

THE KNOUSE SITE

An Historical Site

in

Luzerne County, Pennsylvania

1978

by

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ABSTRACT

The Knouse Site is located along the flood plain of the Susquehanna River. Historic references indicate that a Delaware Indian Village of considerable size was located between the Big Wapwallopen and Little Wapwallopen Creek.

The location of the Knouse Site 36Lu43 was in an area impacted by construction of Pennsylvania Power and Light. The report details the excavations conducted on the historic indian burial ground. However, the impacted area was not the location of the village and future investigation will have to detail the nature of the village.

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Introduction

In response to Pennsylvania Power and Light's development of an area along the east side of the Susquehanna River floodplain, salvage excavations were begun on 36LU43, the Knouse Site. During the 1930's Work Project Administration, crews under Gardner tested this site, then known as the Smith Site. At that time several large features of a presumably historic origin were encountered. These were cobble lined and used for storage and/or a hearth. At that time also a flexed burial in an oval pit was encountered. The cultural affiliation of the burial was assumed to be Archaic. Artifacts from the site included projectile points, historic ceramics, bifaces, gorgets, adzes, and pitted cobbles.

Surface collections of individuals from the area had indicated that this site was extremely rich, especially prior to the major flooding episodes of the 1930's and 1970's. Terry Knouse has also indicated that two burials he had located previously, were excavated by unknown persons.

BACAGROUND INFORMATION

The Knouse site is in the Valley and Ridge physiographic zone. The bedrock in this region is of Ordovician to Pennsylvanian age. Irregularity in the surface of this bedrock is due to glacial activity, water erosion and the varying resistance of the different lithic components.

Soils are generally weathered in place from sedimentary gray-red or yellowish-red shale, sandstone or siltstone, and to a lesser extent from glacial till and conglomerate. Minor percentages developed in colluvium and alluvium. Now the soils may be described as acidic to strongly acidic channery, stoney, gravelly or shaley silt loam.

The soil cores done for the footings are included in the appendix. The profile indicates topsoil from 0-1.0 foot. 1.0 to 4.5 feet is a fine compact brown silty sand. 4.5' to 17.00 is a multi-colored silty sand and gravel layer. From 17.0' to 30.0' is a brown and gray compact silty sand layer.

Most flooding in this ^{area} occurred in the early spring, when heavy rainfall fails to be absorbed by frozen ground. Major floods occurring historically are:

May-June 1899	May 1948
May 1984	August 1955
August 1933	March 1964
July 1935	June 1972
March 1936	Sept. 1975
May 1942	

Flooding at times other than spring is directly related to thunderstorm activity.

FLORA

The historical forest cover around the Wapwallopen vicinity is part of the Oak-Chestnut region of the Eastern deciduous Woodland. At that

time, in addition to Oak and Chestnut, prevailing trees were the Virginia Pine, hemlock, birch and sycamore.

Currently the cover is red, black and silver maple, white and black oak, sweet birch, black cherry, eastern hemlock, and flowering dogwood. American elm, butternut hickory, basswood, white pine, pignut hickory and tulip are also found.

In total 72 types of trees, saplings, and shrub were present. The predominant shrubs are spicebush, vibernums, witch hazel, laurel and rhodedendron.

Altogether the ground cover consists of 51 families divided into 188 species. Asteraceae are 15.2%, legumes 6%, lilies 6% and ferns 6%. These are principally asters, goldenrods, ragweed, smartweed, and mustard. The wet plants include skunk cabbage, tearthumb, cattail, sedges, rushes and day-flower. Also present in the area are blueberry, deerberry, black huckleberry, poison ivy, virginia creeper, trout lily, Dutchman's breeches, may apple, common blue violet, garlic mustard, false mermaid, ostrich fern, dames rodet, virginia knotweed, ground pine and evergreen woodfern.

FAUNA

Mammals: Whitetail deer, opossum, eastern cottontail, eastern woodchuck, raccoon, muskrat, red and gray fox, gray squirrel, porcupine, striped skunk and the long-tailed weasel are present. There are three types of mice, woodland jumping, meadow jumping and the house mouse. The norway rat, eastern chipmunk, short-tailed shrew, star-nosed mole, pine and meadow vole complete the mammals.

Amphibians and Reptiles: Seven species of turtle live in the region, with the eastern painted being the most common, followed by the snapping turtle. Toads include spring peeper and the American toad. Green, bull and leopard frogs all inhabit the region. The red-backed salamander is found on the land, and the northern dusky salamander

is the aquatic species. The common garter snake is most common, followed by the common water snake, and the northern black racer.

Birds: 50% of the birds currently inhabiting the region are Icturidae, mostly blackbirds. 20% are Fringillidae, principally sparrows, cardinals, finches, crows, Picidae, chickadee, tit-mouse, doves, catbird, mockingbird, warblers and starling.

The Susquehanna River Valley is on a major migratory waterfowl route. 50-300,000 Canadian geese pass through the region every year. 50-225,000 mallard and black ducks also pass through. Other species include: pintail widgeon, green winged teal, blue-winged teal, wood, redheaded, canvasback, ring-necked ducks, goldeneye, bufflehead, oldsquaw, and the white wing scoter, common and hooded morgansers, whistling swans, greater and lesser scamps.

Fish: 62% of all fish are made up of the following six: carp, spotfin shiner, quillback, whitesucker, shorthead redhorse, and bluegills. The other 38% is made up of: Northern hogsucker, rockbass, pumpkinseed, small mouthed and large mouthed bass, tassellated darter, fall fish, chain pickerel, comely and spottail shiner, bluntnose minnow, walleye, black crappie, sunfish, perch, catfish and muskellunge.

METHODOLOGY

The methodology used on the site was dictated by the salvage nature of the project.

Bulldozer strips were made at selected intervals. (See map). The entire site was gridded into 10' squares. The objective of the bulldozer operation was to remove the plow zone and expose the yellow clayish subsoil. Where large stained areas were encountered the bulldozer leveled out on this surface, and they were subsequently mapped.

After the bulldozer finished a strip it was gridded and flat shoveled. The soil produced by the flat shoveling was not screened, however, the paucity of artifacts encountered in the plow zone justified this.

The burial fill was carefully gone through, and often the contents washed through fine screens to recover the seed beads. Flotation samples were taken from the burials and features. The features, post molds and some burials were cross-sectioned and mapped.

STRATIGRAPHY

The stratigraphy on the site is fairly simple. Three complete profiles the length of the trenches were mapped. These profiles showed what was often difficult to discern in planview.

In the 20S line profile, the topsoil lies directly on the surface of the yellowish brown clayish subsoil. However in 20S80W, 20S90W, 20S100W, and 20S110W, a dark brown organically rich layer appears between the topsoil and subsoil. It seems possible that this could be an area of occupation. However, no unusual density of artifacts were recovered to support this.

In the 100S line, a similar phenomenon is present. In 100S90W and

and 100S100W a reddish stain appears in the vicinity of the subsoil.

In 100S160W and 100S170W, where the subsoil takes a deep plunge, there is intermixing of gray and red sandy lenses.

The only phenomenon to be exhibited along the N80 line, is the varying nature of the subsoil. Red brown staining is present intermittently, along with patches of sandier subsoil.

These stratigraphic variations mostly appear to be natural and represent natural alterations in the nature of the two basic strata.

EXCAVATION UNITS

A brief description of the excavation units and their cultural features follows. For a more detailed description of these manifestations see the individual feature and burial descriptions.

450/460S45W. A stain appeared in the northeast corner.

450/460S50W, 60,70,80,90. All units were sterile.

450/460S100W Two dark stains. Post mold 1 seems to be a deep rodent hole (9"), and Postmold 2 a 5" deep possible root caste.

450/460S110W Three unsectioned possible post molds.

450/460S120W Three unsectioned possible post molds.

450/460S130W Two post molds, one 8" in depth, and the other 5".

400/390S40W Feature 12 was along the north wall and Feature 11 along the south wall.

400/390S50/60/70/80/90W All units were sterile.

400/390S100W Feature 14 was in the north east corner. It is possibly a small fire feature.

400/390S110W Four circular discolorations. Postmolds 1,3, and 4 were root castes, and 2 a rodent disturbance.

400/390S120W 8 Possible post molds present. Of these number 4 & 7 are probable post molds, they are 6" and 5" deep respectively. All

others appear to be rodent, with the following depths: 1 - 5", 2 5.5", 3 - 6", 5 - 6", 6 - 6.5", 8 - 7".

250S50/60/70/80/90/100/110/120/130W All units were sterile.

240/230S20W In a diagonal running northeast to southwest, a dark stain was exposed. It is part of a natural occurrence or an occupation level. However artifacts aren't particularly dense.

240/230S100W The entire unit is part of the darker level or stain. Within this was an irregularly shaped black area along the south wall.

240/230S110W Except for the very northeast tip of the unit, this square was entirely with the stain.

240/230S120/130W The stain ends in the southeast corner of the eastern unit. There are 8 postmolds in this unit. They are all shallow and cluster around Feature 10, which is an oblong pit of varying depth. It is oriented Northwest to Southeast into the western unit. Seven post molds are in this unit. The only possible pattern could be an L-shaped structure around Feature 10, and between it and the stain along the south wall.

100S70/80/90W No cultural features present.

100S100W A dark stain occupies most of this unit. It may be natural, or interpreted as a possible occupation level.

60S60/70/80/90W These units were sterile, but the subsoil is very sandy in places.

60S100W Dark possibly organic area in the northwest corner extends into the next unit to the west.

60S110W The southeast corner is not covered by the stain.

60S120W The eastern quarter of the unit is covered by a dark stain. The rest of the unit is sterile.

60S130/140,150,160,170W All units were sterile.

20S80/90/100W All have small dark stains, related to rodent disturbances, root castes, and agricultural activities. This area was part of a large section opened, and cross-sections revealed few possible post molds.

20S110W Amorphous stain in the southeast corner, and in the north west corner part of feature 1.

20S120W A few small stains, and part of feature 1 in the northeast corner.

20S130/140/150/160W Sterile with the exception of one small stain in 20S150W.

10S70W One post mold 6" deep and two charcoal concentrations.

10S80W One flake and one point. Some stains present.

10S90W Several stains, all irregular in shape.

10S100/110W Both of these units were sterile

10S120/130/140W A few irregular stains or possible post molds with no apparent pattern.

10S150/160W Both units were sterile.

ON70W Several possible post molds and a feature. Two molds were cross-sectioned, and were both 15" deep, and 3" in diameter.

ON80W Feature four and a number of amorphous stains discernible in this unit.

ON90W Series of possible post molds and charcoal. There was no pattern apparent, however.

ON100W Two small stains.

ON110W This unit was sterile.

ON120,130,140,150,180W All had one or two shallow stains with no regular outline or pattern.

10N70W Amorphous stains, mostly plow scars and bulldozer tread are in this unit as well as 80W,90W,100W,110W,120W, 130W, 150W, 160W. Burial two is in 10N140W.

20N70/80/90/100W. A few shallow stains in all of these units.

20N110W This unit was sterile.

20N120/130/140/150/160 Bulldozer tread and sandy spots occurred in this group of squares. Part of Burial two is in 20N140W.

30N80W Feature eight was located in this unit, but was ultimately defined as a rodent hole.

30N90/130W These units were sterile.

30N140W Part of Burial 21 and a few small possible post molds present.

40N90W This unit contained burial 2.

50N50W One shallow slightly reddened area present.

50N80W Contains burial six, and part of burial eight.

50N90W Burials 12, 11, 8 all in the unit.

50N100W Parts of burial 11 and burial 13 were within it's limit.

50N110W A small shallow stain is present.

50N120W The unit is sterile.

50N130W Part of Feature five is in this unit.

50N130W One six inch deep post mold was profiled.

60N80W Burial 7, part of Feature 6, and Burial 8 found.

60N90W Burials 9 and 10 are evidenced in the square.

60N100W Burials 13, 16, 15 are represented in this feature.

60N110W Burial 18 and part of burial 14 are in this unit.

60N120W Sterile.

60N130W Feature 5 .

60N140W Features, Burial 5 and Burial 19.

70N80W Part of Feature is within this unit.

70N90W The remainder of feature 6, and part of burial 15 present.

70N100W Parts of burial five and burial pit 17..

70N110W Burial 14 occupies part of this square. .

The remainder of the units within the area around the burials
were sterile.

110N50W A few shallow stains were present.

110/120N70/80/90 These units were all sterile.

110/120N100/110/120/130 All these units exhibited sandy patches
within the subsoil.

100/110N140/150/160/170W These units were all sterile.

Burials

During the project twenty-one human burials were excavated. These seem to have been basically in three clusters. (See Map). Most of the bodies were buried in ~~rectangular~~ square pits and probably had coffins. Several definitely were interred in coffins, as attested to by the presence of decayed wood and nails. However, a few others seem to have possibly just been buried in pits, with all evidence of method obliterated.

Some of the pits were quite deep, while others seem to have been buried right on top of the subsoil. This is

due to differential soil erosion and deposition.

While this site was quite fruitful to collectors, prior to the 1930's flood, it now exhibits little surface manifestation. Flooding in 1972's Hurricane Agnes also damaged this site, in addition to its consistent use for agricultural purposes.

Preservation on the site was extremely poor making stature and sex evaluations impossible in most cases. Often dentition provided the only age criteria. Most sexual classification was based on the morphology of the skull, which is highly variable, especially in the case of aged individuals.

Two burials had been looted prior to the beginning of excavation. (Knouse personal communication). Looting also became a problem late in the field season.

Burials

Burial 1

Burial 1 was found in the western 1/2 of the first east-west trench. The burial was uncovered by the bulldozer; however it seems to have been subjected to periodic disturbance by the plow. The burial was removed rapidly to prevent further damage by the bulldozer.

A few cranial fragments were present, but there were no major landmarks. This was also true of the small pelvic portion. The piece of pelvis was not large enough to permit any sexual identification, with all major landmarks missing.

Also present were several extremely fragmentary vertebrae pieces; however no reconstruction was possible.

The only aging criteria available were one canine and two central incisors. Little wear or decay was present; therefore, this burial was either an adolescent or a young adult at death.

Accompanying artifacts include seventy-nine yellow seed beads, one green glass seed bead, 250 white seed beads, 119 dark blue seed beads, 291 of a blue-green color, and four other whitish brown seed beads. All seed beads were well preserved with the exception of the yellow and whitish brown varieties. These seem to be of an inferior glass and have begun to deteriorate.

It is impossible to estimate how many beads or other grave goods may have been lost with the bulldozer.

Burial 2

Burial 2 was located in 20N140W and 10N140W. It also seemed to have been damaged by agricultural activities. All remains were fragmentary and preservation was poor. There was no evidence of a burial pit or coffin of any kind, with the exception of five iron fragments, three of which were probably nails. No difference in pit fill was recognizable. The burial appeared to be resting on the subsoil, but this was probably due to erosion.

The grave was oriented towards the east, with the body oriented in the same direction; however the direction of the face was impossible to discern. The burial was probably extended.

Five occipital fragments were present. Endocranial closure seems to have been complete on these fragments, but ectocranial closure was not. The estimated age of the burial is probably 25 years of age and could be much older. Five other fragments also exhibited the same incomplete ectocranial closure patterns, with endocranial closure complete and semi-complete. Nineteen miscellaneous skull fragments were recovered. However, the skull could not be reconstructed. Because of this any age determination is highly tentative. The right mastoid was present, but deterioration of the mastoid process and the external auditory meatus area made any sexual determination impossible.

3/4.

The right ulna was recovered, and was complete except for the styloid process and a broken olecranon. The length was 26.8 cm. The left radius was reconstructable, with the exception of the head and a crushed styloid process. It was 24.5 cm. in length.

Using Tolkka's charts (Krogman 1973) ulna length would suggest a height of 181 cm. + or 5'11" if the specimen were a male, and 175 cm.+ or 5'9" if it were a female. The radius length suggests a height of 176 cm.+ or 5'9" for males and for females a height of 169 cm.+ or 5'7". All calculations are based on white specimens, however. One humerus head, somewhat deteriorated, was also recovered.

Of the ribs, sixteen pieces were recovered. There were twelve vertebral fragments in all, one cervical, nine thoracic, and one lumbar. One other vertebral fragment was totally unidentifiable.

Of eleven pelvic fragments, nothing was reconstructable, making sexual determination impossible.

A probable femur fragment is represented. The left tibia is fractured on the distal end. Twenty-six miscellaneous tiny long bone fragments also present, probably all belonging to the legs.

Of the hands and feet only five left metacarpals and one middle phalanx were recovered. The left lunate and semi lunar were present.

Small amounts of charcoal were evidenced around the bones. Grave goods include two kaolin pipe bowls, one with stem, and an additional stem fragment. None of the fragments bear any mark whatsoever. Bowl shape suggests a date of between 1720 and 1820 for manufacture. (Hume 1976:303).

The five iron fragments were already discussed. Three of these are nails, while the other two are too heavily corroded to tell. One probable chert scraper and two slate flakes were present.

Eleven wire wound beads were found in the probable neck and chest region. Some were beginning to show signs of deterioration. Eight exhibit a bluish tinge. Measurements are in the appendices.

Burial 3

Burial 3 was one of the most spectacular burials from the site. This individual, along with the one in Burial 14 seemed to have both achieved very high status in the community. The pit was very shallow and the individual has been slightly damaged by the bulldozer and the plow. The fill was darker than the subsoil and discernible, with the exception of areas that appear to have been capped with the natural subsoil of the site. The fill was 11" deep at the maximum. Unlike the other burials with discernible fill, this burial was in an oval pit, the dark organic material could be bark cloth instead of timbers from a coffin. This remained unproven. Scattered charcoal on the clay suggest intermittent burn

episodes, maybe post interment or ceremonial.

The orientation was east and slightly north. The body was basically flexed with the left hand in the pelvic region and the right hand folded across the chest and in the vicinity of the brass vanity box.

Part of the right femur was taken off by the bulldozer. Both legs were folded loosely.

