fort Berthold. *b*, MAI–HF No. 1/3801, height 12.7 cm.; collected by Gilbert Wilson from Long Fight, Mandan, at Fort Berthold reservation. *c*, MAI–HF No. 13/7826, height 13.3 cm.; Mandan; by purchase. *d*, MAI–HF No. 1/6697, height 12.7 cm.; Mandan, Fort Berthold, by exchange from University Museum.

Plate 43

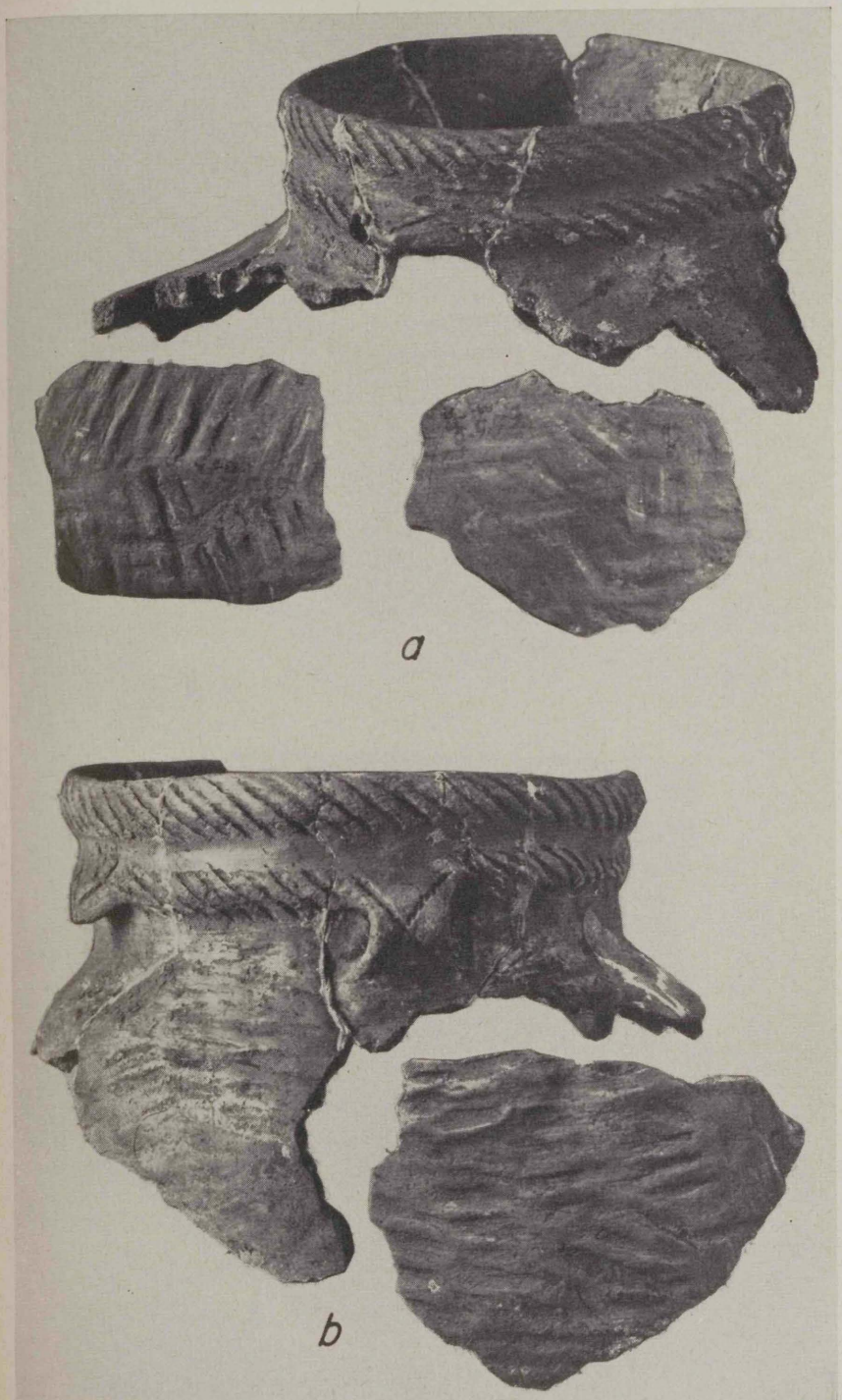
Pottery vessels from Fort Berthold, N. Dak. *a*, United States National Museum No. 167144, height 16.4 cm.; Hazen collection, exact provenience unknown. *b*, Group of pottery vessels "made by Mandan women"; photographed by O. S. Goff, probably at Like-A-Fishhook village in the summer of 1879.

