PUBLISHER'S NOTE

A separate edition is published of each paper in the series entitled "River Basin rveys Papers." Copies of Papers 1–6 are available at the Bureau of American hnology, Smithsonian Institution, and can be had free upon request.

RIVER BASIN SURVEYS PAPERS PUBLISHED PREVIOUSLY

1. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1948, by Waldo R. Wedel. Bull. 154, pp. xv–xviii, 1–59, pls. 1–12, fig. 1. 1953.
2. Prehistory and the Missouri Valley Development Program: Summary Report on the Missouri River Basin Archeological Survey in 1949, by Waldo R. Wedel. Bull. 154, pp. 61–101, pls. 13–15. 1953.
3. The Woodruff Ossuary, a Prehistoric Burial Site in Phillips County, Kansas, by Marvin F. Kivett. Bull. 154, pp. 103–141, pls. 16–28, figs. 1–3. 1953.
4. The Addicks Dam Sites:
   I. An Archeological Survey of the Addicks Dam Basin, Southeast Texas, by Joe Ben Wheat. Bull. 154, pp. 143–252, pls. 29–47, figs. 4–23. 1953.
   II. Extinct Skeletal Remains from the Doering and Kobs Sites, Addick Reservoir, Texas, by Marshall T. Newman. Bull. 154, pp. 253–265, figs. 24–28. 1953.
5. The Hodges Site:
   I. Two Rock Shelters near Tucumcari, New Mexico, by Herbert W. Dick. Bull. 154, pp. 267–284, pls. 48–54, figs. 29–30. 1953.
   II. Geology of the Hodges Site, Quay County, New Mexico, by Sheldon Judson. Bull. 154, pp. 285–302, figs. 31–35. 1953.
6. The Rembert Mounds, Elbert County, Georgia, by Joseph R. Caldwell. Bull. 154, pp. 303–320, pls. 55–56, figs. 36–40. 1953.