The skull was in very friable condition and was, therefore, left in the soil pedestal it was removed from the field in. Suture closure is incomplete. The ascending ramus angle is obtuse and indicates the burial is female, although the bones are fairly robust. The dentition indicates a youthfulness. On the lower right hand side both premolars and the canine exhibit enamel polishing. The first molar has emerged, while the second is just emerging. The lower left side had two premolars, the first and second molar and the third emerging. The upper left side has the central incisor, canine, and first molar. The other molar information is not present. The emergence of the third molar indicates an age of at least fifteen to twenty-one years.

The vertebrae were present in 39 pieces, mostly thoracic and lumbar. The left clavicle was preserved in three fragments. On the left side were 13 ribs, and on the right six ribs.

The right scapular acromion was preserved. The glenoid acromion and part of the spine of the left scapula were preserved.

The bones of the arm were all fragmented. The left humerus was in fourteen pieces. The proximal end of the ulna and the distal end of the radius were present. Twenty fragments represented the rest of the shaft. Two left middle phalanges were present. Four middle phalanges of the right hand were recovered. The bones of the right arm were all extremely fragmented and non-reconstructable.

The pubic symphysis is extremely fragmented and not useful for sexing, however the greater sciatic notch angle was obtuse indicating a female.

Part of the right femur was missing. The right tibia and fibula were represented by 12 and 6 pieces respectively. The right foot bones included the second cuneiform, talus, calcaneum, all five metatarsals and one first phalanx.

The left femur is in twenty pieces, with the distal end destroyed. The distal end of the fibula was identifiable. The tibia and fibula were in thirteen miscellaneous pieces. The left talus, calcaneum, first and second cuneiform, and the navicular are all that remained of the foot.

The artifacts around the head include a necklace of brass buttons strung on a leather thong. There are fifteen of these, some with leather still in them. They were laying across the mouth. Beads in the region of the head include: 13 large root beer colored beads, some with a surface iridescence. Six smaller root beer colored glass beads are present in this vicinity. Twenty large wire wound clear to blue tinged beads were also located here.

The right shoulder beads are: 4 small root beer, and five large with some irridescence. On the left shoulder there are 3 small root beer, 6 large root beer, and 4 large clear wire wound beads. Around the pelvis on the right were 7 large root beer, and 3 large clear wire wounds. On the left were one small root beer, 5 large root beer, and 2 large clear wire wounds. These beads probably represent at least two large strands of beads hanging from the neck. The root beer and clear to blue were possibly from different strands.

A cache area exists along the left arm. A brass vanity box was found. It was filled with an organic material, perhaps tobacco. The right hand was resting in its vicinity. The vanity box was oblong and 8.66 cm. in length, 7.41 cm. wide, and 2.06 cm. high. The lid has a lip that fits over the side of the case. This lip has rings along its edge. The catch was riveted, and attached to this was a metal wire and ring. The exact workings of the catch aren't known as part is missing. The base of the box also has a lip with double rings on its surface.

A thimble 7 cm. high and 1.53 cm. in diameter at the base was found. The top is missing. Extending northward from this was a long thin line of disintegrated metal, probably either silver or pewter. What it represents is unclear. Approximately 29 pieces of corroded iron are all that remain of a probable circular container. The wall height was around 2.87 cm. Beneath this was an unevenly cut octagonal piece of glass.

It is roughly 8.45 cm. long and 3.78 cm. wide. Although there is no evidence of backing, Smith (personal communication) suggested it may have been fitted into wood and used as a mirror. One tiny piece of brass chain was found in this cache area also.

The number of seed beads is: 580 blue, 184 white, 29 yellow, and 56 brownish white. Most of these were found in the vicinity of the pelvis and suggest an embroidered skirt or girdle. Lastly 9 brass jingles or tinklers were found in the vicinity of the ankles. One seems to have been strung on leather, while 2 more seem to have been strung on untwisted fiber.

Wood preserved on the brass necklace over the face and beneath the metal artifacts suggests this burial was interred in bark cloth, or a very irregularly shaped coffin.

Burial 4

Burial 4 was located in 10N150W and 20N150W. It was also extensively disturbed by the plow. Although the pit fill matrix was indistinguishable, the depth of the soil surrounding the bones was 5" deep at its thickest point, and was identical to the interface of plow zone and subsoil. Pit dimensions and shape were impossible to discern. The body appears to be oriented southwest, although this could be an illusion caused by plow disturbance. It was probably an extended interment.

Only one small skull fragment was present. No pelvic fragments were present either. Fifty-one long bone fragments were recovered, however none of these bear any landmarks. Part of the right scapula was recovered. This included a broken acromion and spine. The glenoid fossa was not present, but deterioration on this surface prevents assessment of whether this was a post-mortem fracture occurring some time ago, or if epiphyseal union was incomplete at time of death. The latter seems unlikely.

One left metatarsal was found. Although damaged, there is a possibility of arthritic warping. This would suggest an individual of some age. Two rib fragments, and the right first rib were also recovered. Twenty-two pieces of bone meal complete the human remains.

The grave goods with this burial are four wire wound beads, sixteen blue seed beads, two green seed beads, and four white seed beads. Two kaolin pipe bowl fragments, probably representing one pipe, indicate a manufacture date of 1720 to 1820 (Hume 1976:303).

Burial 5

Burial 5 was in a very shallow grave near Burial 17 and Feature 5. The burial was oriented northeast-southwest, but virtually no skull was preserved to determine the exact orientation. The pit fill was extremely hard to determine, and was encountered at the base of the plow zone. It was 7" deep at the maximum. This burial also seems to have been extensively disturbed by the plow.

The cranium is represented by only two fragments with no landmarks. The right scapula was survived by part of the acromion, and the left by part of the glenoid fossa neck, connecting spine, and acromion. Seventeen ribs plus three rib fragments were recovered.

Most of the vertebrae recovered seemingly include no cervical portions. Nine thoracic vertebrae fragments were discovered. Thirteen lumbar fragments were all extremely robust. Three other miscellaneous vertebral body fragments were present.

The left humerus is fairly complete and reconstructed was 33.5 cm. long, for a height of 171 cm. or 5'8". The right humerus was only a head portion. Fragments of both ulnas and three pieces of one radius are all that remained of any arm and hand fragments.

One hundred seventeen pieces of long bone without landmarks were recovered. These belong to the arms and legs of either side.

Two femoral heads, two portions of shaft, and one distal end were found. However the heads and shafts didn't make a complete reconstructable bone for measurement. The right proximal end of the tibia was recognizeable. Two fibula fragments could be sorted out. Five other fragments clearly belonged to the legs. One patella, seemed to be the left one. One left metatarsal and the left talus and calcaneum were found. Only one right metatarsal was present.

Fifteen pelvic fragments were non-reconstructable, with no surfaces in the greater sciatic notch present for sexual determination.

The beads recovered with this burial were blue octagonally shaped or faceted beads. There were eight of these. One root beer colored wire wound bead was recovered. Seed beads included 137 white and 12 brownish white.

Two secondary chert flakes were found. Metal artifacts included 12 brass jingles which had been strung on a bunched but untwisted fiber. Three brass medallions were found. Although badly preserved, the largest seems to have had a bust on one side. It measured 3.5 by 3.43 cm. A medallion of 25.7 by 22.9 cm. had two figures on one side, perhaps a mother and child. The third medallion was marked by a series of striations around the edge, with linear markings running across the top of one medallion. The burial area had small patches of a red powdered pigment sprinkled around the body. The substance is extremely bright, and definitely not red ochre.

One seed from the fill represented floral remains.

Burial 6

Burial 6 was located in 50N80W. This individual was buried in a ^{rectangular} square pit and wood fragments suggest it was in a coffin. The fill was composed of four irregularly deposited layers. Level I was a brown matrix with heavy charcoal concentrations. Level II was somewhat lighter. Level III was in the south portion only, and had heavy charcoal. It was a lense within level II. Level IV was also a lense, and was like the yellowish clay subsoil, in a cap over the body. The second level comprised most of the fill. The grave was approximately 18" deep.

The individual was extended and was oriented northeast. A layer of river cobbles lined the bottom of the pit, and no sign of disturbance by human activity was below this.

All that remained of the skull were ten occiput fragments. Four fragments had portions of the lambdoidal suture, with some endocranial closure, but no ectocranial closure. This is relatively worthless as an age indicator. The nuchal lines weren't at all pronounced, and this may suggest that the individual was a female.

Both the right and left mastoid, although present, were so damaged as to prohibit assessment of the mastoid process or the ridge running from the zygomatic arch.

Twenty-seven sphenoid and squamal fragments were present; and also 27 frontal and parietal fragments. Because of deterioration, reconstruction was not possible, however. One palate fragment minus the suture was present.

All four upper incisors were present, both lower central incisors and the left lateral incisor were present. Both upper canines and the lower left canine were recovered. All eight premolars are present. The above mentioned teeth exhibited only enamel polishing. The upper left first molar had two caries on the occlusal surface and also enamel polishing. The upper left third molar had enamel polishing and a caries on the mesial surface. The upper right second or third molar had only enamel polishing. The lower left first molar had a caries, and the second molar enamel polishing. The right lower second and third molars had only enamel polishing. All first molars exhibit deep surface invaginations from poor development of enamel.

Ten long bone fragments are all that remain of the left arm. The right humerus, radius and ulna were incomplete. The axis was represented by the dens, which seemed fairly gracile. Four other vertebral fragments could not be identified.

The right and left femur could be partially reconstructed, as could the tibias. All long bones were fairly slender, suggesting the individual was a female of at least 21 years of age.

Wood fragments suggest interment in a coffin. There was one projectile point in the top of the fill, however it was probably deposited by the plow. It is a side-notched point of probable early Archaic affiliation. One slate flake was also found.

Three brass jingles or tinklers were present. The seed beads included 2 blue-green, and 87 white in the leg and arm region. In the vicinity of the skull were the following seed bead counts: 118 white, 58 brownish white, 26 blue, 16 green, 9 blue-green and 3 black.

On the individual's right arm were 7 brass bracelets. Six of these were bands varying from 40.5 mm. to 43.7 mm. in thickness. They were probably made by rolling a single piece of brass inward from both sides. The seventh bracelet was of braided brass, that was doubled on one end and pinched on the other. One piece of possible fabric was adhering to these. The construction technique is unanalyzed.

Burial 7

Burial 7 was located in N6OW80. The pit was rectangular with wood representing a coffin. The fill was of clay and the sandy subsoil, and organic lines caused by the deteriorating coffin marked the edges of the pit. The body was semi-flexed, with the knees loosely drawn up. The face was oriented northwest. The pit was 1' to 1'3" deep.

The skull was represented by fourteen fragments. The nuchal lines are fairly pronounced and the ridge extending from the zygomatic arch is present beyond the external auditory meatus. The mastoids are present, but the mastoid processes have both deteriorated. Eighty-eight tiny fragments of the skull are also present, but the skull was so friable that crumbling upon exposure made reconstruction

impossible. Endo and ectocranial suture closure is incomplete, but not enough is present to warrant an age determination.

The upper right and left central incisors are worn through to the dentine. The only other incisor present was the lower right central, which was decayed. Only the upper right canine was present, and it exhibited a caries.

Two upper left premolars, the second upper right, one lower right, and both lower left premolars were present. All maxillary molars present. Only the lower left third molar is present.

The individual was probably of considerable age.

The left scapula is evidenced in the acromion, glenoid process, and part of the spine. Twenty-two pieces of radius and ulna were non-reconstructable. The humerus was only missing a head, and was 27.2 cm. long. Using Telkka (Krogman 1973) the individual is most likely a female of 147 cm. or 4'10".

The right arm was fragmented. Two pieces of humerus and nine fragments of humerus, radius and/or ulna were present.

Fifteen pelvic fragments were present, with one sciatic notch of an obtuse angle, that suggests the individual is female. There are twenty ribs represented by fifty-four fragments. Thirty-seven vertebral fragments are probably all representative of the thoracic vertebrae, and there is one lumbar fragment.

Both femoral shafts are present. On the right side, two tibial and one fibular fragment are present, with 33 other fragments belonging to any three of the long bones of the leg. Four left metatarsals were present.

The left tibia has no proximal end, while the fibula was in five pieces. There are twenty-four small pieces belonging to the femur and tibia. The right talus and calcaneum are present.

Several pieces of wood were in the grave, along with one piece of charcoal. The seed beads included: 26 white, 10 brown, 11 green, and 1 blue.

Burial 8

Burial 8 was located in 50N80W. The pit was rectangular, with the edge rimmed by the dark organic stain where the coffin deteriorated. The fill of the pit was 1'5" deep, and a loose sandy matrix, darker than the subsoil.

The preservation was extremely poor, but the skull was oriented southwest. A river cobble was placed over the jaw, and also in the northeast area of the burial, around the heavy bead concentration.

As the burial was excavated the skull began to deteriorate. Twenty-six major fragments and 111 miscellaneous unmarked pieces of skull meal were recovered. All sutures present showed no endocranial or ectocranial suture closure. This indicates the individual was immature or a young adult. The mastoid process suggests that the burial was a female.

Both maxillary central incisors were present. The mandibular incisors were all present. The lateral incisors both have caries.

All four canines were recovered. The lower left one was fractured, however.

Not all the premolars were recovered. The upper right and left posterior, and the lower left anterior were all that was recovered. On the left side of the dental arches all three molars had erupted, however on the right side only the first two had erupted. This suggests an age of between 15 to 21 years.

There are 24 miscellaneous long bone fragments, and probably all represent the arm, although no landmarks are present.

A river cobble was in the vicinity of the 1502 white seed beads found in the northeast portion of the pit. The only other items found in the fill was one piece of charcoal.

Burial 9

Burial 9 was located in N60W90. The preservation was extremely poor, and decay was probably intensified because the person was immature. The grave was northeast, but the individual was interred southwest. The pit was approximately 15" deep with the organic stain defining the edges. The fill was a mottled dark and light brown with a small river cobble. The position of the body was impossible to determine.

There were seventeen extremely fragile skull fragments, with no sutures and landmarks. Presumably the skull fractured at the sutures and began to deteriorate, eliminating all evidence.

All incisors were present and permanent. All four canines were deciduous. All premolars were present. Five molars, three upper and two lower were found. Only one specimen had roots. The large amount of deciduous teeth suggest an age of between eight and ten years. (Brothwell 1972: 59).

Wood was found in the southeast section of the burial pit. Eleven nail fragments were present. Interrment was in a coffin. One brick fragment was located. The seed beads were found northeast of the skull. These included 21 brownish white, 8 white, and 8 blue green beads. No other grave goods were encountered.

Burial 10

Burial 10 was located in 60N90W. The pit was 5" deep. The fill was compacted sandy subsoil defined by an organic stain from the deteriorating coffin. The body was positioned southwest, however the position itself is indeterminant. This burial was disturbed by vandals during the project, but prior to excavation. The sparcity of human remains, however, is probably due to preservation because of the individual's youth.

All skull fragments are dried and cracked, and consequently unreconstructable.

There are seven occiput fragments. Seven others exhibit a dark stain, with one a splotch of green from brass or copper. One hundred eighty-nine miscellaneous tiny fragments are present. The mastoids are present and extremely gracile.

Only the upper right central incisor is present. The lower left central and lateral incisors are present, along with the lower right lateral. All are deciduous. The upper right and left deciduous canines are present. The upper right side has both deciduous premolars, of the upper left only one is present. The lower right side second deciduous premolar is present. On the lower right side the first molar had emerged and developed a cavity. Two other first molars were present. None of the others had emerged. This information leads to an age determination of between 6-8 years.

Three cervical vertebrae fragments were located. The right and left legs were represented by bone splinters imbedded in the matrix. Nothing can be said about the child's size or sex.

One brass button, with a back loop and a flower motif on its surface was located about 3" east of jaw. Three brass pin fragments were in the vicinity of the skull. Eleven iron fragments, probably part of a strip of some kind were also east of the jaw.

Burial 11

Burial 11 was located in 50N90W. The fill was composed of layers of sterile clay alternating with darker soil. The pit was 1' deep, and rimmed by a dark organic stain from the deteriorating coffin. The burial was extended and oriented northeast. However, the skull seemed displaced and was facing east. The mandible was found on top of the femur.

Burial 11's skull was fairly intact. The nuchal lines were only moderately developed, and the zygomatic ridge didn't extend beyond the external auditory meatus. The angle of the ascending ramus is obtuse - also indicating a female. The coronal suture was in the earliest stages of closure around the pars complicata endocranially and ectocranially. The sagittal suture is beginning to close around the pars verticus and pars lambdica ectocranially and is almost completely closed endocranially. The lambdoidal suture is beginning to close at the pars intermedia ectocranially and is completely closed endocranially. The individual is most likely a young

adult, probably no older than twenty-four.

The incisors, however, are exhibiting a good deal of wear. With the upper right central and lateral incisor all exhibiting heavy wear, and also the lower central incisor. No other incisors were present. The upper canines were highly polished, as was the lower left canine. Both lower right premolars were worn, and no other premolars were present. The first and second upper right molars both had enamel polishing, as did the right and left lower molars.

One clavicle was present, but damaged. The arm bones were in 14 miscellaneous fragments, representing the left humerus, and a left ulna. No reconstruction was possible. The left scapula was evidenced by one fragment, with a glenoid fossa and acromion, both damaged. One scaphoid was also recovered. Both femora were too fragmentary for reconstruction, although they were fairly robust. One patella was also recovered. Two extremely fragile tibia fragments and one piece of fibula were present. Three severely damaged metatarsals were all that remained of the foot.

The only other remains were 1 rib fragment, 4 vertebral fragments, and 8 pelvic fragments which were non-reconstructable.

Grave goods include one jasper and one slate flake. One chert biface was also with the body. One double link of brass chain was within the vicinity of the skull. The seed beads were also clustered around the displaced skull. These included: 31 brownish white, twenty-seven green, 208 black and 729 white seed beads.

Burial 12

Burial 12 is located in N50W90. The pit was about a foot deep. The matrix was discernible by the dark ring indicating the deteriorated coffin. Some charcoal was scattered throughout the fill. The type of burial is uncertain. The preservation of the individual is extremely poor because of its youth. The head was oriented northeast.