PLATE 44

Pottery vessels, probably Arikara, from Fort Berthold, N. Dak. *a*, United States National Museum No. 167141, height 19.8 cm.; "Dakota Territory, probably Fort Buford"; Hazen collection. *b*, MAI–HF No. 20/1401, height 19 cm.; "made in June 1886 by woman said to be last potter in tribe"; collected by De Cost Smith, Fort Berthold Reservation, N. Dak.

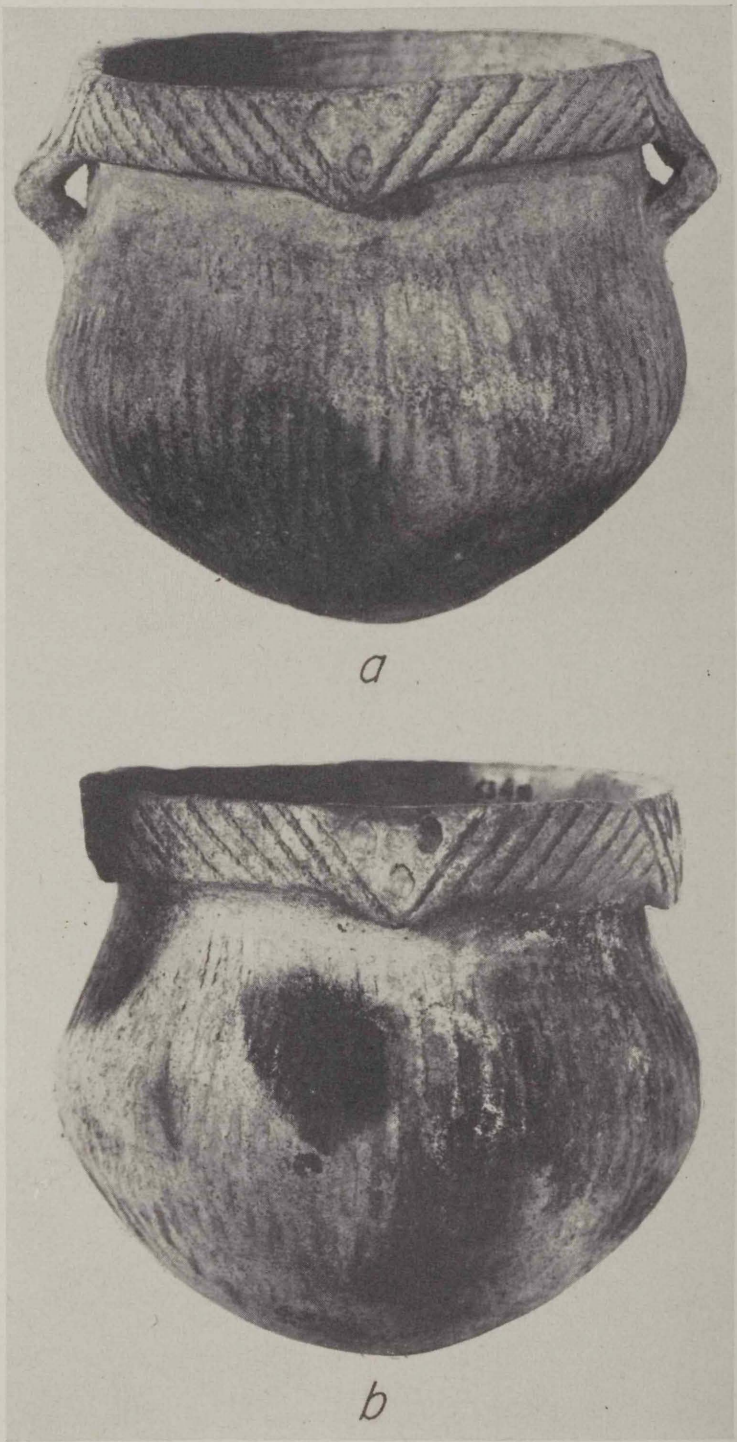
PLATE 45

Recent pottery vessels from the Arikara, Fort Berthold, N. Dak., collected by M. R. Gilmore; photographs from Museum of the American Indian, Heye Foundation. *a*, Pottery medicine cup, height 4.5 cm.; MAI–HF No. 