83d Congress 2nd Session - - - - - - House Document No. 279

SMITHSONIAN INSTITUTION
BUREAU OF AMERICAN ETHNOLOGY
BULLETIN 158

RIVER BASIN SURVEYS PAPERS

Inter-Agency Archeological Salvage Program

No. 7.—ARCHEOLOGICAL INVESTIGATIONS IN THE OAHE DAM AREA, SOUTH DAKOTA, 1950–51, by DONALD J. LEHMER

UNITED STATES
GOVERNMENT PRINTING OFFICE
WASHINGTON : 1954

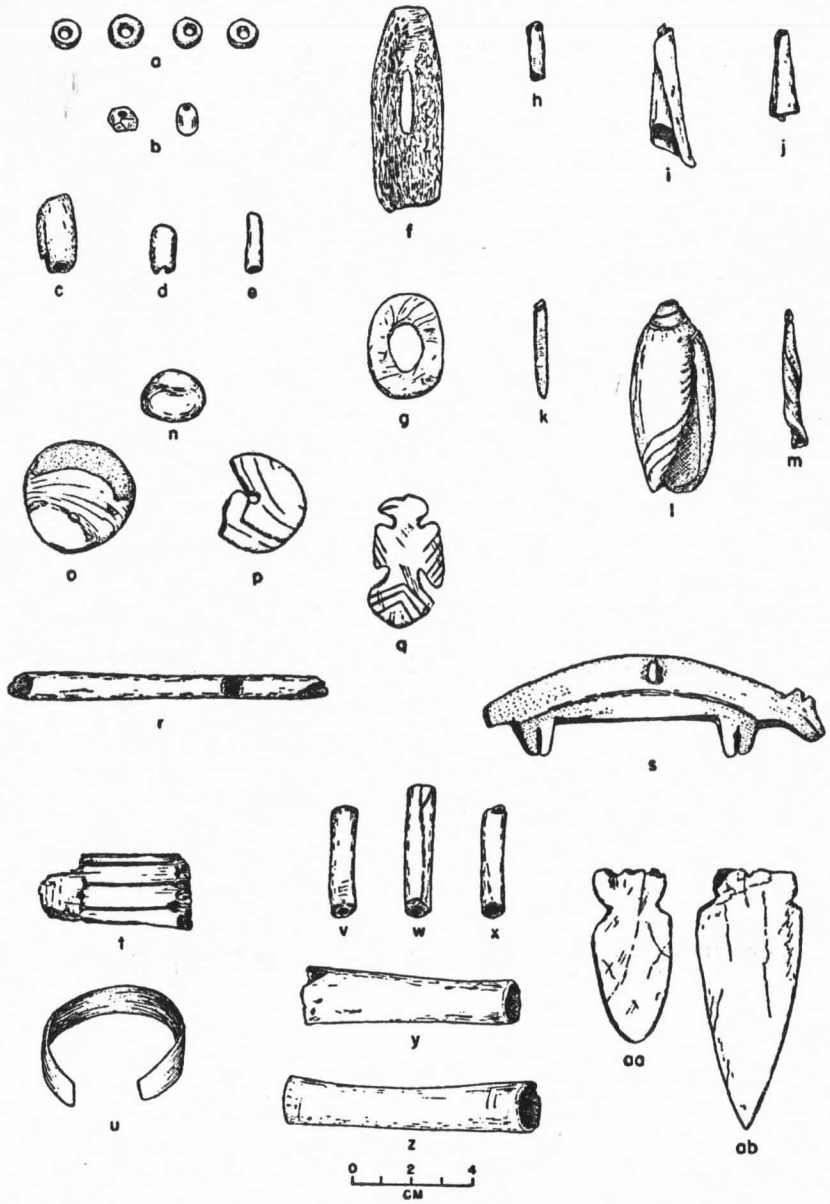


FIGURE 34.—Ornaments, Dodd site. *a*, *d*, and *e*, Shell beads; *b*, glass beads; *c*, clay bead; *f*, *g*, open-center bone pendants; *n*, *o*, shell disks; *h–j*, brass tinklers; *k–m*, *p*, and *s*, shell pendants; *q*, bird silhouette; *r*, whistle; *t*, bow guard fragment; *u*, brass bracelet; *v–z*, bone tubes; *aa*, *ab*, spear-shaped bone pendants.

the same length inserted in it. There are three groups of tubes on the basis of the length:

Group 1; 6 specimens.

Length: Mean 40 mm., range 37 to 45 mm.

Group 2; 4 specimens.

Length: Mean 80 mm., range 73 to 88 mm.

Group 3; 4 specimens.

Length: Mean 118 mm., range 113 to 122 mm.

WHISTLE

(Fig. 34)

(*1 specimen*)

A section of bird long bone with a small notch cut through one side.

Length: Over 110 mm.

SNOW SNAKE

(Fig. 32)

(*1 specimen*)

Deer antler tine with a deep tapered socket in the cut end; tip polished. This piece is similar to those figured by Culin (1907, figs. 536–539 and 542), which were used as javelin heads or which had feathers attached to the socketed end. Both the javelins and the feathered pieces were used in various forms of the "snow-snake" game.

Length: 45 mm.

Hole diameter: 8 mm.

ORNAMENTS

(Fig. 34)

BONE

Spear-shaped bone pendants; 3 specimens.

Pendants (?) cut from the thin area of the blade of a bison scapula in the form of a spear point.

Lengths: 60 and 88 mm.

Widths: 26 and 35 mm.

Open-center bone pendants; 4 specimens.

Oval to rectangular pendants (?) with the centers removed; cut from the thin area of the blade of a bison scapula.

Lengths: 35 and 71 mm.

Widths: 22 and 65 mm.

Note: These pieces are similar to objects which have previously been classed as "fishhook blanks." The occurrence of four such blanks but no fishhooks at the Dodd site raises some question regarding this interpretation.

Antler bracelet or bow guard; 1 specimen.

A fragment from a piece of elk antler which had apparently been steamed and bent into some sort of wristlet. Ornamented with incised decoration.