Fourteen deciduous tooth caps were present. Three of these were two left incisors and one right. The upper and lower left canine were present. Four premolars and three molars were present. Sixteen miscellaneous enamel fragments were present.

Of the skull, only three small fragments were present. The person may have been between six to eight years old. None of the other bones were preserved at all.

In the vicinity of what was probably the pelvis were nine white seed beads and two blue seed beads.

Burial 13

Burial 13 was located in 60N100W. The pit was discerned by the rectangular-like organic stain marking the coffin walls. During the project, and shortly after exposure this burial was looted. Preservation was poor in this burial, but how many possible bones or artifacts were taken is not known.

The burial is oriented northeast, and the skull faces southeast.

The right and left mastoid process are present, but there is a great deal of surface decay. There are three frontal

fragments and two pieces of the zygoma. The left parietal is present and ectocranial suture closure along the Pars Obelica and Verticus was incomplete. The Pars Bregmatica and Lambdica were partially closed. This suggests an age of less than 19 years based on an average of 1.5 for degree of closure (Schwartz, personal communication). This agrees with McKern and Stewart's estimation of less than 17-18 years (Krogman 1973:85). The lambdoid suture exhibits no closure at all. Therefore, the mean closure stage is .86 for the skull. These figures are based on Martin's standard of suture closure. This supports the idea of 17-18 or younger.

The surface of the skull had rotted away in many places. There were 63 miscellaneous fragments but the skull was unreconstructable. Post mortem warpage was extreme. The thin nature of the wall of the vault suggest immaturity.

The teeth suggest an age of around ten years. On the upper right section of the jaw the permanent teeth are the first premolar and the central and lateral incisor. The deciduous canine is present, along with the second premolar. The upper left includes the deciduous canine and second premolar are-present. The first molar has emerged, while the second hasn't developed. The lower left and right have the same teeth present with the addition of the lower left lateral incisor. This suggests an age of around 10 years (Brothwell 1972:59). This is probably more reliable than the variable suture closure age estimate.

The second and third cervical vertebrae were found, but there was no evidence of the axis or atlas. No burial goods were located. However, the absence of any additional bones or grave goods could be attributable to either the looters activities or preservation.

Burial 14

Burial 14 was in squares 70N110W and 60N110W. No pit fill was discernible, as the burial was at the base of the plow zone. The pit must have been ^{rectangular} square; however, because great amounts of wood from the square coffin remained. The interment was extended, with the head pointing northeast.

The skull was in extremely poor condition and was left in the matrix. Within this block are also an indeterminate number of black and white seed beads. Of the thirty-two loose miscellaneous skull fragments, they are generally unrecognizable as to location, and suture closure is incomplete indicating an age classification of adult, however closure for aging can be highly variable.

The dentition consisted of the four upper premolars and the upper right canine. All of these exhibited enamel polishing. The upper right central and lateral incisors exhibited some heavy wear, with bands of dentine exposed on both surfaces.

The cervical vertebrae are also friable, and more well preserved in the block of dirt from the skull pedestal. The rest of the vertebrae were fragmentary. The remains were

categorized as follows: two transverse processes that were probably thoracic, one lumbar, 9 general body pieces and 14 miscellaneous small portions. One rib from each side was preserved.

One scapula was recovered. The left scapula had a damaged glenoid fossa, spine and acromion. The left humerus was relatively complete, except for the head and measured 28.5 cm. for a height of 151+ cm. or 4'11". The ulna and radius were represented by 40 fragments. Two ulna fragments from the right side were recovered. The right hand consisted of three metacarpals and three middle phalanges. The left hand consisted of two metacarpals, one first phalanx, one middle phalanx, and three third phalanges.

Although the pelvis was extremely fragmentary, the sciatic notch is wide or the angle formed obtuse. There is also a groove on the pre-auricular sulchus. These characteristics indicate that the burial was female.

The right femoral head and part of the shaft are present, however eighteen disintegrating fragments prevented reconstruction. Seven pieces of right tibia and 3 fragments of fibula were located. Nineteen other fragments from the vicinity were unidentifiable. The right foot had two metatarsal fragments and a talus and calcaneum.

The left femur was represented by only fragments with no landmarks. Fourteen tibial fragments were present. The

left talus and calcaneum were also preserved.

Burial 14 seems to have been an adult woman of high status. Around the head and neck were 285 white, 65 brownish white, and 40 black seed beads. Also around the head were two brass jingles or tinklers.

A cache of burial items were in the vicinity of the right arm. These included a whetstone, rectangular in shape and measuring 8.15 cm. in length, 3.2 cm. in width, and .75 cm. thick. Eight pieces of brass coil were also in this vicinity. Two gun flints, one of grey flint and the other greyish amber were found. However, the grey flint is probably not English, and the amber probably not French. One polished schist or gneiss pipe was in the cache. There is a ring at the top and base of the bowl. The bowl is on a neck extending up from the tube. It is 4.45 cm. high and 3.99 long. There is a loop on the stem also. This was probably attached to another stem made of a perishable material. A round iron object, badly deteriorated, was in 29 fragments. All of the items in this cache area were sprinkled with a powdered bright red pigment, of which a sample was obtained. In this vicinity were four small and two large brass jingles.

In the general vicinity of the arm and shoulder, there were twelve white seed beads.

In total four possible rings were recovered. All were of brass, and had a circular bevel on a plain band. Of these, one had no stone. Two rings had clear glass stones

one rounded and one faceted. The ring with the rounded stone had preserved the flesh beneath it. A blue glass rounded stone was found and probably belongs to the ring mentioned above.

In the vicinity of the pelvis, six small, one large, and one broken brass jingle were encountered. Also in this region were 56 white and one black seed beads.

The left knee region contained a brass bell 3.52 cm. high, and 3.67 cm. wide at the mouth. The bell appeared to be plain. The clapper was iron and badly corroded. In this vicinity were 2285 white, 56 green, 241 blue, 86 black, and 108 brownish white seed beads. Also in this cache were two brass jingles.

Along the left tibia and fibula were 17 white and 3 black seed beads, and on the right, 23 white, 13 blue and 7 brownish white seed beads. The seed beads probably all adorned clothing, and those around the feet probably represent moccasins. They include: 575 white, 54 blue, 31 black, 42 green, and 24 whitish brown seed beads. This burial was one of the richest located on the site.

Burial 15

Burial 15 was located in 70N80W and 60N90W. The pit was marked by the usual peripheral stain. The grave was oriented northeast-southwest. However, the skull fragments are in the southwest, suggesting the body was oriented in that direction. The pit fill was not particularly deep, and unfortunately disturbed by the looters. Only two skull

fragments were present. Both of the fragments were of the parietal. The fragments were very thin walled and the individual may have been immature or female.

Burial 16

Burial 16 was oriented northeast and southwest and was in the 60N100W square. This burial was looted after exposure, but prior to excavation. However, the preservation is probably the factor responsible for the scarcity of the remains, and not the looters. The position of the body is unknown. The pit was very shallow.

Seven tiny skull fragments remained. One was parietal and the rest unidentifiable. One probable cervical vertebrae was present. Eighteen miscellaneous long bone fragments, and one distal fibula end were present. A radius and ulna fragment were recovered. There were no accompanying grave goods. The person was probably adult, but because of preservation and the plow, no age and sex determination are possible.

Burial 17

Burial 17 was located in a shallow pit in 70N100W. The body was oriented towards the southwest. The skull is all that remained of the bones and it was in a highly friable condition.

The skull was represented by 52 tiny pieces that defied reconstruction. Three of these fragments had broken along

sutures that showed no evidence of closure.

Dentition included a lateral incisor, probably deciduous. No root was present. This tooth had a plaque deposit. One right deciduous premolar with no roots and no wear suggest the individual was young. A molar with decay and enamel polishing was also present. The person may have been as young as between six to eight years old.

One circular brass buckle of 2.62 cm. in diameter was found, along with the tang of another. There was no ornamentation on its surface.

Burial 18

Burial 18 was represented by a shallow pit. The pit was oriented northeast and southwest. This burial may be one looted prior to the beginning of the project, or else all bones may have been removed by the plow. Only four tiny pieces of bone, and no grave goods remained.

Burial 19

Burial 19 was in a shallow pit in 60N150W. It seems to be the beginning of another cluster of burials. The fill was mixed clay and sand. The body was oriented northeast, with the head facing west. The body was flexed.

The surface of the skull fragments was in extremely poor shape. The cranial walls were rather thick. Both mastoids were present, with part of the right mastoid process being fairly robust. The zygomatic ridge extends beyond the

external auditory meatus. One occiput fragment exhibits a strong nuchal line. It seems most likely that this burial was male.

Forty-two extremely fragmentary skull walls seem to be mostly frontal and parietal portions. Sutures are not in evidence and possible this indicates that they have fused. This could indicate an age of the mid-20's onward. No dentition was found to support this conclusion.

The post-cranial remains include three femoral shaft fragments, one tibia fragment, and 48 other miscellaneous long bone fragments with no landmarks visible. One rib was preserved.

Accompanying the body was a kaolin pipe bowl with the marker's mark "WN". Another pipe was represented by one bowl fragment.

Charcoal and wood fragments indicated the presence of a coffin. Five pottery sherds were present. All of these sherds were grit tempered, and from the walls of a vessel. Three of the above are cord impressed, with an S-spun cordage.

Six flakes comprise the lithic assemblage. Two slate flakes, one low grade white chert and a pinkish chert are the products of secondary flaking. Also recovered were one grey chert and one jasper tertiary flake.

Burial 20

4ON9OW was the unit Burial 20 was located in. The fill was 11" in depth and marked by dark soil, decayed wood, burned organic material, clay and fire-cracked rocks. The burial was oriented southwest, with the head facing west. The body was extended, and preservation was generally poor.

The cranial remains indicate that the individual was probably female. The nuchal lines aren't extremely pronounced, and the zygomatic ridge doesn't extend beyond the external auditory meatus. Both mastoids are present, but the process is broken on each. Fifteen frontal and parietal fragments are present. Ectocranially all apparent suture closure is complete. Endocranially the lambdoidal suture was partially closed at the pars intermedia. The pars lambdica and pars verticus are all that is left of the sagittal suture. These are in an incomplete closure stage. This is highly variable however, and based on only fragments. This information is not supported by the dentition. Also present was part of the sphenoid.

The incisors are both broken, but are probably the upper right central, and the lower right lateral. One canine is broken. The other has only the crown, but is probably the lower right canine. The lower right, left and upper left anterior premolars are present. The molars have all emerged on the lower left, and the second and third lower right molars are present. On the upper right the first two molars have emerged, while the third molar is partially erupted. All

teeth suggest an age of 15 to 21 years of age.

Post cranial remains include a fragmented right femur and tibia, both very slender. And the left tibia and fibula are also equally crushed. One humerus shaft was reconstructed, and three other miscellaneous fragments are all that remain of the arms.

One nail was in the fill. No grave goods accompanied the interment.

Burial 21

This individual was facing southwest. The position was extended, and the square 30N14OW. This burial may be part of another cluster emerging. As the project drew to a close, it was the only burial known in the region. This was found to not be true during the backfilling of the site.

Although the surface of the skull was much disturbed by root activity, it was primarily in good condition. All apparent suture closure was incomplete, indicating the individual was probably younger than 19 years. The external auditory meatus and the obtuse angle of the ascending ramus indicate a female.

The maxillary teeth present are the two central and right lateral incisor. The lower central incisors and left lateral incisor are present. The mandibular and maxillary canines are accounted for. All premolars are present except the lower left anterior and posterior ones.

The molar teeth have all erupted on the lower left side. The third has a caries. The third molar hasn't erupted on the lower right side. The upper molar teeth have the first

emerged, and the second erupted. The age is most likely 10-12 years, however the lower left third molar present could up the age to fifteen years.

The axis, atlas, four cervical vertebrae, and a fragment of the fifth represent the spinal column. Only fragments of the right arm remain. The pelvis was extremely fragmentary, with any sexual determination made on an individual of this age extremely risky. The legs were represented by pieces of femur and tibia, but only one fragment of the right foot remained. It's exact nature was indeterminable.

Small pieces of wood were found with this burial. Preservation of the coffin was best around the head and feet.

Twelve and one half glass beads were found on the left side of the skull. One black seed bead was found in the fill. Also in the vicinity of the cranium were two tiny wall sherds. One sherd was cordmarked on both sides, and the other on only one. All were grit tempered, and the cordage was S spun.

The lithics included five slate secondary flakes, and one quartzite flake. A very tiny projectile point was found in the fill. It measured 1.2 cm. in length and 1.65 cm. in width. It appears to have been a miniature Levanna point.

The last burial item recovered with 21 was one of the most unusual. It was a piece of shell pendant with two perforations in the corner. The surface was decorated with a simple geometric design. Although the piece was broken and the surface deterioration had set in, this was one of the most unusual items from the site.

Features

Although much of the site is covered by various discolorations of various types, most are related to various recent disturbances. Erosion and deposition from flood episodes often produced patches of differing soil types that did not turn out to be features. Rodent activity was extensive in some areas, as was root activity. Various other confusing factors included plow scars and our own bulldozer tread.

Only those features excavated were assigned numbers. Other stains on the map were either shallow, not definite enough, or we simply didn't have time to excavate them.

Oftimes these features were in the vicinity of what appears to be post molds, when this is the case it will be mentioned. Very few features yielded much in terms of artifactual remains. It may be that we were examining the bottom of features that had been eroding away. Since so many burials are preserved this seems unlikely. Any erratic post molds were very shallow, but surface artifacts were not heavy enough to indicate the village had been churned into the plow zone. Rather it seems more likely that the village is closer to the river, and what we are seeing is a variety of natural phenomena, small features and erratic post molds associated with the burial ground.

Feature 1

Feature 1 was a small irregular shallow stain. The fill was sandy and contained bits of charcoal and organic material. It was 8 inches by 12 inches in diameter and only three inches deep. It appeared on the subsoil surface. It was located in ON7OW. It was in the vicinity of other possible post molds and features. However, no artifacts were associated with it.

Feature 2

It is possible that this may have been a large shallow post mold, but this seems unlikely. It is in unit ON9OW close to feature 3. Other irregular stains are close by. The dimensions are roughly 18" by 10". The depth only reached four inches. No artifacts were in association. The matrix was brown, and appeared at the level of the yellow clayish subsoil.

Feature 3

This possible feature was also located in ON9OW. The stain was large and amorphous in shape. The fill contained bits of charcoal and various organic stains. The dimensions were two feet by five feet. However, the fill was only two inches deep. This feature is associated with other stains and feature two. Absolutely no artifacts were in association.

Feature 4

Feature 4 first appeared on the subsoil surface of ON8OW as two post molds close together, with a slight discoloration between. When the post molds were cross-sectioned

however, it was clear that they were part of the same stain. The fill was a dark brown with bits of charcoal throughout. The depth was also inconsistent, and it reached a maximum depth of six inches. There were no artifacts found within it.

Feature 5

Feature 5 is a more definite cultural manifestation. It is located southeast of Burial 5 on the subsoil. The fill was dark with small pieces of charcoal within it. The pit was oblong and oriented northeast-southwest, as are most of the burials. The pit was only 3.5 inches deep, however the top of it may have been removed by the plow and/or bulldozer. It is contained within the units 50N14OW and 60N14OW on the subsoil. The only thing within the pit was a mammal foot, probably pig. The remains included metapodial and phlange fragments. The foot was oriented with the metapodials in the northeast and phlanges in the southwest. The significance of this is uncertain. It may have been used as a hearth once, or a trash pit. If there is ritual significance, there is no evidence from elsewhere on the site to offer an explanation. The dimensions of the pit were 1'8" by 1'.

Feature 6

Feature 6 is located in 70N8OW, 70N9OW, and 60N8OW. It is a large oval stain with a maximum depth of two inches.

The stain was slight, but recognizable to the looters who also disturbed the surface of this feature. The location is east of the major burial cluster. No artifacts were associated with it.

Feature 7

Feature 7 may be a small refuge or hearth pit. It is in 3ON14OW on the subsoil. Nearby are two possible post molds and Burial 21. The size is only 11" by 8". The depth from the top of the subsoil was 5". A few fire cracked rocks were within the feature and also a cobble that was pitted on one side.

Feature 8

Feature 8 was located in 3ON8OW. It started as a series of roundish possible post holes and expanded into what was probably a deluxe rodent establishment. The first 1½" was an area of apparent firing with heavy charcoal concentrations. This feature extended into the east wall. A cross section revealed two very erratic deep holes within the area of the feature. It was abandoned as a rodent hole.

However one broken jasper biface fragment 3.63 cm. long and 4.6 cm. wide was found, and a dark grey projectile point fragment 2.93 cm. long and 2.28 cm. wide, minus the base. The point was sidenotched.

Feature 9

Feature nine did not exist. A confusion over numbering arose, and this feature number remained unused.

Feature 10

Feature 10 was located in 30S130W. In this trench the subsoil takes a tremendous dive of several feet. The fill was dark and clearly visible. However, the bottom is far from regular. The surface is a very long rectangle of about 7' by 2.5'. It is oriented northwest-southeast. The feature achieves a maximum depth of 1½'. Within the fill was one kaolin pipe stem. This was lying beneath a sandy lens. The feature was located in the middle of a large number of small post molds that formed no comprehensible pattern.

Feature 11

Feature 11 was located in 410S50W and 410S40W. This feature was roughly four feet in diameter. The fill was slightly darker than the surrounding subsoil, but most of the edge of the pit was defined by textural differences. The pit seems to have been a series of four neat terraces, each extending deeper into the subsoil. Any possible use/determination is speculation, however it could have been for storage purposes. The only artifacts contained in the fill were two redware rim sherds from the same vessel. The dark brown glaze was on the interior and along the edge. The vessel was probably a large mouthed storage container.