12/3050. *b*, Pottery jar made by Mrs. Red Tail, 1920, height 8.3 cm.; MAI–HF No. 13/9445. *c*, Pottery bowl, height 7 cm.; MAI–HF No. 13/2840. *d*, Pottery jar made by Mrs. Red Tail, September 1916; height 8.3 cm.; MAI–HF No. 12/3047. *e*, Pottery bowl, height 9.2 cm.; MAI–HF No. 13/2838. *f*, Pottery jar, height 13.3 cm.; MAI–HF No. 14/1689. *g*, Pottery bowl, height 9.5 cm.; MAI–HF No. 12/3051. *h*, Pottery bowl, height 8 cm.; MAI–HF No. 13/2839.



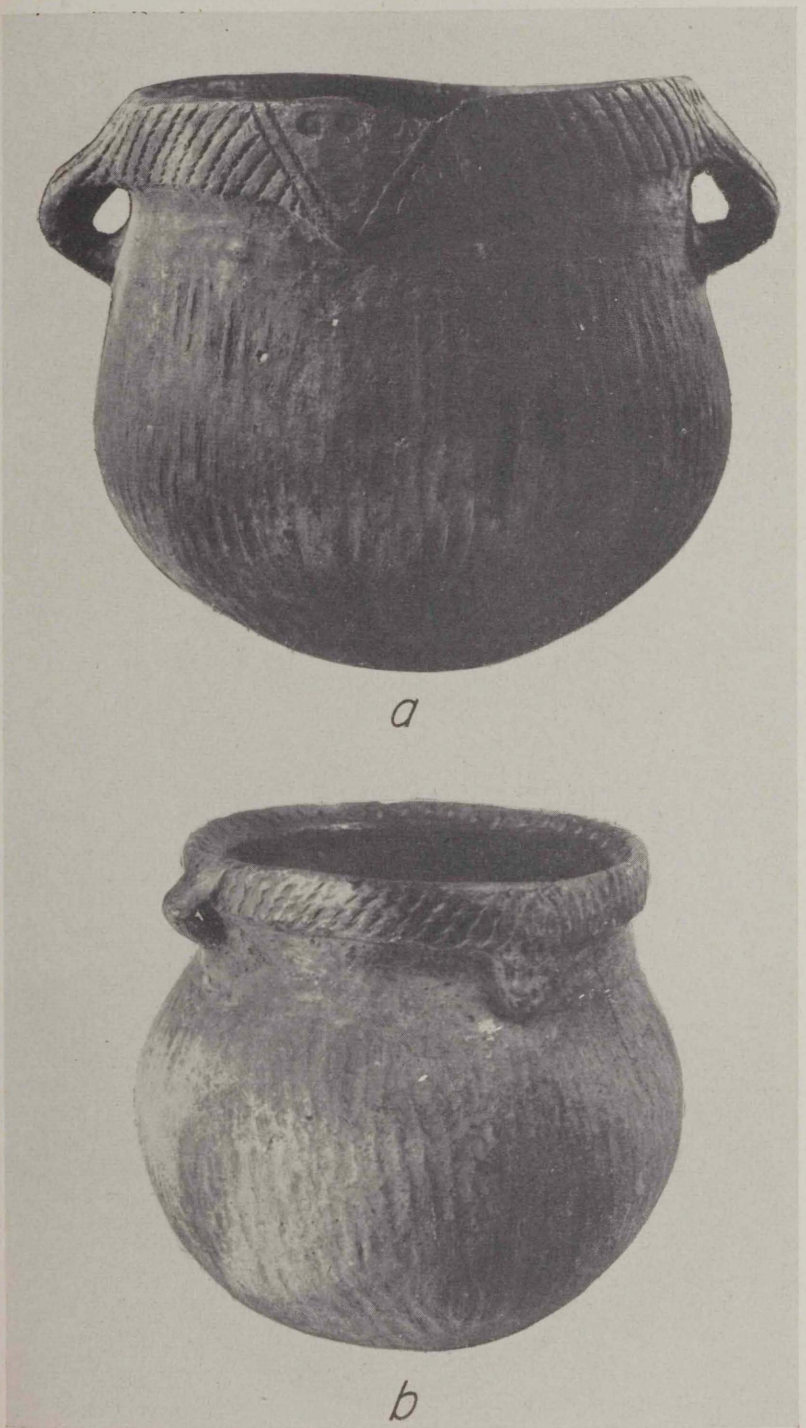
Fragmentary pottery vessels collected by Lewis and Clark near mouth of Knife River about 1804–5. (Photograph from University Museum.)