Effigy bone pendant; 1 specimen.

A piece of buffalo (?) bone carved into a conventionalized bird silhouette and decorated with incising at the beak, wings, and tail.

SHELL

Shell pendants; 4 specimens.

Conventionalized silhouette of a bear (?) cut from a large marine bivalve and drilled for suspension.

Shell disk 32 mm. in diameter drilled for suspension.

An *Oliva sayana* Ravenel shell with the spire removed.

A long, tapered sliver of shell encircled by a groove at the large end.

Discoidal shell beads; 5 specimens.

Perforated shell disks.

Diameters: Mean 10 mm., range 5 to 12 mm.

Thickness: Mean 4 mm., range 4 to 5 mm.

Tubular shell bead; 1 specimen.

Length: 15 mm.

Diameter: 8 mm.

Dentalium shell bead; 1 specimen.

A very highly polished bead made from a dentalium shell.

Length: 19 mm.

Maximum diameter: 16 mm.

Shell disks; 2 specimens.

Undrilled disks cut from the shell of some large bivalve.

Diameters: 21 and 37 mm.

GLASS

Blue glass beads; 2 specimens.

One whole and one fragmentary bead made from translucent blue glass. The beads are decahedral rather than spherical.

Diameter: Ca. 5 mm.

White glass beads; 4 specimens.

More or less ovoid beads made of opaque milky glass.

Length: Mean 11 mm., range 10 to 12 mm.

Diameter: Mean 7 mm., range 7 to 8 mm.

CLAY BEAD

(*1 specimen*)

A tubular clay bead.

Length: 27 mm.

Diameter: 13 mm.

Metal Ornaments and Other Objects

Three metals were found at the Dodd site—brass, iron, and copper. Most of the pieces were unrecognizable fragments, but a few were definite artifacts. It is particularly interesting that no metal artifact in the collection is of European manufacture, the pieces representing native utilizations of White materials.

BRASS

Knife blade; 1 specimen.

A flat rectangular sheet of brass 29 by 135 mm. hafted in the edge of the ventral end of a bison rib.

Bracelet (fig. 34); 1 specimen.

A thin semicircular bracelet with tapered and rounded ends.

Width: 13 mm.

Maximum diameter: 46 mm.

Tinklers; 4 specimens.

Small conical or cylindrical objects rolled of thin sheet brass. One was drilled at the small end. These were probably used as "tinklers" on a garter or on the fringe of some other garment.

Length: Mean 29 mm., range 18 to 47 mm.

Maximum diameter: Mean 10 mm., range 6 to 15 mm.

Unidentifiable fragments; 10 specimens.

IRON

Knife blades (fig. 26); 3 specimens.

Two asymmetrical leaf-shaped pieces of thin iron, one hafted in the edge of the ventral end of a bison rib.

Lengths: 38 and 53 mm.

Widths: 17 and 23 mm.

One triangular piece of thin iron 20 by 50 mm.

Chisel (fig. 29); 1 specimen.

A long, concave-sided piece of thin iron with one flared end that was apparently sharpened to a cutting edge.

Length: 61 mm.

Width: 18 mm.

Spike or awl; 1 specimen.

Length: 105 mm.

Arrow point; 1 specimen.

Long, triangular.

Length: 31 mm.

Width: 10 mm.

Unidentifiable fragments; 6 specimens.

COPPER

Copper tubes; 4 specimens.

Small fragments of sheet copper rolled into tubes. Two were rolled around twigs which had been preserved by the action of the copper salts.

Length: Fragmentary, up to 60 mm.

Diameter: Crushed, up to 5 mm.

THE ASSOCIATIONS

Even during the early stages of the work at the Dodd site, it was apparent that the archeological situation there was a fairly complicated one. The presence of three styles of houses, and the repeated instances of the superposition of one house upon another indicated more than one occupation of the village. It seemed likely that different types of artifacts and pottery would prove to be associated with the different types of houses, but there were a number of difficulties in establishing these associations.