Feature 12

Feature 12 was in 410S60W. The fill was only slightly darker than the subsoil, and excavation followed largely

textural changes. No internal stratigraphy was present in the fill, except for lenses of yellow subsoil and dark brown soil. Some charcoal was present. The bottom of the pit was highly irregular. Total feature diameter was a fairly regular six feet. However, the bottom suggests a possible tree fall with artifacts occurring merely coincidentally. These artifacts include one jasper flake and an unutilized river cobble.

Feature 13

Feature 13 was a possible fire feature in 450S40W. The dimensions were 3'0" by 3'9". It reached a maximum depth of 11". No firecracked rocks were found, but there was a distinct layer of charcoal. Beneath this was a lens of a less dense charcoal concentration and some coal. The third and bottom lens is extremely sandy with less charcoal and coal. A carbon sample was taken from this feature. No artifacts were present.

Feature 14

Feature 14 was a small fire pit in 400S100W. The fill was mostly charcoal. Dimensions were 11" by 8". The maximum depth was four inches. This feature was in the vicinity of a few possible post molds, with no recognizable pattern.

BEADS

The majority of the beads present were seed beads. An assortment of measurements for these is in the appendices. The yellow and brownish white seed beads appear to be prone to deterioration. The measurements of a representative sample of these are in the appendix. Final counts for the site include 4987 white seed beads, 1052 blue, 830 black, 310 blue-green, 397 brownish white, 108 yellow, 136 green seed beads.

Wire Wound Beads

Two major classes of beads exist in the site, clear to blue wire wounds and root beer colored beads. Both came in two sizes, large and small, thirty-nine large clear or blue beads were on the site, and six small ones. Forty-three root beer or heavily irridescent (and seemingly root beer colored) large and nineteen smaller beads. Eight blue octagonal or prismatic beads were produced. Another of these was found in 6ON6OW. From the surface of the site was a blue bead with eight ridges on the surface. Other glass beads were found by collectors and during the fill operations of the site, but they are discussed in another section.

CERAMICS - NATIVE AMERICAN

All eight ceramic sherds from the site are grit tempered.

Five are S-spun, but the rest are too small to tell.

CERAMICS - TRADE OR RECENT

Six redware sherds are present in total. One rim sherd indicated a wide mouthed storage vessel with an internal glaze. The same glaze appeared on another fragment. One unglazed rim fragment was located on the site, as well as a wall fragment and a basal fragment.

Nine hardwhite paste sherds exist. One is a wall fragment from a bowl or cup, and five other fragments belong to a vessel that is blue.

One possible piece of delft was found. The fragment is blue with a white stripe, and is extremely small. The paste is very soft. Lastly one piece of porcelain was in the backdirt of the third bulldozer trench.

BONE

All bone described in this section will be from the surface and plow zone. The bones from features and all burials have been discussed separately.

From the backdirt of the first bulldozer trench we have one worn lateral incisor, one mandible with the angle of the ascending ramus suggesting it is female. Also in this backdirt were two ribs, one tibial shaft, one femoral head and nine miscellaneous fragments.

From the backdirt of the third trench is an immature maxilla with one deciduous premolar in place. 30N80W yielded

one proximal tibia fragment. 3ON14OW produced one human cranial fragment and one upper molar with some enamel polishing. Three tiny unidentifiable mammal or human fragments were found in 5ON14OW. 5ON16OW and 5ON11OW each produced one human skull fragment. 5ON10OW yielded a skull fragment and vertebral fragment. 6ON16OW produced a probable human long bone fragment.

SHELL

The only shell artifact from the entire site was the broken shell gorget from Burial 21. The two perforations were drilled in the upper right hand corner. A double etched line is visible on the surface. The height is 3.51 cm. and the length of the broken fragment is 3.80 cm. The surface and edge of this specimen have begun to deteriorate.

BRICK

A large brick fragment with three surfaces was found in 4ON11OW. The brick was 81 mm. wide. Another fragment was found in 3ON14OW. Burial 9 also produced a small fragment.

GLASS

Only two glass items were present on the site. One was the octagonally shaped piece of glass associated with Burial 3. It was 8.45 cm. long and 6.5 cm. wide. The postulated use is as a mirror set into a piece of wood. Only one bottle neck fragment was found it had a patent type lip with no mold mark. The width of the neck was

1.92 cm. It was found in N30W140.

PIPES - KAOLIN

Three kaolin pipe fragments were in Burial 2, indicating at least two specimens, possibly three. The diameter of the bores are 2.02mm, 2.1mm, and 2.05 mm. Burial 4 contained two bowl fragments. The other kaolin pipe associated with a burial, was from Burial 19. The bore diameter was 2.2mm. This pipe exhibited a maker's mark, "WN". Another bowl fragment was found. The height of this bowl was 4.2cm. and the pipe was 1.65cm. wide at the mouth. All of the bowl shapes suggest a manufacture date of between 1720 and 1820.

One pipe stem was found in N30W140. It's bore diameter was 2.4 to 2.6 mm. thick. Another stem was in the surface collection.

Using a mean bore diameter figure of 6/64ths and Harrington's charts, the manufacture date was between 1680 and 1710. (Harrington 1978:64) A further effort to refine this figure resulted in the use of Binford's formula: $y=1931.85-38.26x$. (Binford 1978:66) The mean figure produced by this method was 1702.29. These two dates are in direct contradiction of Ivor Noel Hume's calculations based on bowl shapes.

METAL

The metal artifacts from the site fall into three types: iron, pewter or silver, or brass. Of the pewter or silver there is only one example, and that deteriorated upon exposure. It was a linear piece found in the left side of Burial 3 in the vicinity of the left arm.

Iron Artifacts: Two probably round containers were found on the site. One was on the left side of Burial 3. The side was 2.87 cm. high, but corrosion prevented a diameter measurement. The other

was from Burial 14, and was in 29 non-reconstructable fragments, thus preventing a measurement. Burial 10 had 11 fragments of what seems to have been an iron strip.

All other iron fragments from the burials were highly oxidized nails. The corrosion prohibited any dating by type. They were distributed as follows: Burial 2 - three nails and two probable nail fragments, Burial 9 - eleven nails, Burial 20 - one nail.

Eight pieces of wire were in the surface collection. These are undoubtedly very recent, and related to agricultural activities. A corroded spike is probably related to the nearby railroad tracks. Brass Artifacts: One of the most common brass artifacts on the site was the brass jingle or tinkler. Nine of these were found in Burial 3, 12 in Burial 4, three in Burial 6, and 8 in Burial 14. For locational data within the pits, see the individual burial descriptions. Measurements are in the appendices.

Burial 3 produced a vanity, whose measurements are given in the burial description. It also contained a thimble. Burial 10 produced two straight pin heads and one shaft fragment. One brass bell was found with Burial 14, and also some brass coils. All other brass items from the site were used for decorative purposes.

Brass buttons were strung on a leather thong as a necklace for Burial 3. Three medallions were found with Burial 5. Burial 6 yielded seven bracelets, six were rolled bands, and the seventh was braided wire. Burial 10's decorative ^{item} ~~idem~~ was a button with a floral design on the surface. One whole buckle and the tang of another were found with Burial 17. Burial 11 yielded one piece of chain. The three brass rings from Burial 14 complete the brass inventory from the site.

LITHICS

There are thirty flakes, two cores, three preforms, seven bifaces, nine points, one scraper, one netsinker, two gunflints, one pipe, two pitted cobbles, one adze, and one piece of dressed stone in the lithic inventory.

The flakes are divided into materials. There are two jasper secondary flakes from S30W130 and the surface. One tertiary jasper flake was located within Burial 19. The last tertiary jasper flake was from Feature 12.

The chert flakes were found on the surface and in Burial fill. In the surface collection six grey secondary, and one brownish-grey secondary flake were found. Burial 2 had one grey secondary flake, and Burial 5 two secondary grey flakes. Burial 19 yielded one pink, one grey, and one white secondary flake.

Six primary slate flakes were found on the surface, and fifteen secondary flakes. The other secondary flakes were distributed as follows: Burial 2 - 1, Burial 6 - 1, Burial 19 - 2, Burial 21 - 5, and one in N10W130. Also found on the surface was one utilized slate flake.

Only two cores were recovered from the site. One was a chert nodule from S20W110 and the other was a chert core from the surface. One quartzite fragment was found in Burial 21.

Preforms: Both preforms are made of slate. One was found on the surface, and the other in the backdirt of the fifth trench. The former is 6.39 cm. long, 5 cm. wide and 1.08 cm. thick.

The only scraper is from Burial 6. It is made from a grey

chert, with lighter inclusions. It is 3.1 cm. from the striking platform to the utilized edge. It is 2.96 cm. wide and .93 cm. thick.

Bifaces: Seven bifaces were recovered in total. Only one was from a burial. This was Burial 11, and the material was a grey-black chert of 4.5 cm. long, 2.1 cm. wide, and .99 cm. thick. This biface was curved.

A broken jasper biface was found in feature eight along with a projectile point. The fragment was 4.6 cm. wide, 3.64 cm. long and .97 cm. thick.

The plow zone of N30W140 produced two broken bifaces. One is part of a slate ovate biface with no signs of utilization. The width is 4.14 cm. wide, 4.76 cm. long and 1.05 cm. thick. The other fragment is 2.82 cm. long, 2.-3 cm. wide and .57 cm. thick, and of slate. Trench #1 produced another incomplete specimen. This was 4.37 cm. long, 2.91 cm. wide, and .9 cm. thick. The broken fragment from Trench #4 was 3.22 cm. long and 4.56 cm. wide. Both of these were of slate.

The last biface fragment was from the surface collection. It was of a whitish chert. It was 2.96 cm. long, 1.84 cm. wide and .73 cm. thick.

Projectile Points: Ten points were recovered. The point in Burial #6 was in the top of the fill, and probably was placed there by the plow. It was 3.38 cm. long, but the tip was broken. The widest point was at the shoulders, where it measured 1.82 cm. The basal width was .85 cm. This point was side-notched and may have been a Lamoka Point. This typedates from 3500 BC to 2500 BC in New York.

(Ritchie 1961: 29)

The point from Burial 21 was a miniature Levanna. It was 1.2 cm. long and 1.63 cm. wide. This type was a Late Woodland point. The material was a grey chert.

Feature 8 produced a point of unknown cultural affiliation. Classification was impossible because the basal portion was missing. This grey chert point was side-notched. Width at the shoulders was 2.28 cm. and length minus base was 2.93 cm. The thickness is .57 cm.

The rest of the points were from the plow zone of units and trenches. N50W80 yielded a slate point 4.66 cm. long and 1 cm. thick. The side was broken. The point could possibly be a Brewerton Eared-Notched, of Middle to Late Archaic affiliation. N50W110 also produced a Brewerton, this one side-notched. (Ritchie 1961) The measurements were 2.61 cm. long, 1.54 cm. wide and .4 cm. thick. The material was grey chert.

N80W110 produced a side-notched slate point 4.6 cm. long, 2.93 cm. at the shoulders, 1.63 basal width and .86 cm. thick. It could be a Normanskill of Middle Archaic affiliation.

S10W110 yielded a Bare Island point, common in the Susquehanna and representative of the Late Archaic. (Ritchie 1961:15) The point was made of grey chert. S20W120 contained a jasper point, curved in profile. It is possible this was part of a biface or a point. Some utilization is present. The length is 2.45 cm. long, 1.30 cm. wide and .39 cm. thick. Because it is broken, no cultural affiliation can be determined.

The first trench yielded a black chert triangular point 2.57 cm. long, 2.33 cm. wide and 4.6 cm. thick. The fifth trench had a Brewerton side-notched point 2.82 cm. long, 28.2 wide at shoulder, 2.07 wide at the base and .6 cm. thick.

Miscellaneous Lithic Artifacts: The only ground stone tool was an adze. It was found on the surface, but was broken. The length was 8.41 cm. long, 4.78 cm. wide and 3.6 cm. thick.

There was also a possible netsinker. The length was 6 cm. long, 4.65 wide, 1.1 cm. thick. It appears to be notched on both sides, however, there is a great deal of battering present on the entire artifact. An X is on one surface, but these are probably plow marks.

N50W90 had a river cobble pitted on both sides. Feature 7 also yielded a pitted cobble, but the pitting was only on one surface.

One piece of seemingly dressed stone rectangular in shape was on the surface. It was 13.72 cm. long, 8.03 cm. wide, and 4.38 cm. thick.

Burial 14 yielded all remaining artifacts in the lithic assembly. These included two gunflints, and a whetstone. Measurements have been detailed in the burial section.

Almost all pathologies are based entirely on the dentition of the Burials. There were caries, some decay of entire teeth, and irregularity in enamel development, causing deep invaginations on the occlusal surface. Many burials didn't exhibit extremes of enamel wear, as is often common in prehistoric populations.

Burial 4's left metatarsal may exhibit arthritic warping. Any possible signs of arthritis on vertebrae or long bones has been eliminated by deterioration of the bones along these surfaces.

WEALTH AND STATUS

There seems to be no easy summary that can be made on wealth and status, from the twenty-one burials excavated.

Only nine out of 21 burials could be sexed. Eight of these were women, and one male. Four of the others were children. It must be remembered, however, that all sexual determination was based on a very few characteristics present on the fragmentary remains. Age was based on tooth eruption, and suture closure when the individual was older than twenty-one. The rest of the burials were sub-adult or indeterminable. Position seems to have nothing to do with the presence or absence of grave goods, or sex. Age also doesn't seem a factor.

However, both extremely high status Burials, 3 and 21, were oriented east and northeast and were female. Children tended to be buried with a few items, but not many.

Items that would seem likely to be buried with either sex, don't follow the expected pattern either. Examples of this are Burial 11, an apparent female whose grave contained flakes and a biface. Burial 14 had a pipe and gun flint, yet this was also

a female. Burial 19, a male yielded some pottery, while the female Burial 21, produced both pottery, flakes and a projectile point.

The possible demographic implication of this data has gone as yet uninvestigated. As mentioned in the opening of the burial section, preservation and erosion may make this a somewhat erroneous picture of this cemetery.

As the project opened it seemed most likely that the Delaware village between the Wapwallopen Creeks could be present on the area impacted by Pennsylvania Power and Light. From the evidence uncovered it may be concluded that the village was eroded away, which is extremely unlikely, or any features and postmolds encountered were associated with the burial ground. The village is probably closer to the river where collectors have picked up more pipe stems and signs of intense occupation. The large features described by Gardner were never encountered.

The historical Indian cemetery is probably of Delaware affiliation, but could possibly be Nanticoke.

The Archaic component mentioned by Gardner was evidenced by the Archaic points in the lithic section. Also the thin dark layer in part of the site, may be all that remains of the Archaic component. The Gardner test operations located a flexed burial with no grave goods, and assumed it was Archaic. In view of preservation on the site and the fact that some of the historic burials were flexed, this can no longer be considered a certainty.

AFTERMATH

The backfilling of the site was done by Pennsylvania Power and Light. It was at this time that Burial 22 was found. It was about the N30 line, 30 feet from burial 21 and 10 feet east of the back dirt pile.

The burial was apparently very shallow. The position was flexed and the body oriented east. The grave goods included fifteen moon and star beads. These beads are extremely rare and few are known from archaeological sites or collections. They were probably made in "Venice for trade among the Moors, and that the designs have reference to Moorish traditions". (Orchard 1929:86) They are blue with a moon and star fused in glass on one side, and three stars, one with a tail on the other. There were five triangular catlinite beads and nine circular catlinite beads.

Eighty whitish translucent beads with a bluing were reported recovered. These were multi-faceted. Also found were an unspecified number of wire wound beads. Large numbers of seed beads of various colors were found with the burial. At least 1000 were found in the vicinity of the arms. Black, navy blue, white, pine and red were encountered.

The metal artifacts included a small bell, and also brass jingles. The artifacts are now in the collections of various workmen, or in the collection of Terry Knouse when he was able to obtain them from the workers.

Appendix I
Geological Cores

Borings, Soils And Testing Company
Test, Boring Report

ER 132026

flood plain
Weather _____

Date **12/23/76** **Pennsylvania Power & Light Co.**

Sheet **1** of **1**

Boring Location **Susquehanna SES 230 KV - Montour Susquehanna No. 1 & 2 Station 30+77.57**

HUB #16

Project No.	J-663
Boring No.	5-5
Fig. Soil	30.0
Fig. Rock	
Driller	C. English

Spoon O. D.	2"
Hammer	140 #
Fall	30"

Casing Dia.	4"
Hammer	300 #
Fall	18"

Core Size **NX** Bit No. _____

Ground Elev.	
Depth Ground Water	
Elev. Ground Water	
Depth Sound Rock	
Elev. Sound Rock	

Elev.	Depth	Blows Casing	Blows Spoon	Sample or Run No.	Rock Recov'd	Lost	Description of Materials & Remarks
	0-1	11					0.0 to 5.7 Dark Brown SILT - Moist - Loose
	1-2	10					
	2-3	10	3-3	S-1			
	3-4	10	3	2.0-3.5			
	4-5	11					5.7 to 12.2 Light Brown Fine Sandy SILT - Moist - Loose
	5-6	12					
	6-7	15					
	7-8	17	2-3	S-2			
	8-9	15	3	7.0-8.5			
	9-10	18					
	10-11	21					12.2 to 17.5 Fine Gray Sandy SILT - Wet - Loose
	11-12	23					
	12-13	20	3-4	S-3			
	13-14	20	3	12-13.5			
	14-15	24					
	15-16	24					
	16-17	23					17.5 to 22.3 Brown Silty SAND and GRAVEL - Wet - Compact
	17-18	41	8-21	S-4			
	18-19	47	26	17-18.5			
	19-20	53					
	20-21	71					
	21-22	75					
	22-23	103	59/03	No Recovery			23.3 to 26.7 Small BOULDERS and Wet GRAVEL
	23-24	112					
	24-25	139					
	25-26						
	26-27						26.7 to 29.0 Fine Brown Silty SAND - Wet - Compact
	27-28		14-17	S-5			
	28-29		21	27-28.5			
	29-30						29.0 to 30.0 Coarse Silty SAND and ROCK Fragments - Wet - Compact
	30-31						
	31-32						
	32-33						End of Boring at 30.0' 12/23/76
	33-34						
	34-35						G.W.L. at Completion 19.6'
	35-36						
	36-37						
	37-38						
	38-39						
	39-40						
	40-41						
	41-42						
	42-43						
	43-44						
	44-45						

Soils, Solids And Testing Company

Test Report

Weather

5A-2SP607
5B-2SP605
ER-121242

Date 1/5/77 Pennsylvania Power & Light Co.