(For explanation, see p. 113.)



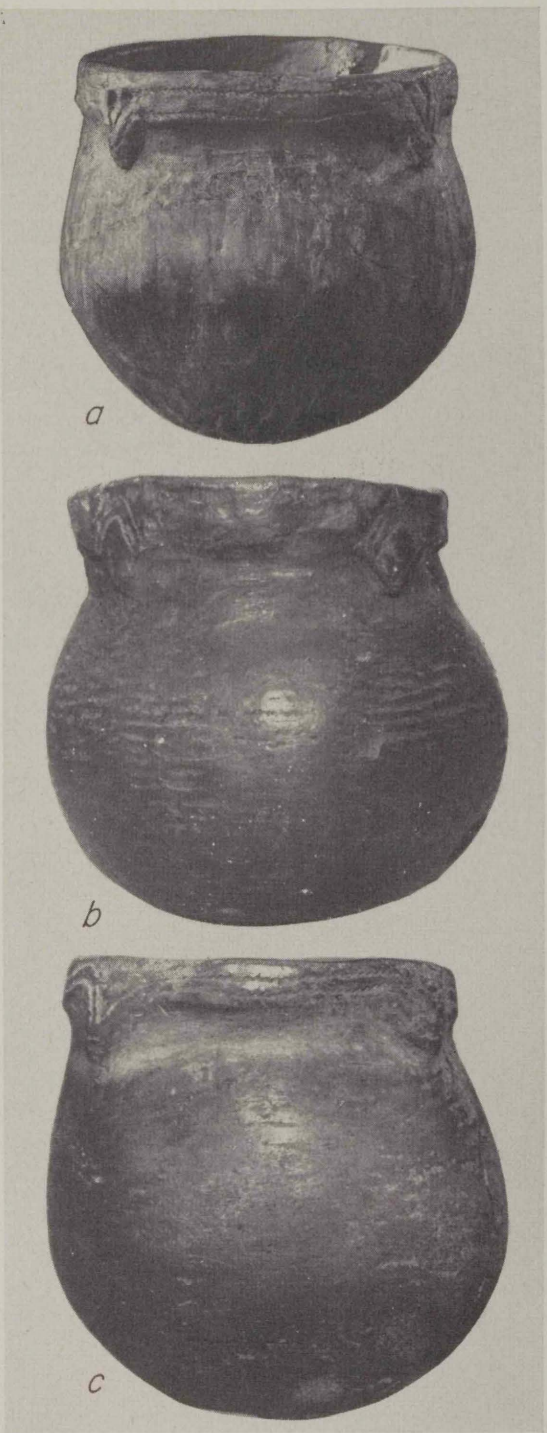
Pottery vessels collected by Drs. C. C. Gray and Washington Matthews, probably at Fort Berthold, N. Dak.

(For explanation, see p. 113.)



Pottery vessels probably from Fort Berthold, N. Dak. (Photographs from (*a*) University Museum and (*b*) Peabody Museum, Harvard University.)