There is an inevitable mixing of the cultural debris in any village which is occupied for a long period of time, and this is particularly true of the earth lodge sites of the Plains. Older materials were repeatedly brought up to the occupation surface when house and cache pits were dug. The collapse of house superstructures probably carried older

SNOW SNAKES

(Fig. 51)

(5 specimens)

Large tines cut from deer antlers; deep, tapered, oval sockets in the cut ends; tips show considerable polish. These pieces are very similar to those figured by Culin (1907, figs. 536–539 and 542) which were used as javelin heads or which had feathers attached to the socketed end. Both the javelins and the feathered pieces were used in various forms of the "snow-snake" game.

Length: Mean 117 mm., range 97 to 138 mm.

Hole diameters: Mean 15 mm., range 12 to 16 mm.

AWLS

(31 specimens)

Dodd Group 2; 20 specimens.

Made from the edges of bison ribs usually cut so as to include some of the cancellous tissue. Having been cut from the edge of the bone, these pieces have a circular or triangular cross section.

Lengths of 3 whole specimens: 83, 86, and 138 mm.

Dodd Group 6; 8 specimens.

Made from rough and irregular splinters of buffalo ribs and long bones, unworked except for the tip which is ground to a smooth sharp point. Apparently considerable range in length. Single whole specimen 233 mm. long; at least two pieces were longer than this.

Group 7; 3 specimens.

Bird bones split through the head and shaft; shaft worked to a sharp point.

Lengths: 94, 96, and 141 mm.

PUNCHES

(2 specimens)

Dodd Group 4.

Made from ends of deer antler prongs, the end showing definite signs of wear.

QUILL FLATTENERS

(Fig. 52)

(1 specimen)

Split and polished segment of buffalo rib; cancellous tissue partly ground down; decorated with narrow incised lines.

Length: 119 mm.

Width: 14 mm.

FLESHERS

(Fig. 49)

(9 specimens)

Dodd Group 1 (fig. 49).

Made by cutting the shaft of a bison metatarsal diagonally so as to produce a chisel edge. Seven pieces had serrated or toothed cutting edges, one had a smooth cutting edge, and the cutting edge was broken off the ninth specimen. The proximal end of the bone was left intact. One piece was found with the tarsal bones articulated to serve as a handle, and it seems likely that they were left in place on other specimens of this group.

Lengths: 164 and 182 mm.

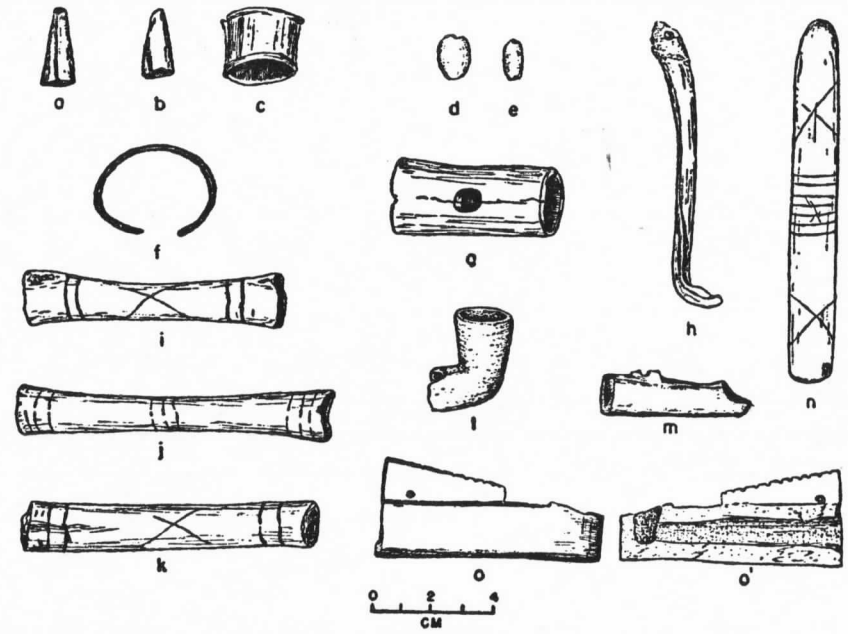


FIGURE 52.—Miscellaneous artifacts, Phillips Ranch site. *a*, *b*, Brass tinklers; *c*, brass ring; *d*, *e*, glass beads; *f*, brass bracelet; *g*, whistle; *h*, penis-bone pendant; *i–k*, incised bone tubes; *l*, *m*, *o*, *o'*, catlinite pipes; *n*, quill flattener.

