

RESEARCH PAPERS

MINES OF SPAIN
1987 ARCHAEOLOGICAL FIELD SCHOOL

By
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MINES OF SPAIN

1987 ARCHAEOLOGICAL FIELD SCHOOL

ABSTRACT: A two-week archaeological field school was conducted in June 1987 at the Mines of Spain, Dubuque, Iowa. The archaeological survey focused on two areas, a recently acquired inholding and the E.B. Lyons Nature Preserve. Eight new sites (13DB374, 13DB375, 13DB376, 13DB377, 13DB378, 13DB379, 13DB380, 13DB385) were recorded, and supplemental information was collected for five previously recorded sites (13DB45, 13DB92, 13DB95, 13DB131, and 13DB132). Both prehistoric and historic materials were recovered.

INTRODUCTION

An archaeological field school was conducted June 15 through 27, 1987, at the Mines of Spain (MOS), an area in Dubuque County, Iowa, which is under the supervision of the Parks Bureau of the Iowa Department of Natural Resources (DNR). The field school was sponsored by the Office of the State Archaeologist (OSA), the Iowa Archeological Society, and the Iowa DNR (Appendix 1). The state of Iowa had purchased 1260 acres of the MOS in 1980, and the OSA surveyed this area in 1981 and 1982 (Abbott 1981, 1982, 1983). Additional land was recently acquired, and the E.B. Lyons Nature Preserve was leased from the City of Dubuque. The purpose of the 1987 field school was to survey these two areas.

The additional land acquired, referred to as an inholding, is located in the SE SE Sec. 5 and NE NE Sec. 8, T88N, R3E (Fig. 1). The E.B. Lyons Nature Preserve is located in the NW SW Sec. 6, T88N, R3E (Fig. 1). Both areas are within or adjacent to the original 1260 acres. All 49 acres of the inholding were surveyed. Because of time constraints and dense vegetation, less than one-fourth of the 37 acres of the E.B. Lyons tract was surveyed (Fig. 2).

The Principal Investigator and Field Director was Shirley Schermer, OSA. Dick Slattery served as field assistant. Twenty-four Iowa Archeological Society members and other volunteers participated as crew members. Laboratory

work was begun during the field school and completed at the OSA by May 1988. Field notes, maps, and artifacts are the property of the Iowa DNR and are currently repositied at the OSA.

ENVIRONMENTAL CONTEXT

The MOS is located in the Paleozoic Plateau, a landform region characterized by a highly dissected landscape. Local drainage networks in this region are controlled by joint patterns in the underlying bedrock (Prior 1976:29). Extensive discussions of the environmental context of the MOS can be found in Abbott (1983:12-33), Wright (1981), Blewett et al. (1983), and Pruszko (1983).

The inholding is composed of two major units related to the period of formation: the pre-Wisconsinan and the Wisconsinan (Abbott 1983:14). The Fayette-Rozetta-Eleroy soil association predominates, with smaller areas of Seaton silt loam (Boeckman 1985). Native vegetation of this portion of the MOS was mesic forest. At the time of the survey, the main ridge-top, which constitutes at least one-third of the inholding, was in cultivation. The remainder was forested.

The E.B. Lyons Nature Preserve is also composed of two major units related to the period of formation: the Wisconsinan (uplands and high bench); and the Holocene, limited to the floodplain and low terrace along Granger Creek (Abbott 1983:14). Zwingle, Fayette, Nordness, and Medary silt loam soils are found at the E.B. Lyons Nature Preserve, with a distinctive Nordness-rock outcrop in the southeast portion of the property. Native vegetation was wet-mesic forest along Granger Creek with mesic forest elsewhere. The level portions of the area had been cultivated in the past but are currently in brushy prairie. Foundations of farm buildings are located on

the high bench. A nature center and parking lot have been constructed on the ridge top. Hiking trails wind throughout this area.

The major hydrological source at the MOS is the Mississippi River, supplemented by Catfish and Granger creeks and numerous small, intermittent drainages. The major mineralogical source in the region is lead.

SURVEY RESEARCH DESIGN

The MOS has a long and varied history and offers the potential for ongoing research into changes in land use and resource exploitation over 6000 years. The continuity of repeated habitation provides an opportunity to examine factors in locational choices by both prehistoric and historic groups. The MOS offers a variety of sites that encompass at least five Iowa Resource Protection Planning Process (RP3) study units: Early and Middle Archaic, Late Archaic, Mississippi Basin Woodland, Early Contact, and Adventure and Exploitation (Henning 1985). A number of research topics and site-specific questions related to archaeological problems addressed in these RP3 units can be developed and provide the basis for future research at the MOS. Two of the study units, Mississippi Basin Woodland and the Adventure and Exploitation, each have a number of sites related to them with the potential to address research questions.