Sheet 1 of 1

Boring Location Susquehanna SES 230 KV Connectors - Generator No. 1

Flood plain

Project No.	J-662
Boring No.	5-G
Fin. Soil	30.0
Fig. Rock	
Driller	R. Lenig

Spoon O. D.	2"		
Hammer	140	Fall	30
Casing Dia.	4"		
Hammer	300	Fall	18

Ground Elev.	
Depth Ground Water	
Elev. Ground Water	
Depth Sound Rock	
Elev. Sound Rock	

Core Size NX Bit No.

Elev.	Depth	Blows Casing	Blows Spoon	Sample or Run No.	Rock Recov'd	Lost	Description of Materials & Remarks
	0-1	11					0.0 to 1.0 Brown TOPSOIL - Moist
	1-2	15					
	2-3	28	7-7	S-1			
	3-4	35	9	2.0-3.5			1.0 to 4.5 Brown Silty Fine SAND - Moist - Compact
	4-5	57					
	5-6	95					
	6-7	121					
	7-8	137	21-32	S-2			
	8-9	93	45	7.0-8.5			4.5 to 17.0 Multi-Colored Silty SAND and GRAVEL Moist - Compact with COBBLES
	9-10	100					
	10-11	127					
	11-12	230					
	12-13	112	28-47	S-3			
	13-14	230	65	12-13.5			17.0 to 30.0 Brown and Gray Silty SAND and GRAVEL - Moist - Compact
	14-15	221					
	15-16	173					
	16-17	212					
	17-18	93	27-38	S-4			
	18-19	84	50	17-18.5			
	19-20	100					
	20-21	130					
	21-22	122					
	22-23	90	20-23	S-5			
	23-24	93	27	22-23.5			
	24-25	112					
	25-26	115					
	26-27	120	17-20	S-6			
	27-28		16	27-28.5			
	28-29		15-17	S-7			
	29-30		21	28.5-30			End of Boring at 30.0'
	30-31						
	31-32						G.W.L. at Completion 13.0'
	32-33						
	33-34						G.W.L. 24 Hours 13.0'
	34-35						
	35-36						
	36-37						
	37-38						
	38-39						
	39-40						
	40-41						
	41-42						
	42-43						
	43-44						
	44-45						

Appendix II
Osteological Data

BURIAL 1

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									✓
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar	Indeterminate
Vertebrae						✓

BURIAL 2

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna	✓		✓	16.5					
Radius					✓	✓		24.5	
Carpals									✓
Metacarpals									
Phalanges									
Clavicle									
Ribs									✓
Scapula									✓
Pelvis									✓
Femur									
Patella									
Tibia					✓	✓			
Tarsals									✓
Metatarsals									✓
Phalanges									✓

Bone	Complete	Incomplete
Mandible		
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae			✓	✓	✓

BURIAL 3

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus	✓	✓			✓	✓			
Ulna	✓	✓			✓	✓			
Radius	✓	✓			✓	✓			
Carpals									
Metacarpals									
Phalanges									
Clavicle					✓	✓			
Ribs	✓	✓			✓	✓			
Scapula	✓	✓							
Pelvis									
Femur	✓	✓			✓	✓			
Patella									
Tibia & Fibula	✓	✓			✓	✓			
Tarsals					✓				
Metatarsals									
Phalanges					✓	✓			

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae				✓	✓

BURIAL 4

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs	✓								✓
Scapula	✓	✓							
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals					✓				
Phalanges									

Bone	Complete	Incomplete
Mandible		
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 5

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus	✓	✓			✓	✓	✓	33.5	
Ulna	✓	✓			✓				✓
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									✓
Scapula	✓	✓							✓
Pelvis									
Femur	✓	✓			✓	✓			
Patella					✓	✓			
Tibia & Fibula	✓	✓							✓
Tarsals					✓				
Metatarsals	✓								
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae				✓	✓

BURIAL 6

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus	✓	✓			✓	✓			
Ulna	✓	✓			✓	✓			
Radius	✓	✓			✓				
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur	✓	✓			✓	✓			
Patella									
Tibia	✓	✓			✓	✓			
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 7

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus	✓	✓			✓		✓	27.2	
Ulna	✓	✓							✓
Radius	✓	✓							✓
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula					✓	✓			
Pelvis									✓
Femur	✓	✓			✓	✓			
Patella					✓	✓			
Tibia & Fibula	✓	✓			✓	✓			
Tarsals	✓								
Metatarsals					✓				
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae				✓	✓

BURIAL 8

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									✓✓
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

Burial 9

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 10

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									✓
Tibia									✓
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae			✓		

BURIAL 11

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus					✓	✓			
Ulna					✓	✓			
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									✓
Ribs						✓			
Scapula					✓				
Pelvis						✓			
Femur	/	✓			✓	✓			✓
Patella									✓
Tibia & Fibula									✓
Tarsals									✓
Metatarsals									✓
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar	Indeterminant
Vertebrae						✓

BURIAL 12

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 13

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae			✓		

BURIAL 14

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus					✓		✓	22.5	
Ulna	✓	✓							
Radius									
Carpals					✓		✓		
Metacarpals	✓		✓						
Phalanges									
Clavicle									
Ribs									
Scapula					✓	✓			✓
Pelvis									
Femur	✓	✓			✓	✓			
Patella		✓			✓	✓			
Tibia & Fibula	✓				✓				
Tarsals	✓				✓				
Metatarsals	✓								
Phalanges	✓	✓							

Bone	Complete	Incomplete
Mandible		
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae			✓	✓	✓

BURIAL 15

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 16

OSTEOLOGICAL REMAINS

<u>Bone</u>	<u>Right</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Left</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Indeterminant</u>
Humerus									
Ulna									✓
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia & Fibula									✓
Tarsals									
Metatarsals									
Phalanges									

<u>Bone</u>	<u>Complete</u>	<u>Incomplete</u>
Mandible		
Skull		✓
Sternum		
Sacrum		

<u>Bone</u>	<u>Axis</u>	<u>Atlas</u>	<u>Cervical</u>	<u>Thoracic</u>	<u>Lumbar</u>
Vertebrae			✓		

BURIAL 17

OSTEOLOGICAL REMAINS

<u>Bone</u>	<u>Right</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Left</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Indeterminant</u>
-------------	--------------	-------------------	-----------------	---------------	-------------	-------------------	-----------------	---------------	----------------------

Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur									
Patella									
Tibia									
Tarsals									
Metatarsals									
Phalanges									

<u>Bone</u>	<u>Complete</u>	<u>Incomplete</u>
-------------	-----------------	-------------------

Mandible		
Skull		
Sternum		
Sacrum		

<u>Bone</u>	<u>Axis</u>	<u>Atlas</u>	<u>Cervical</u>	<u>Thoracic</u>	<u>Lumbar</u>
-------------	-------------	--------------	-----------------	-----------------	---------------

Vertebrae					
-----------	--	--	--	--	--

BURIAL 18

OSTEOLOGICAL REMAINS

<u>Bone</u>	<u>Right</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Left</u>	<u>Incomplete</u>	<u>Complete</u>	<u>Length</u>	<u>Indeterminant</u>
-------------	--------------	-------------------	-----------------	---------------	-------------	-------------------	-----------------	---------------	----------------------

Humerus
Ulna
Radius
Carpals
Metacarpals
Phalanges
Clavicle
Ribs
Scapula
Pelvis
Femur
Patella
Tibia
Tarsals
Metatarsals
Phalanges

<u>Bone</u>	<u>Complete</u>	<u>Incomplete</u>
-------------	-----------------	-------------------

Mandible
Skull
Sternum
Sacrum

<u>Bone</u>	<u>Axis</u>	<u>Atlas</u>	<u>Cervical</u>	<u>Thoracic</u>	<u>Lumbar</u>
-------------	-------------	--------------	-----------------	-----------------	---------------

Vertebrae

BURIAL 19

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									✓
Ribs									
Scapula									
Pelvis									✓
Femur									✓
Patella									✓
Tibia									
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 20

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus									✓
Ulna									
Radius									
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									
Pelvis									
Femur	✓	✓							
Patella		✓							
Tibia & Fibula	✓				✓	✓			
Tarsals									
Metatarsals									
Phalanges									

Bone	Complete	Incomplete
Mandible		✓
Skull		✓
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae					

BURIAL 21

OSTEOLOGICAL REMAINS

Bone	Right	Incomplete	Complete	Length	Left	Incomplete	Complete	Length	Indeterminant
Humerus	✓	✓							
Ulna	✓	✓							
Radius	✓	✓							
Carpals									
Metacarpals									
Phalanges									
Clavicle									
Ribs									
Scapula									✓
Pelvis									
Femur									✓
Patella									✓
Tibia									
Tarsals									
Metatarsals	✓								
Phalanges									

Bone	Complete	Incomplete
Mandible	✓	
Skull	✓	
Sternum		
Sacrum		

Bone	Axis	Atlas	Cervical	Thoracic	Lumbar
Vertebrae	✓	✓	✓		

Appendix III
Metric Data
Buttons and Beads

BRASS JINGLES - METRIC DATA

<u>Length</u>	<u>Width-Narrow end</u>	<u>Width-wide end</u>
1.95 cm.	.25 cm.	.55 cm.
1.61	.33	.55
1.63	.38	.55
1.92	.28	.50
1.56	.40	.66
1.48	.31	.47
1.28	.24	.46
----	---	---
----	.28	---

* All above measurements from Burial 3

2.13

1.96

* All above measurements from Burial 5
Only sample parameters on length listed

BRASS BUTTONS - METRIC DATA

<u>Length</u>	<u>Width</u>
1.75 cm.	1.50 cm.
1.74	1.46
1.62	1.38
1.65	1.37
1.70	1.45
1.61	1.40
1.70	1.44
1.92	1.62
1.81	1.55
1.81	1.51
1.83	1.59
1.79	1.50
1.85	1.51
1.87	1.53
1.84	1.61

*All brass buttons measured are from the necklace of Burial 3.

Appendix IV
Metric Data
Glass Beads

SEED BEADS - METRIC DATA

<u>Yellow.</u>	<u>Length</u>	<u>Diameter</u>
Burial 3	.19 cm.	.28 cm.
	.11	.23
	.20	.26
	.14	.24
	.20	.28
<u>White</u>		
Burial 1	.19 cm.	.31 cm.
	.21	.33
	.21	.33
	.16	.30
Burial 3	.20 cm.	.37 cm.
	.19	.27
	.19	.31
	.30	.33
	.17	.19
<u>Brownish White</u>		
Burial 3	.16 cm.	.26 cm.
	.12	.22
	.19	.30
	.20	.25
	.18	.29
<u>Blue</u>		
Burial 1	.17 cm.	.28 cm.
	.20	.38
	.23	.33
	.17	.26
	.27	.31

SEED BEADS - METRIC DATA

<u>Blue</u>	<u>Length</u>	<u>Diameter</u>
Burial 3	.19 cm.	.33 cm.
	.20	.29
	.18	.35
	.17	.31
	.17	.31
<u>Blue-Green</u>		
Burial 1	.17 cm.	.28 cm.
	.22	.38
	.22	.33
	.24	.26
	.18	.31
<u>Green</u>		
Burial 11	.13 cm.	.28 cm.
	.15	.31
	.14	.25
	.19	.27
	.20	.24
<u>Black</u>		
Burial 11	.22 cm.	.32 cm.
	.21	.29
	.22	.29
	.20	.30
	.20	.31

WIRE WOUND BEADS - METRIC DATA

Clear to Blue

<u>Burial</u>	<u>Length</u>	<u>Width</u>	<u>Bore Diameter</u>
Burial 2	1.67 cm.	2.03 cm.	4.8 cm.
	1.67	2.02	4.55
	2.05	2.0	4.55
	2.00	1.85	4.35
	2.01	2.13	3.85
	1.90	1.88	4.35
	1.75	2.09	3.9
	1.99	2.10	4.3
	1.95	2.09	4.3
	1.98	2.12	3.8
Burial 3	1.83	2.00	3.85
	1.26	1.32	3.7
	1.05	1.59	4.0
	1.45	1.53	4.0
	1.41	1.50	4.2
	1.25	1.51	3.6
	1.25	1.52	3.9
	1.25	1.46	3.7
	1.73	1.78	4.0
	1.96	1.87	4.5
	1.81	2.08	3.7
	1.54	1.96	4.1
	1.57	1.78	4.0
	1.55	1.83	3.6
	1.78	1.80	3.7
	1.97	2.04	4.0

WIRE WOUND BEADS - CONTINUED

<u>Burial</u>	<u>Length</u>	<u>Width</u>	<u>Bore Diameter</u>
Burial 2	1.95	2.05	5.0
	1.70	1.76	3.5
	1.91	1.99	4.0
	1.95	2.10	3.6
	1.76	2.09	3.7
	1.93	1.79	3.2
Burial 4	2.02	1.96	3.8
	1.99	2.00	4.2
	1.96	1.82	4.1
Burial 21	1.52	2.00	3.8
	1.20	1.51	3.0
	1.36	1.81	3.6
	1.27	1.59	3.2
	1.35	1.44	3.8
	1.39	1.40	3.5
	1.47	1.50	3.1
	1.53	1.27	3.1
	1.55	1.31	3.6
	1.55	1.18	3.8
	1.58	1.36	3.4
	1.52	1.32	3.2
	1.59	1.51	---
Root Beer			
Burial 3	.97	1.27	.38
	.88	.92	2.6
	.91	1.05	2.8

WIRE WOUND BEADS - CONTINUED

Root Beer

Burial 3	9.0	1.05	3.8
	1.50	1.75	3.9
	1.57	1.59	3.9
	1.70	1.64	4.3
	1.49	1.56	3.7
	1.56	1.58	3.9
	1.62	1.58	3.5
	1.72	1.72	3.9
	1.61	1.74	3.6
	1.86	1.54	3.7
	1.63	1.73	3.7
	1.70	1.58	3.4
	1.61	1.70	4.2
	.89	1.03	3.0
	.96	1.17	3.3
	1.03	9.9	2.9
	1.34	1.74	3.9
	1.45	1.70	3.9
	1.48	1.52	3.4
	1.45	1.70	3.0
	1.48	1.52	3.4
	1.45	1.70	3.0
	1.48	1.52	3.4
	1.45	1.61	3.6
	1.51	1.56	3.5
	1.56	1.64	3.6
	.83	1.10	2.6
	1.61	1.61	3.5

WIRE WOUND BEADS - CONTINUED

<u>Burial</u>	<u>Length</u>	<u>Width</u>	<u>Bore Diameter</u>
Burial 3	1.53	1.80	2.9
	1.50	1.80	3.6
	1.70	1.66	3.8
	1.43	1.70	4.1
	1.52	1.56	4.4
	1.38	1.29	4.3
	.88	1.07	3.0
	1.46	1.59	4.0
	1.61	1.63	4.7
	1.58	1.68	4.2
	.96	1.03	---
	----	1.01	---
	.73	.95	2.7
	1.05	1.03	2.5
	.82	1.02	3.1
	1.48	1.77	3.9
	1.45	1.52	3.9
	1.55	1.59	3.5
	1.62	1.55	3.5
	1.36	1.55	3.5
	1.59	1.66	3.6
	1.64	1.66	2.8
	1.47	1.78	3.5
	1.60	1.55	3.6
	1.48	1.69	3.6

WIRE WOUND BEADS - METRIC DATA

Blue Faceted

<u>Burial</u>	<u>Length</u>	<u>Width</u>	<u>Bore Diameter</u>
Burial 5	.99 cm.	.89 cm.	---
	.98	---	---
	.94	---	---
	1.02	---	---
	.88	---	---
	.99	.98	.33
	.94	.75	.27
	.82	.95	---

MAN IN THE MOON BEADS

or

MOON AND STAR BEADS

<u>Length</u>	<u>Width</u>	<u>Bore Diameter</u>
1.64	1.78	.56
1.74	2.01	.35
1.82	2.03	.35
1.65	1.82	.37
2.0	1.94	.26
1.72	1.71	.38

Appendix V
Catlinite Beads

CATLINITE BEADS - METRIC DATA

<u>Width at Apex</u>	<u>Width at Base</u>	Triangular <u>Bore Diameter</u>	<u>Length</u>	<u>Thickness</u>
.85 cm.	3.09 cm.	.245 cm.	3.74 cm.	.6 cm.
.55	3.04	.18	4.04	.52
.64	3.21	.215	3.16	.74

Circular

<u>Diameter</u>	<u>Hole Diameter</u>	<u>Bore Diameter</u>	<u>Thickness</u>
2.98 cm.	1.61 cm.	.225 cm.	.54 cm.
2.65	1.36	.37	.53
2.74	1.38	.38	.505
2.86	1.52	.52	.49