HIDE GRAINERS

(14 specimens)

Heads of bison humeri cut from the bone so that a large area of cancellous tissue is exposed.

SCAPULA SCRAPERS

(6 specimens)

Long, straight-sided fragments of a bison scapula which had been worked into scrapers with one sharp and one blunt edge. In some cases the piece was cut from the posterior border with the ridge either left intact or partly cut away. In others it was cut so that the scapular spine formed one edge, or was cut from the central part of the blade.

Length: Mean 206 mm., range 184 to 222 mm.

Width: Mean 62 mm., range 54 to 106 mm.

KNIFE HANDLES

(7 specimens)

Segments cut from the ventral ends of bison ribs and grooved along one edge to allow for the insertion of a metal knife blade. The two whole specimens measure 148 and 190 mm. in length. One of the broken pieces was originally well over 200 mm. long.

ARROW-SHAFT WRENCHES

(Fig. 50)

(*19 specimens*)

Made by drilling a series of holes of different diameters through a section cut from the ventral end of a bison rib.

Length single whole specimen: 144 mm.; some others had been longer.

Hole diameters: Mean 14 mm., range 11 to 15 mm.

BONE TUBES

(Fig. 52)

(*13 specimens*)

Segments cut from dog (?) bones, seven decorated with fine line incising.

Length: Mean 86 mm., range 41 to 110 mm.

WHISTLES (?)

(Fig. 52)

(*2 specimens*)

Short bone tubes with circular holes drilled through one side.

Lengths: 53 and 69 mm.

ANTLER SCRAPER HAFTS

(Fig. 49)

(*3 specimens*)

L-shaped pieces of elk antler; rounded end on long leg; bevel on short leg to which a scraping blade was presumably lashed.

TENONED BONE ARROW POINT

(Fig. 48)

(*1 specimen*)

Sliver cut from the edge of a bison rib and fashioned into an arrow point with a long tapered blade and a short tapered tenonlike stem.

Blade length: 64 mm.

Stem length: 19 mm.

ORNAMENTS

BONE

Drilled penis bone (fig. 52); 1 specimen.

Raccoon penis bone drilled for suspension.

Claw pendant; 1 specimen.

Hawk (?) claw drilled for suspension.

SHELL

No worked shell of any sort was found at the Phillips Ranch site.

GLASS

Beads (fig. 52); 3 specimens.

One "seed bead," and two more or less ovoid beads from 10 to 12 mm. in length. The latter pieces were made of a milky glass, and appeared to be identical with the white glass beads from the Dodd site.

METAL ORNAMENTS AND OTHER OBJECTS

Three metals were found at the Phillips Ranch site—brass, iron, and copper. Most of the pieces are unrecognizable fragments, but a few are definite artifacts. Some of these appear to be of native manufacture; the remainder are White products which were presumably traded directly or indirectly into the area.

BRASS

Bracelet (fig. 52); 1 specimen.

A thin, semicircular bracelet made from heavy brass wire.

Maximum diameter: 39 mm.

Tinklers (fig. 52); 2 specimens.

Small conical objects rolled of thin sheet brass, probably used as tinklers on a garter or the fringe of some other garment.

Lengths: 21 and 25 mm.

Maximum diameters: 9 and 11 mm.

Ring (fig. 52); 1 specimen.

Cylindrical brass ring with rolled edges.

Length: 18 mm.

Maximum diameter: 23 mm.

Gunstock side plate (fig. 48); 1 specimen.