(For explanation, see p. 113.)

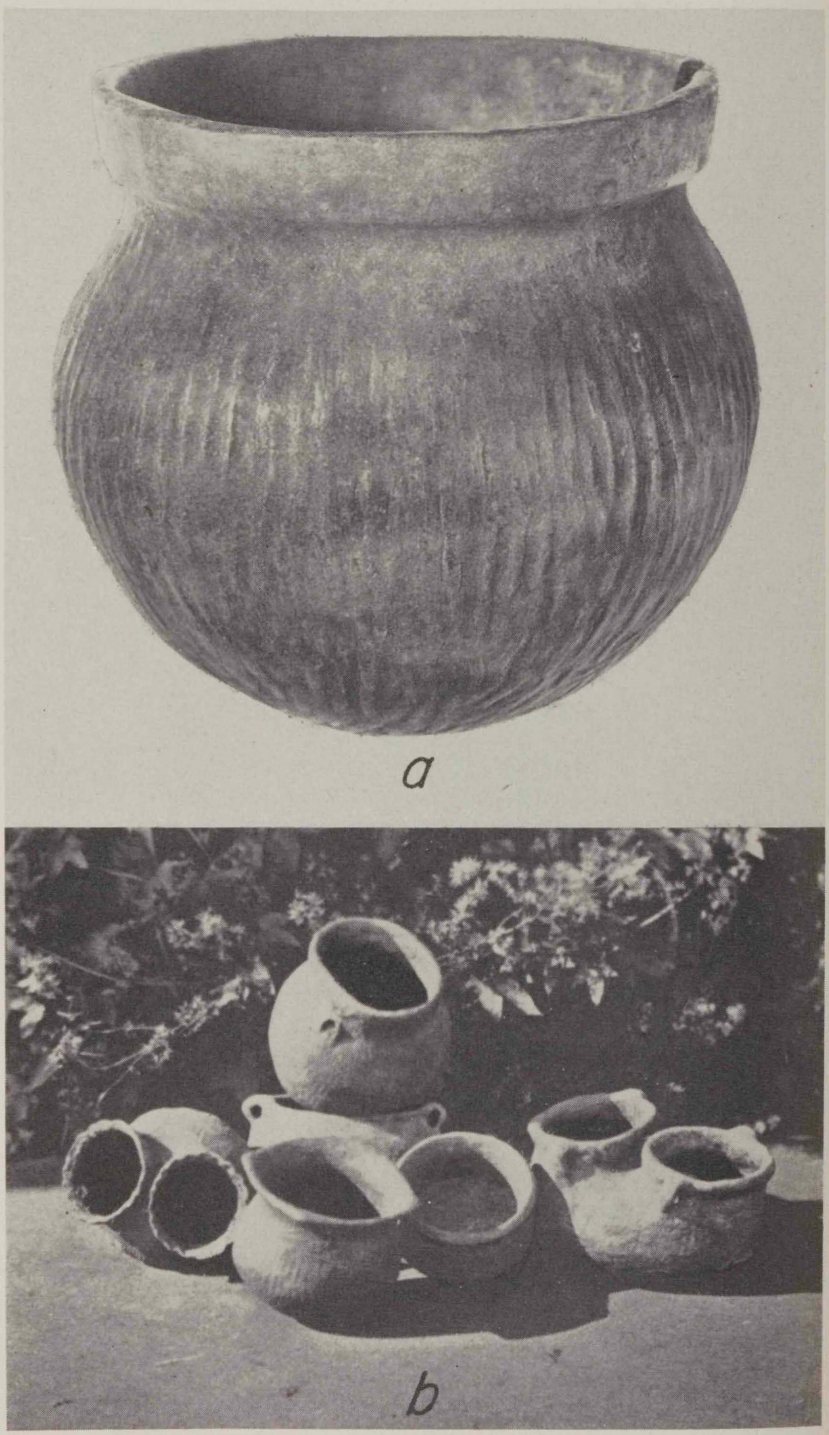


Pottery vessels from Fort Berthold, N. Dak. (Photographs from (*a*) University Museum, and (*b*, *c*) North Dakota Historical Society.)