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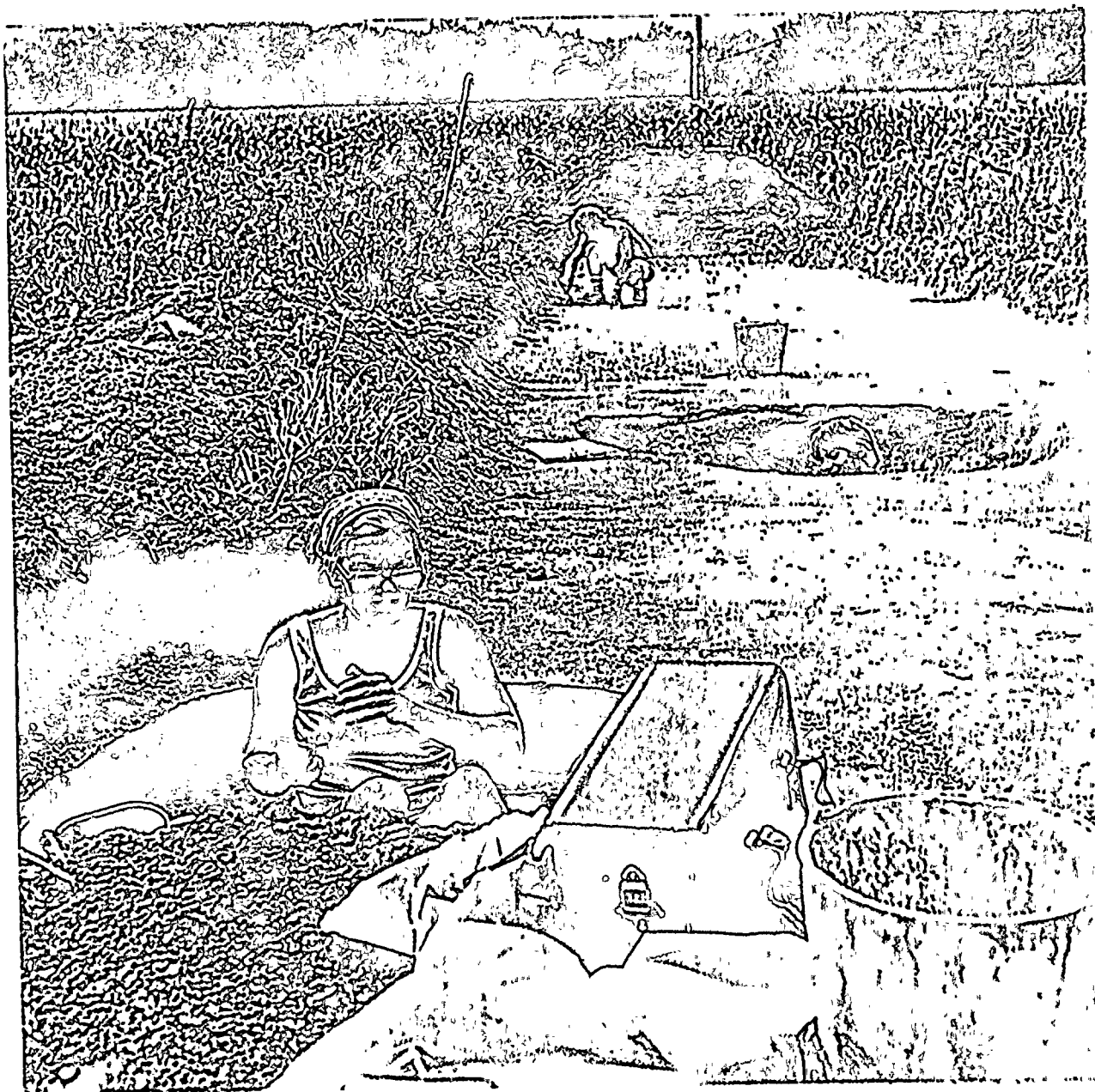
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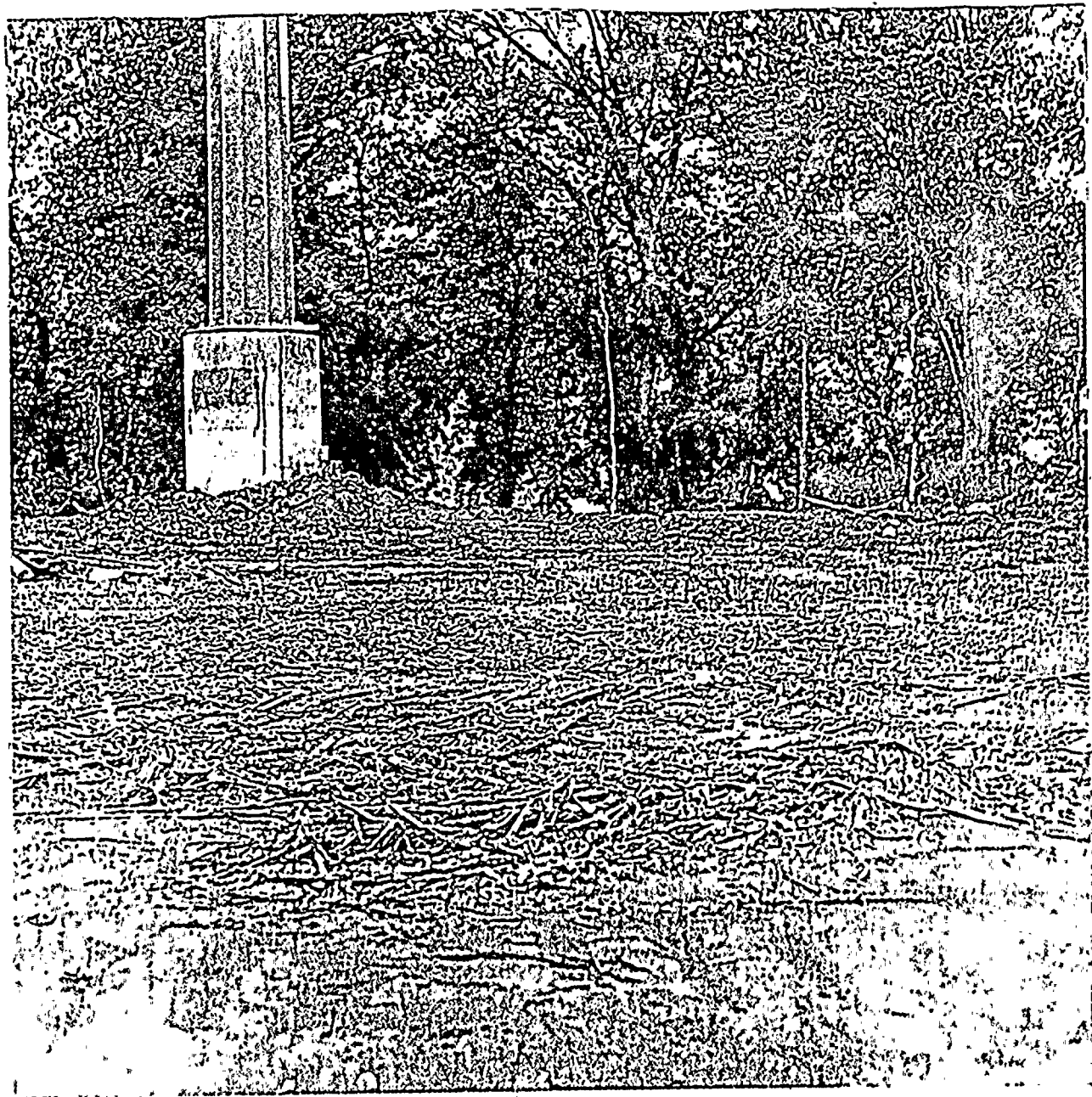
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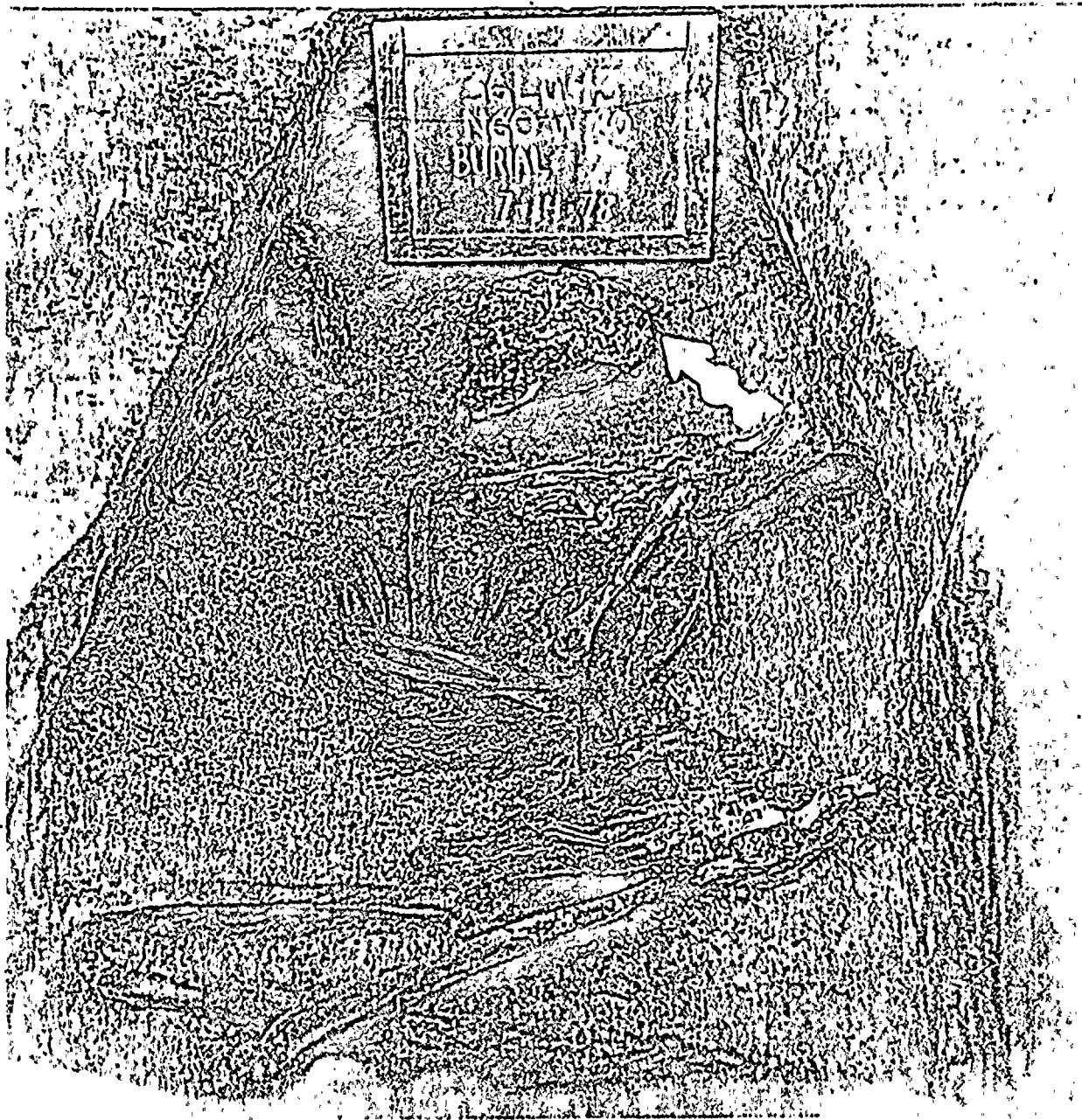
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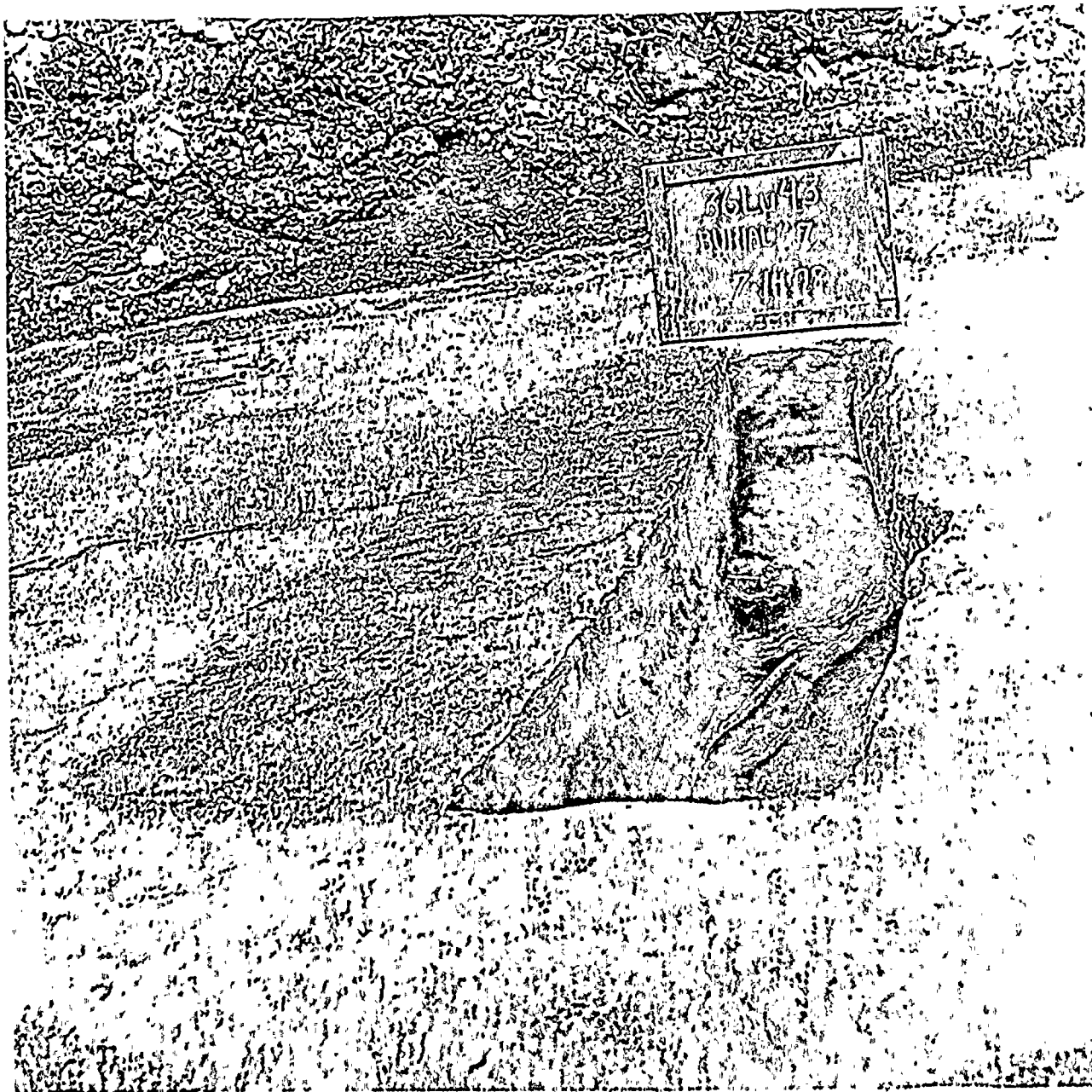
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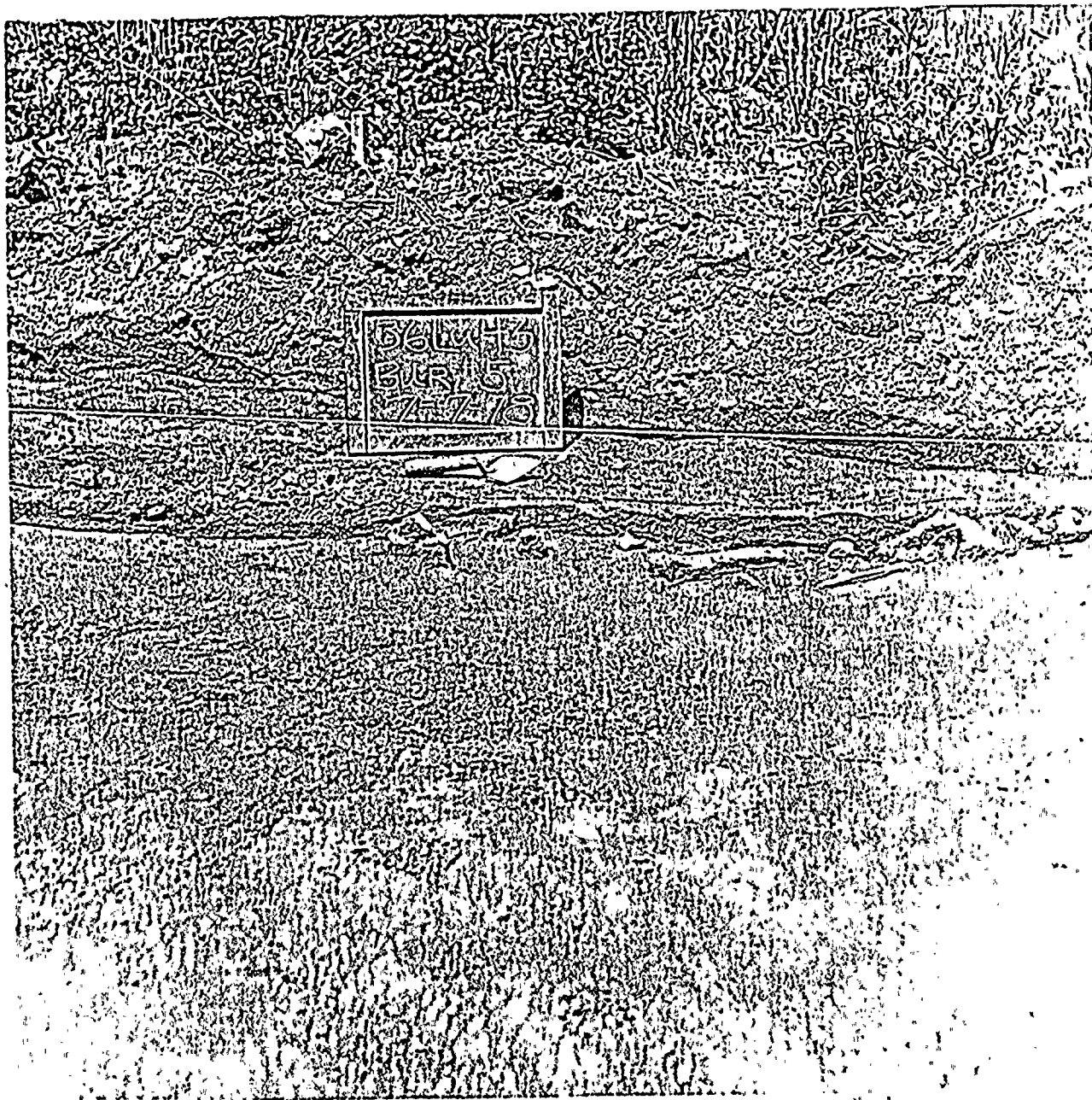