Prior to 1975, Woodland culture in Iowa was primarily understood in terms of trait lists and a chronological sequence. More recently a few ecologically oriented studies have focused on Woodland subsistence-settlement adaptations. It has been suggested that a basic hunting and gathering subsistence strategy continued from the Archaic period and was pursued during all of the Woodland cultural phases. The retention of these seasonally mobile settlement patterns seems to have been a response to the seasonally diverse environment. From evidence of corn found at a recent excavation at Hadfield's Cave in

northeastern Iowa (Benn 1980), it has been proposed that maize was grafted onto an existing practice of incipient cultivation by Woodland peoples which supplemented the seasonal round of hunting and gathering activities. It was also proposed that Woodland groups in northeast Iowa would aggregate in large groups during late spring, summer, and early fall and then disband into small family groups the rest of the year to better utilize the available resources. In a recent study of Woodland sites in the Iowa River valley (Schermer 1982), specific resource evaluation\decision-making processes were outlined, and it was argued that the Woodland hunter-gatherer subsistence strategy conformed to these processes. Similar subsistence patterns and locational choices can be postulated for the MOS region. By studying and comparing Woodland occupation at the MOS, these hypotheses concerning subsistence and settlement can be addressed. The numerous rockshelters at the MOS have the potential to provide floral and faunal evidence of seasonal use that would be important in furthering the understanding of Woodland settlement patterns.

The RP3 Adventure and Exploitation unit is concerned with early Euro-American assessment of the potential of the resource base in Iowa. In the Dubuque area, Euro-Americans were probably primarily interested in lead as well as hides and furs. The presence of lead ore in this region had been known to Europeans since the 1600s. The distribution and function of cultural remains and features from the early historic occupation at the MOS, in conjunction with early historic records, could aid in examining the Euro-American assessment process, the determinants of early locational choices, and the patterns of lead mining development in the region.

More specifically, the archaeological evidence of lead-mining activities could be examined in future studies. The progression of lead-mining techniques is not well understood. For example, it has been variously suggested that the numerous mine pits readily visible at the MOS are directly

related to the Cornish and Welsh mining techniques prevalent in southwestern Wisconsin and northwestern Illinois or that they actually precede the introduction of these northwestern European mining techniques.

Completion of the initial survey of this area will allow archaeologists to proceed with development of a research design for further study in this unique area.

BACKGROUND RESEARCH

The MOS is a portion of Julien Dubuque's original land grant which he received from the Spanish government in 1796. Prior to this, Native Americans had occupied this same area for at least 6000 years. The Mesquakie Indians, who moved into the area in the mid-1700s, allowed Dubuque to mine for lead in their territory from 1788 to Dubuque's death in 1810. The Mesquakie continued mining in this area until around 1830. Following Dubuque and the Mesquakie Indians, white settlers continued to mine for lead. When lead mining declined in 1860, lumbering became a major activity from 1865 to 1880. Small-scale farming has occurred from the 1840s to the present. Known archaeological sites at the MOS include prehistoric campsites, villages, rockshelters, and burial mounds; a historic Mesquakie village; and historic mine pits, shafts and adits, smelters, stone fences, old roads, foundations, and a small cemetery.

Abbott (1983) summarizes previous archaeological work in the MOS area, and he presents the results of the 1982 archaeological survey. Artifact concentration distributions from the 1982 controlled surface collections are shown in Schermer and Kurtz (1986). A historic account of the MOS area is found in the same report. A more extensive historical account was prepared by Loras College (Auge et al. 1986).

OSA site records were searched for previously recorded sites in the two areas to be surveyed. From work conducted in 1982, it was ascertained that 13DB95 and 13DB132 extended into the inholding to an unknown extent. In addition, a mound group, 13DB45, had been recorded in the northern portion of the inholding. A projectile point and waste flake had previously been found in the northern half of the inholding field and were recorded as site 13DB92. No sites had been previously recorded at the E.B. Lyons Nature Preserve. Information obtained from displays at the Nature Center, brochures, and personal communications with MOS park personnel revealed that several historic foundations and structures from the Junkerman farmstead (ca. 1860) and one mine shaft were located on the property.

METHODS

The survey techniques employed in the 1987 field school followed as closely as possible the methods used in the 1981 and 1982 archaeological surveys of the original MOS purchase (Abbott 1981, 1983). The primary survey technique was pedestrian surface inspection. This method was employed for locating archaeological manifestations in cultivated portions of the area and surface features such as mounds, rockshelters, foundations, and mine pits in the heavily vegetated portions. A spacing interval of 4 m was used in each case.