(For explanation, see p. 113.)

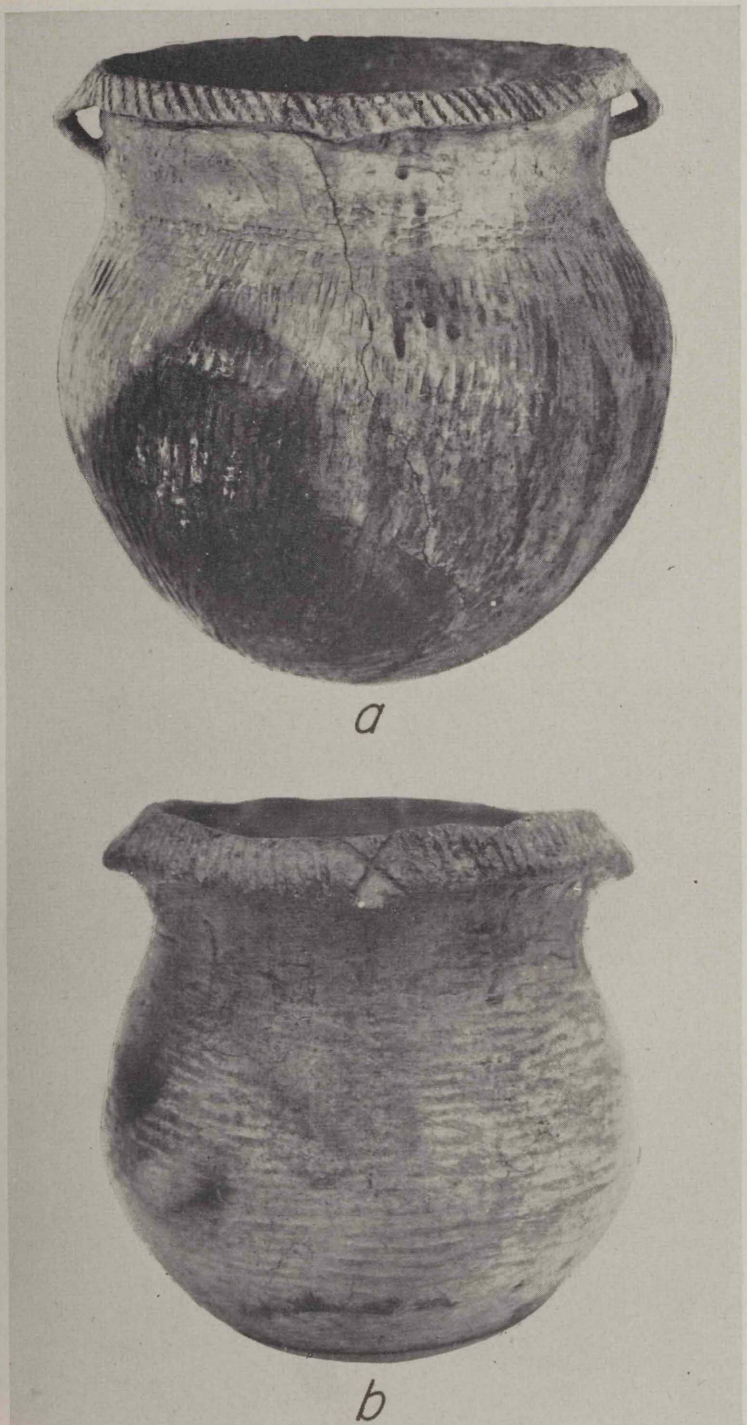
Pottery vessels from Fort Berthold, N. Dak. (Photographs from (*a*) University Museum, and (*b–d*) Museum of the American Indian, Heye Foundation.)

(For explanation, see p. 113.)