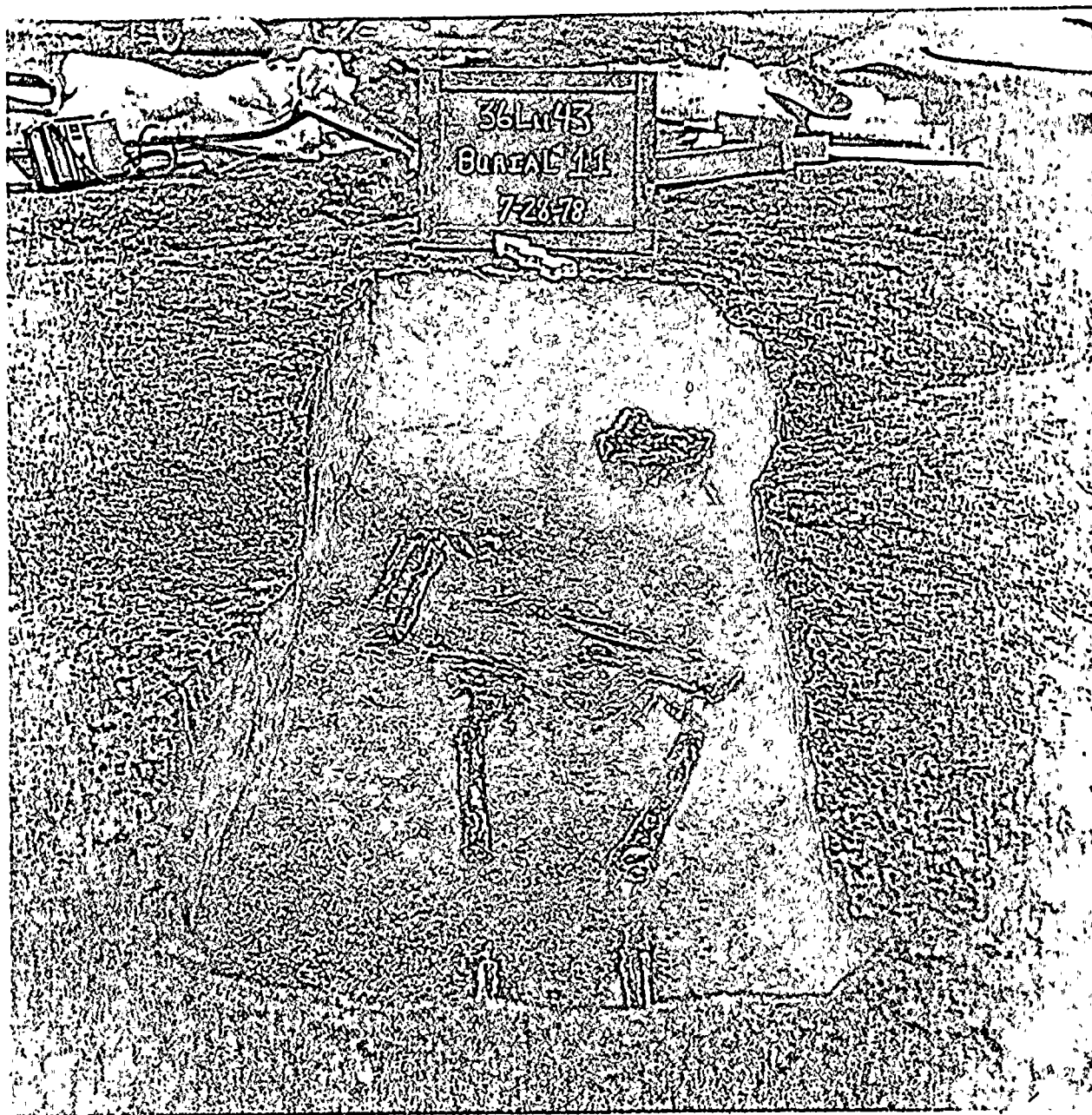


36Lu43

BURIAL #6

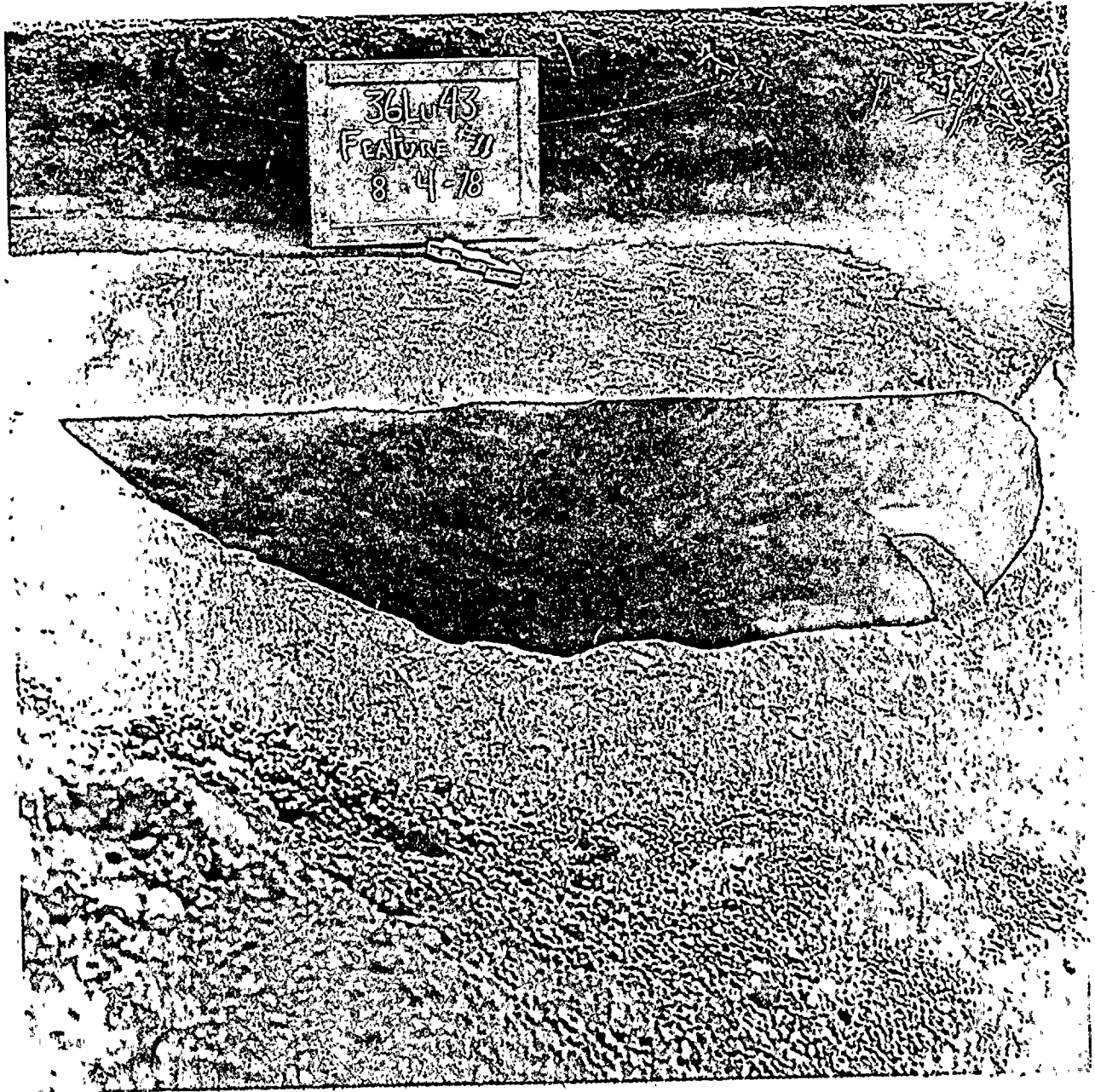
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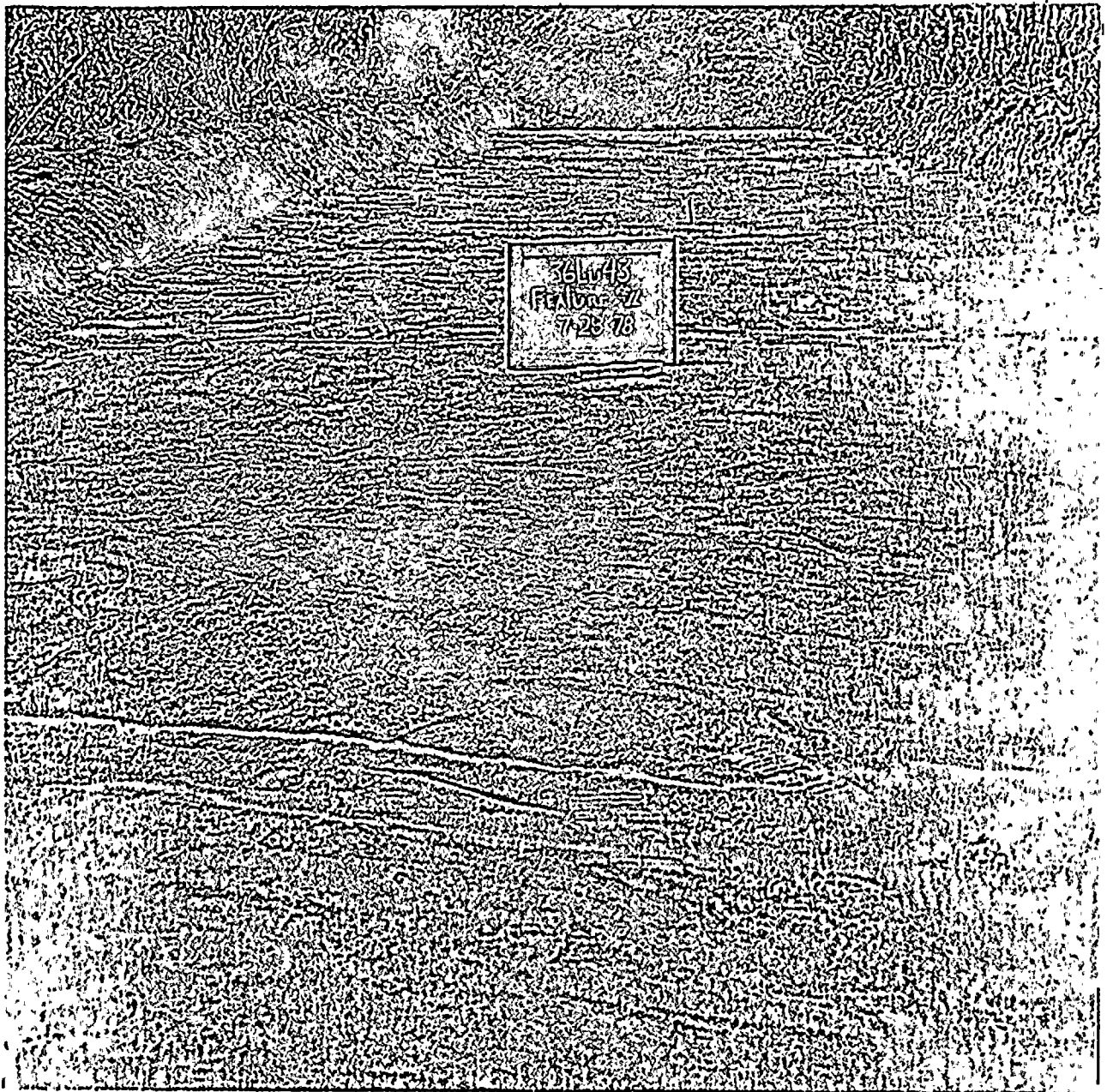


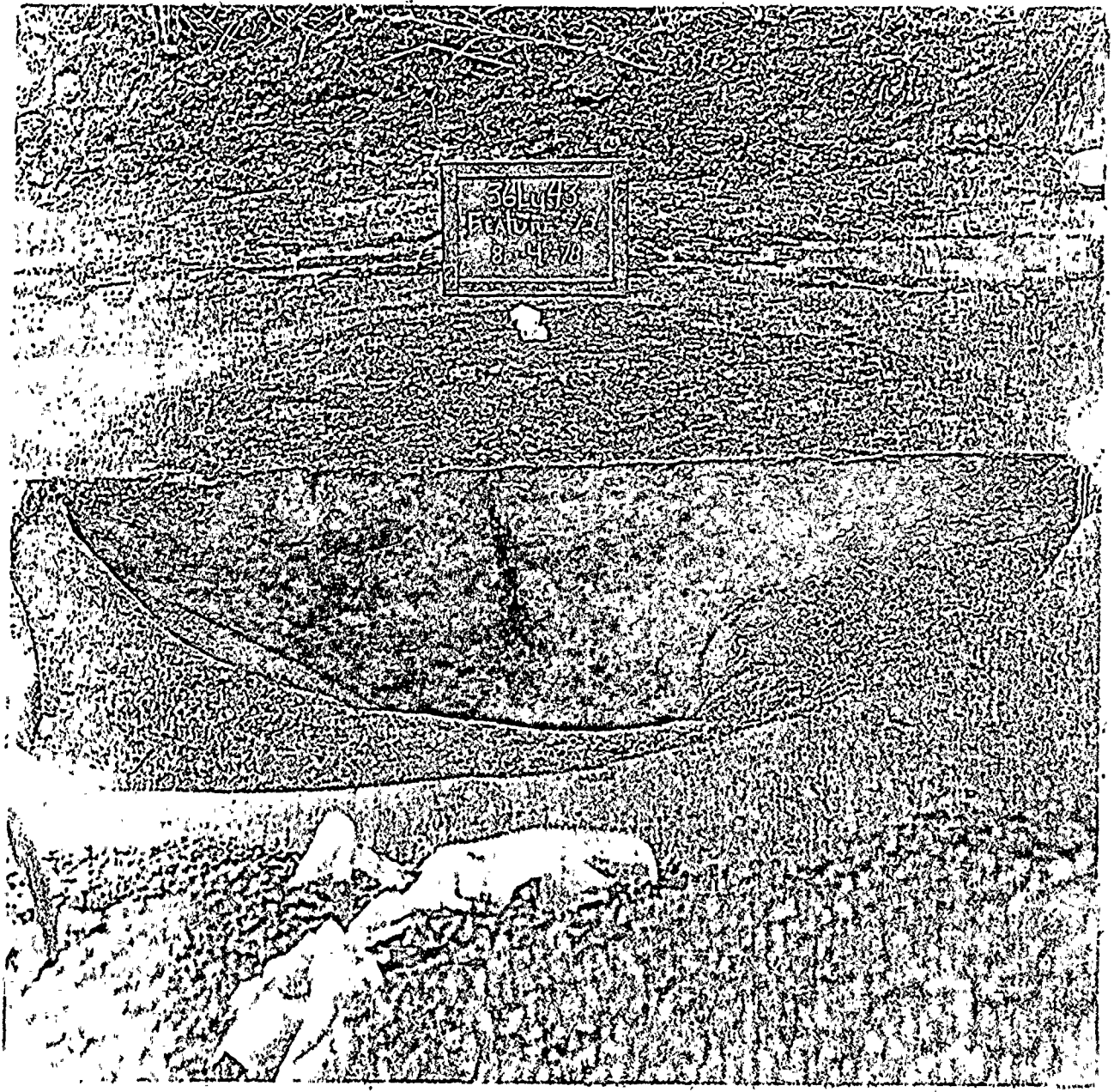


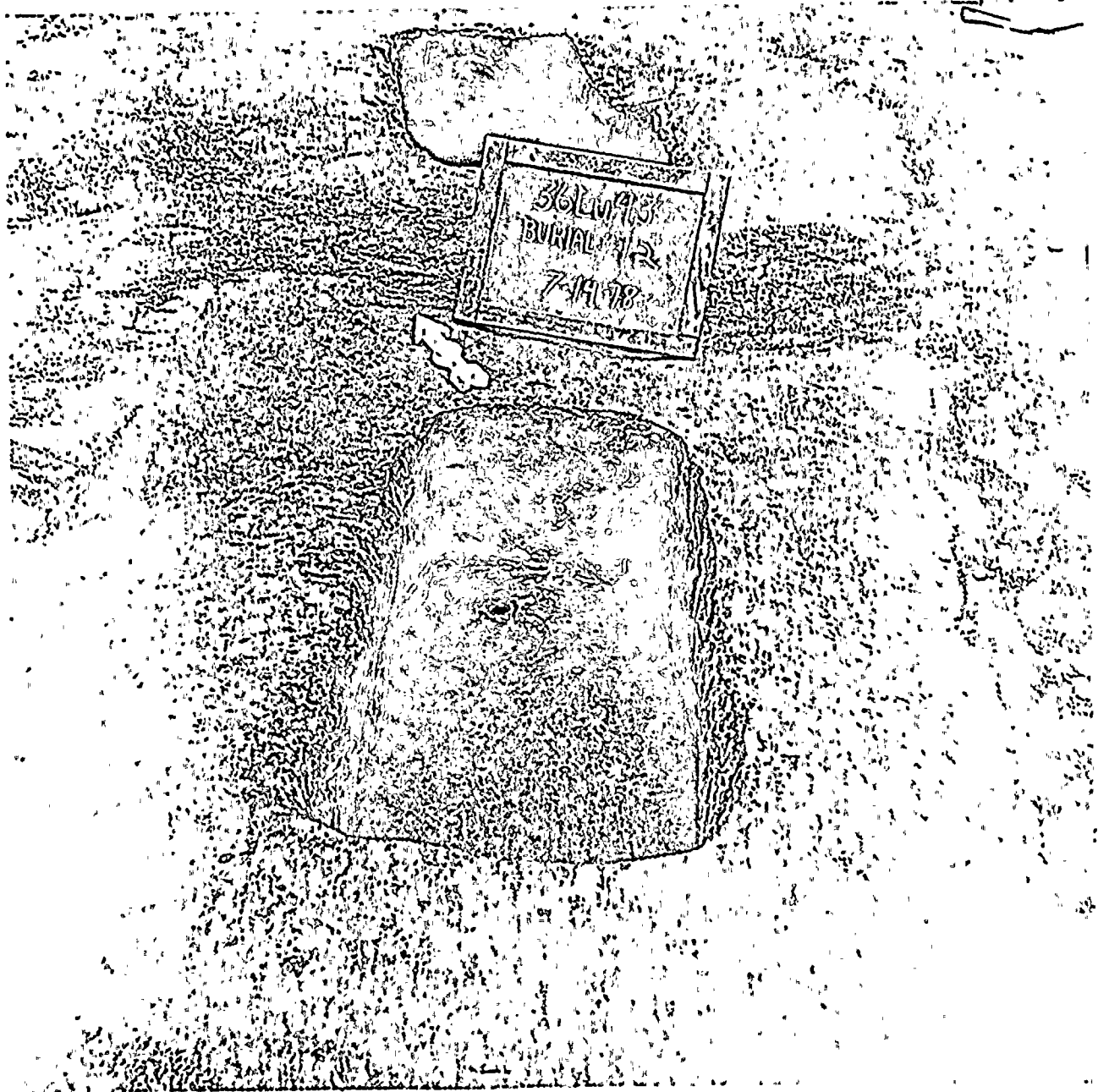




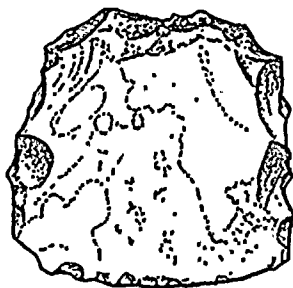
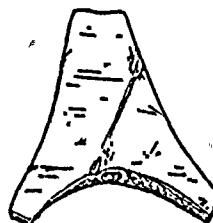
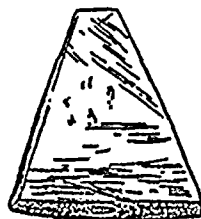
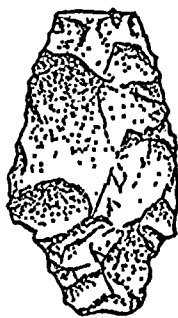