A fragment of the dragon side plate attached to the stocks of rifles made by several British firms during the latter part of the eighteenth century, and traded to North America by both the North West and the Hudson's Bay Companies.

Unidentifiable fragments; 15 specimens.

IRON

Knife blades (fig. 48); 3 specimens.

Long tapered blades with transverse pins at the base of the blade which suggest that they come from clasp knives. Undoubtedly of White manufacture.

Chisel (fig. 49); 1 specimen.

A thin piece of iron with one rounded end, and a wide slightly convex end that had apparently been sharpened to a cutting edge.

Length: 56 mm.

Width: 32 mm.

Needles or awls; 2 specimens.

Arrow points (fig. 48); 2 specimens.

Cut from sheet iron, one triangular, one stemmed.

Gun parts (fig. 48); 2 specimens.

A trigger, and an unidentified musket part.

Unidentifiable fragments; 46 specimens.

steel banana knife, which have been called scapula knives, apparently only occur in the Dodd site collections. They show a positive association with only the Monroe component there. (Fig. 54.)

Perforated bison ribs, generally called arrow-shaft wrenches, seem to be absent from the earlier horizons in the Oahe area. They make their first appearance during the period represented by the Thomas Riggs site, and also appear in the Stanley and Snake Butte complexes.

Flat pieces of bison scapula which appear to have been used as scrapers were positively associated with the Monroe component at the Dodd site. They probably also were used during the Anderson and Stanley occupations, although this cannot be demonstrated at this time. They were also found at the Thomas Riggs, Meyer, La Roche, and Phillips Ranch sites.

One native artifact type which so far seems to be confined to the Snake Butte Focus is the L-shaped scraper haft made of elk antler.

Objects of metal and glass, obtained by direct or indirect contact with the Whites, are only found associated with sites representing the Stanley and Snake Butte Foci. Two types of glass beads were found at the Dodd site. Two of the beads were made of blue glass and were decahedral rather than spherical. In discussing these beads, Black said:

> This is an old type of Venetian trade bead. The facets were formed while the glass was hot and still plastic in distinction to the later types on which the facets were cut. I am sure this bead could go well back into the 17th century.[9]

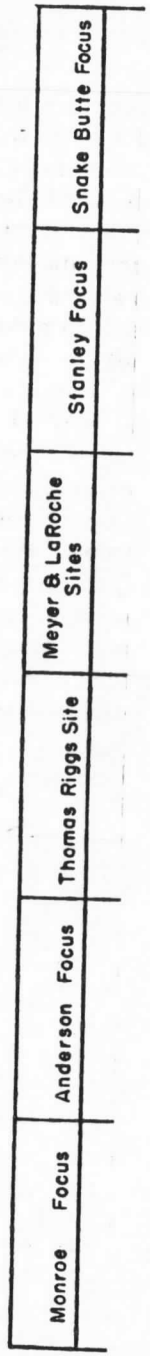
The other Dodd site beads were more or less ovoid, and made of opaque milky glass. Two similar beads were found at the Phillips Ranch site. In discussing them, Black said:

> Venetian glass beads. This type is found in early contact sites (1690–1750) with which I am familiar.[10]

A number of artifacts of brass, iron, and copper were found at the Dodd site. With the possible exception of a brass bracelet, all of them were of native manufacture, having been made from sheet metal. The metal artifacts from the Phillips Ranch site also included a number of similar pieces of native manufacture. In addition, the Phillips Ranch collections included three clasp knife blades which were obviously factory-made, and three gun parts. Black described the knife blades as: "Probably of French manufacture, a popular item of trade between 1650 and 1750." The gun parts from the Phillips Ranch site consisted of a trigger, an unidentified fragment, and part of a brass side plate. The side plate is particularly interesting.

[9] Glenn A. Black, identification sheet for trade materials from the Dodd site (39ST30) on file at the MBP headquarters, Lincoln, Nebr.

[10] Glenn A. Black, identification sheet for trade materials from the Phillips Ranch site (39ST14) on file at the MBP headquarters, Lincoln, Nebr.



facture. Contact materials from the Snake Butte contexts include glass beads, metal objects of both native and European manufacture, and horse bones.