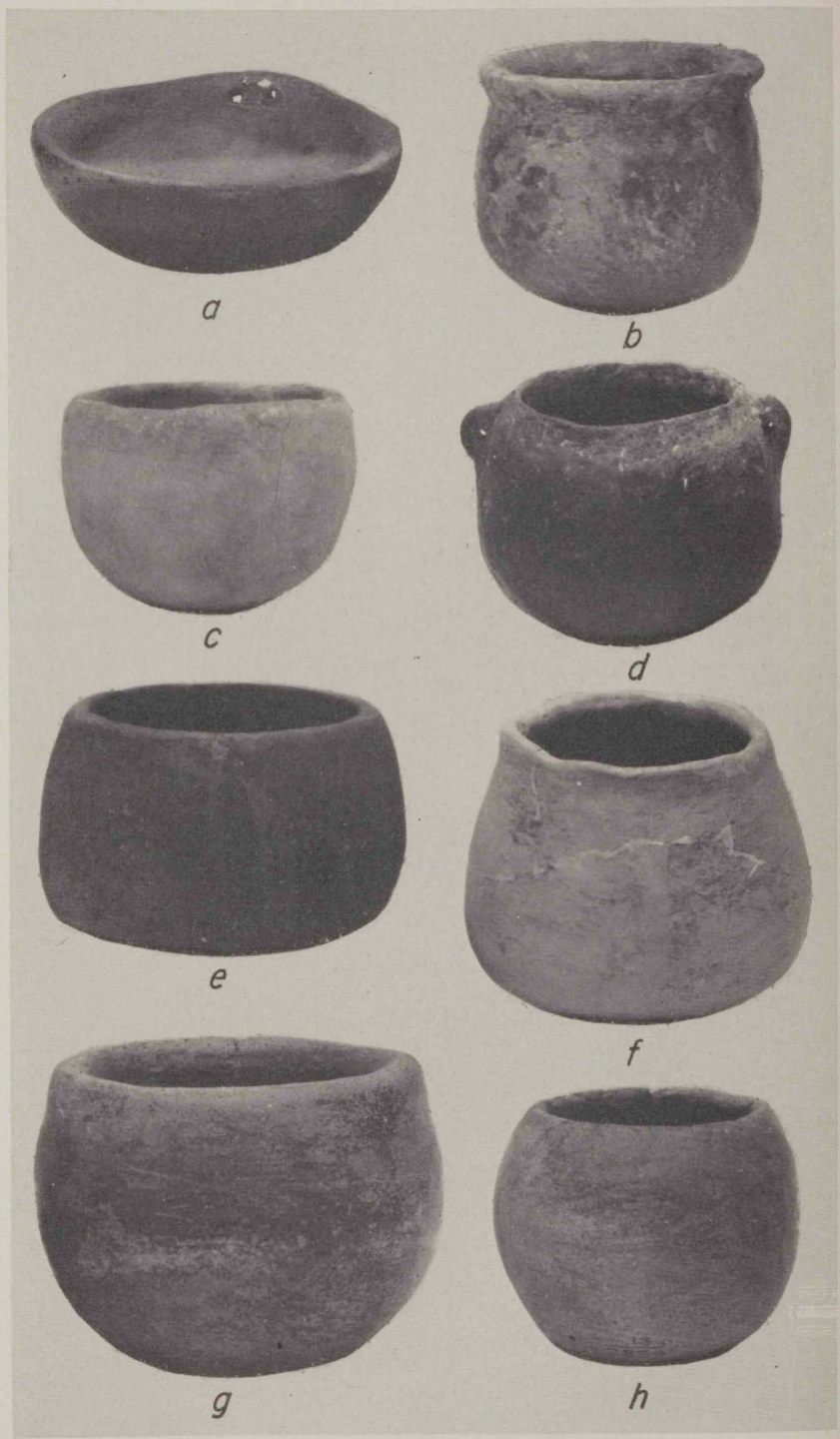
Pottery vessels from Fort Berthold, N. Dak. (*b*, Photograph from North Dakota Historical Society.)

(For explanation, see p. 113.)



Pottery vessels, probably Arikara, from Fort Berthold. (*b*, Photograph from Museum of the American Indian, Heye Foundation.)

(For explanation, see p. 114.)



Recent pottery vessels from the Arikara, Fort Berthold, N. Dak. (Photographs from Museum of the American Indian, Heye Foundation.)

(For explanation, see p. 114.)