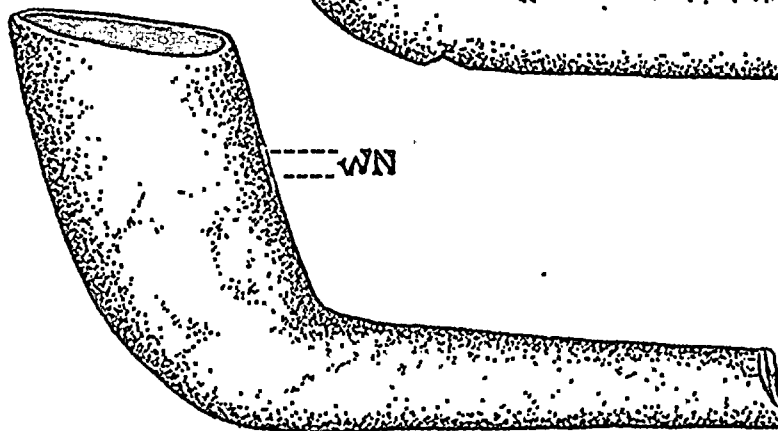
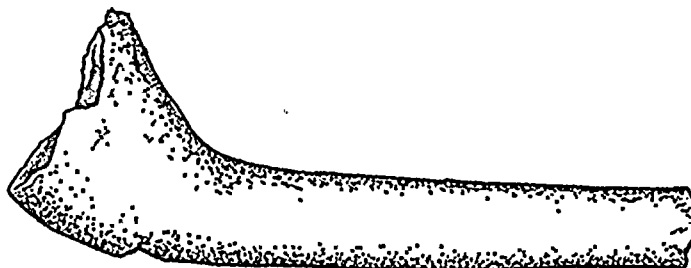
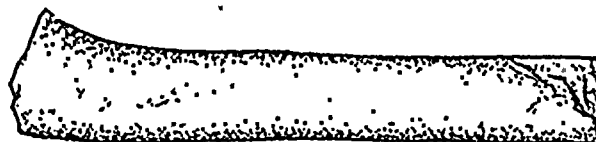
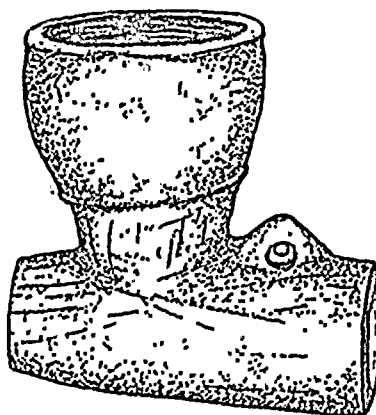
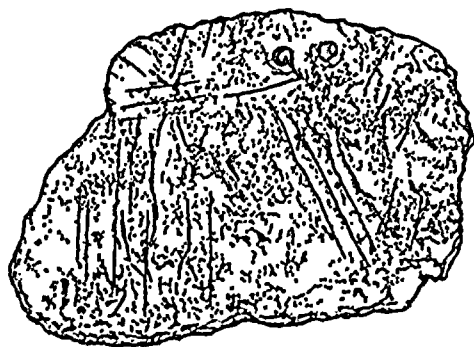






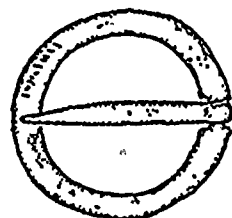
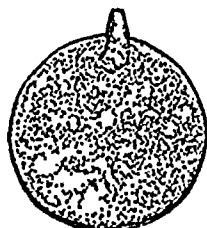
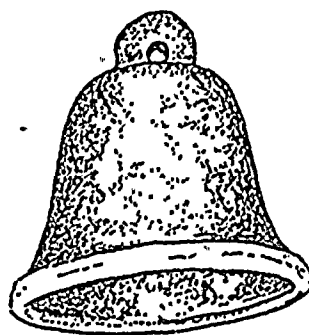
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VTH



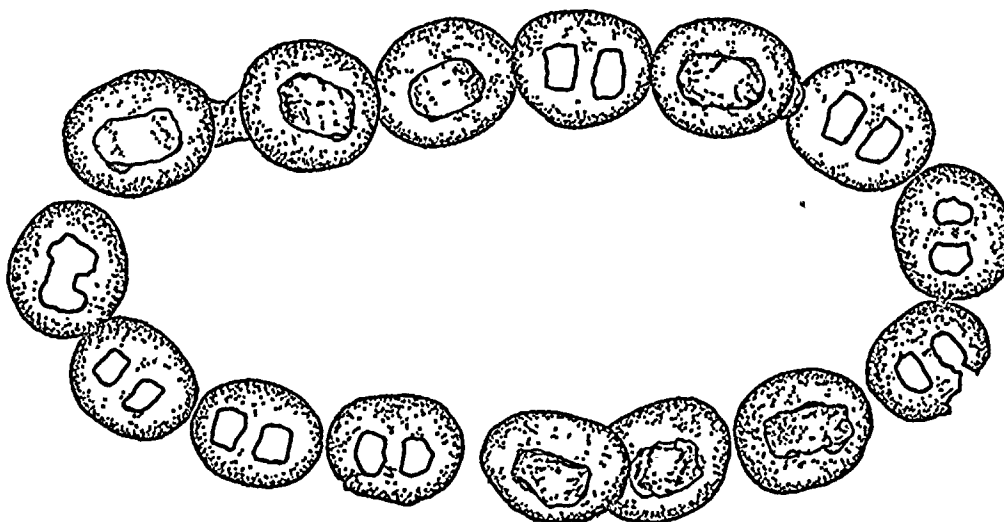
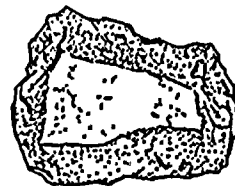
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27H



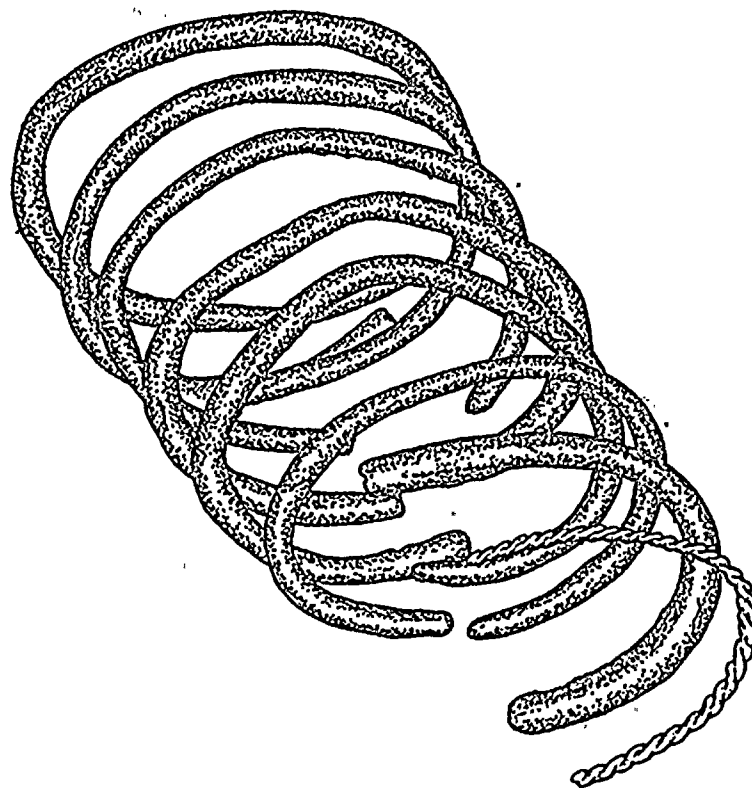
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ATH



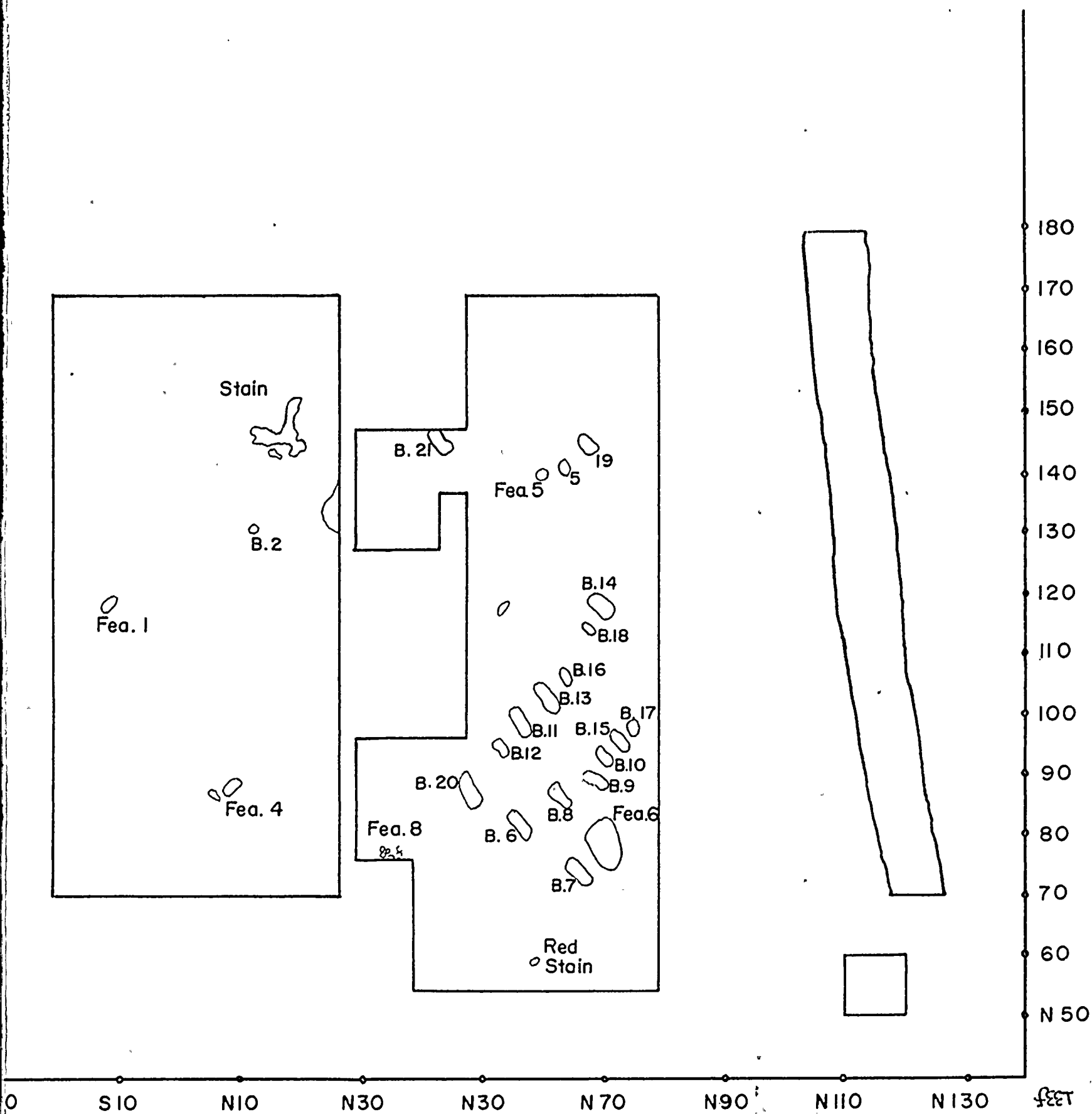
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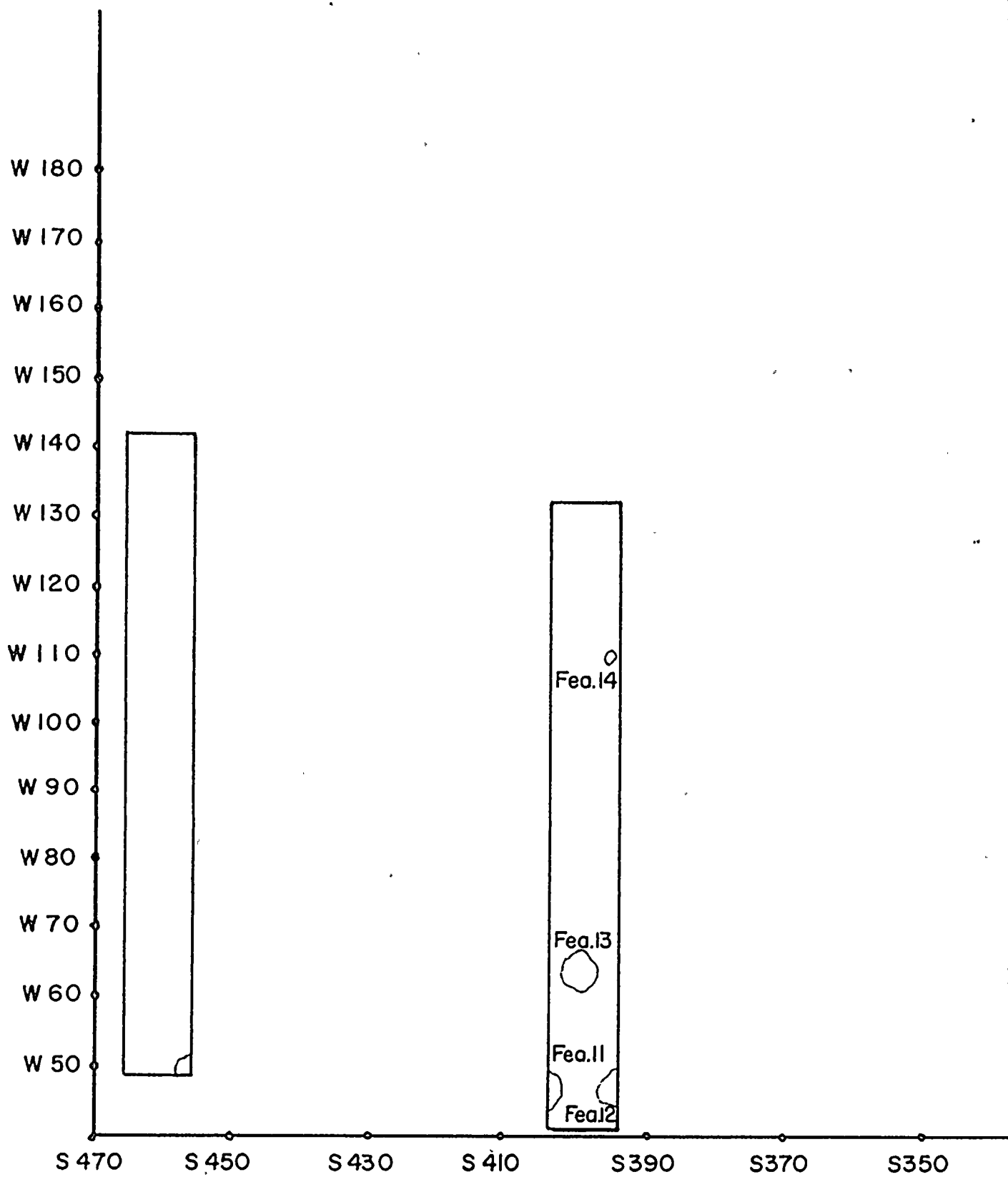
774

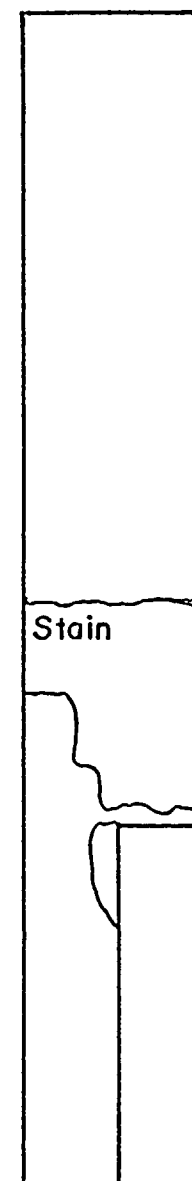


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45H







S330 S310 S290 S270 S250 S230 S210 S190 S170 S150 S130 S110 S90 S70 S50 S3