Except for the glass beads, which Glenn A. Black (personal communication) described as " . . . an old type of Venetian trade bead . . . that could go well back into the 17th Century," none of the contact pieces from the Stanley Focus contexts are themselves of value as time markers. However, their presence, taken in conjunction with the history of the European penetration of the area, does give some fairly reliable indications of the dates for the Stanley Focus.

There are two main sources for early contact materials in the Middle Missouri region—British and French. Unfortunately, little is known regarding the British contacts, but it seems likely that a certain amount of trade material had found its way into the area by the early years of the eighteenth century, probably from posts established in Canada by the North West and Hudson's Bay Companies. The French reached the Oahe area by two routes, overland from the Great Lakes, and up the Mississippi and Missouri from the south. Little is known regarding the first French contacts with the area, but the Arikara are shown on the Delisle map of 1718, and explorers and adventurers like Bourgmont and the La Verendryes are known to have penetrated the Middle Missouri Valley during the first quarter of the eighteenth century.

On this basis, it would seem that any site on the Middle Missouri which contains contact material must date from after 1700, and that date may conveniently be taken as the round figure for the beginning of the Stanley Focus.

It is impossible to set any exact time for the transition from the Stanley to the Snake Butte Focus, but the character of the contact material from the Snake Butte sites would seem to indicate that they date from the latter half of the eighteenth century. The Lewis and Clark journals for the year 1804 indicate that most of the inhabitants of the region were concentrated in a few villages in North Dakota by the beginning of the nineteenth century, having settled there after the decimating smallpox plagues. This would seem to indicate that the Pierre area had been largely abandoned by the village tribes prior to 1800.

On this basis, we may then approximately place the duration of the Stanley Focus between 1700 and 1750, and the duration of the Snake Butte Focus between 1750 and 1800.

Dendrochronological studies have been undertaken in two parts of the Plains. Weakly's work in Nebraska has provided a series of dates

for the Central Plains complexes which seem to be fairly reliable (Weakly, 1950). His material, which is discussed in detail below, seems to indicate that the Upper Republican occupation of the Central Plains came to an end some time during the early part of the latter half of the sixteenth century. The transition from the Thomas Riggs complex to that represented at the Meyer and La Roche sites seems to have taken place under stimulation from an Upper Republican population resident in the area at such sites as Arzberger. There is a fair body of evidence that this intrusion of a Central Plains population into the area took place after the abandonment of the Nebraska sites. Thus, it seems likely that the beginning date for the Meyer-La Roche horizon can be set some time close to the beginning of the seventeenth century, and that the Meyer-La Roche complex lasted until about the close of that same century. There is no evidence available at this time for assigning dates to the Thomas Riggs horizon and the Anderson and Monroe Foci.

On the basis of a combination of the historical evidence with Weakly's tree-ring studies in the Central Plains, the last three stages of the Fort Pierre Branch may be tentatively dated as follows:

Snake Butte	1750–1800
Stanley	1700–1750
Meyer-La Roche	1600–1700
Thomas Riggs	? –1600
Anderson	?
Monroe	?

A word should be included here regarding a series of dates which were published by George F. Will in 1948. The ranges, based on a series of dendrochronological specimens, are as follows:

Thomas Riggs	1478–1515
Sommers	1480–1507
La Roche	1434–1457

It is my impression that the Thomas Riggs dates are somewhat too early. Certainly, the dating of the La Roche site as some 50 years earlier than two sites with long-rectangular houses presents a contradiction to all of the other chronological evidence for the area. Therefore, it seems very likely that these apparent contradictions are due to the method of dating.

In his "Tree Ring Studies in North Dakota" (1946), Will describes the construction of his master chart. It was primarily based on an oak stump which was found some 6 miles northwest of Bismarck. The record contained in the single stump was later supplemented by additional specimens, but all of them appear to have been collected in the general vicinity of Bismarck. Thus, the archeological specimens from