Limited shovel testing assisted survey of heavily vegetated terraces and ridgetops/spurs and consisted of 0.5 x 0.5 m shovel tests located at 20-m intervals along the axis of each landform tested. These locations were chained and flagged prior to excavation. Each shovel test was excavated in 10-cm levels, with all soil screened through 1/4-inch mesh screen. All artifacts encountered were collected and placed in appropriately labeled artifact bags.

The continuation of the mine pit concentrations of 13DB95, 13DB131, and 13DB132 were mapped within a 20-m grid following the procedures employed in 1982 (Abbott 1983). Foundations of historic structures at the E.B. Lyons Nature Preserve were measured and mapped to scale.

RESULTS

Inholding

Five new sites (13DB374, 13DB376, 13DB377, 13DB378, 13DB385) were located in the inholding, and supplemental information for five previously recorded sites (13DB45, 13DB92, 13DB95, 13DB131, 13DB132) was collected. The surface inspection of the cultivated portion of this tract resulted in 29 artifact concentrations, both prehistoric and historic, which were flagged and mapped on a topographic map. Upon lab inspection and analysis these concentrations were grouped into two sites, 13DB92 and 13DB374 (Fig. 3).

13DB92

Previously, 13DB92 was limited to the high spot of the north half of the inholding where a contracting stem point and one waste flake had been recovered (Abbott 1983). The 1987 surface inspection located 15 "concentrations" (Table 1). One point tip, 14 flakes, 17 shatter, and large quantities of limestone and unworked chert were recovered. There was a large concentration of limestone (small rocks and slabs) at the south end of the highest rise (Conc. 22). This concentration covered an area ca. 10 x 10 m. It is possible this concentration is weathered bedrock exposed through erosion from continued cultivation. It is also possible this concentration could represent a plowed-down mound and an extension of the nearby mound group 13DB385. The possibility that these remains were the remnants of a historic foundation was ruled out as only three historic artifacts were recovered from

the entire site. Based on the quantity and type of material recovered, 13DB92 probably represents a small seasonal campsite or limited activity area.

13DB374

No cultural material had previously been reported for the southern half of the inholding. During the 1987 surface inspection, 14 "concentrations" were flagged, mapped, and collected (Table 2). Although the majority of the artifacts collected were historic in nature, several prehistoric artifacts were also recovered, including five chert flakes, eight shatter, and one hammerstone, which indicates the site had at least limited use prehistorically. No prehistoric diagnostics were found.

The numerous miscellaneous historic artifacts are typical of the early to mid-twentieth century. A large number of artifacts related to domestic activities. The historic ceramics were dominated by thick, white earthenware and stoneware. Thick, white earthenware was a cheap but durable undecorated earthenware that came into production after 1870 (Price 1981:43). At least four stoneware vessels and one possible ginger-beer bottle are represented in the assemblage. A few sherds of a thick semi-porcelain ware were also recovered. One small sherd of flow-blue earthenware, ca. 1840 to 1870 (Price 1981:38-41), suggests a possible pre-Civil War use of the site. Considering the other artifacts recovered, however, it is more probable this fragment came from a keepsake piece at a later date. Several metal artifacts were related to agriculture or a barn/stable. While several of the nails appeared to have originally been square, none were complete enough to be considered diagnostic. A pump spout was of the type typical for ca. mid-twentieth century. There was no evidence for structures in the field. There are foundations from a farmstead in the timber just west of the southwest corner of the inholding. The thin scattering of historic artifacts across 13DB374 is probably secondary refuse, the result of dumping.

13DB377, 13DB45

In the forested areas on the northwest ridge spur, from the west and north property boundaries to the bottom of a large ravine on the east, 74 mine pits (recorded as 13DB377) were observed and roughly plotted on a topographic map (Fig. 4). They range from shallow depressions to ca. 1.5 m deep. The ridge spur was covered with very dense vegetation making inspection and mapping difficult. At the southeast corner of the woods was an elongated "mounded" area, 13DB45. This feature appeared more like an old roadbed than a linear mound. No other features resembling mounds were observed.

13DB95, 13DB131, 13DB132, 13DB378, 13DB385

The area east of the large ravine, bordering 13DB377, to the east fenceline and then south to the south boundary of the inholding was flagged in a 20-m grid. This area is a continuation of 13DB95, 13DB131, and 13DB132 and also contains 13DB378 and 13DB385. A total of 324 features were identified, numbered, measured, and mapped: 316 mine pits, 2 mound groups--3 mounds in one and 2 in the other--and 3 possible smelters (Figs. 5 and 6, Table 3). On the bottom of one pit (#45) in the west end of 13DB95 was a rusted piece of sheet metal covered with leaves and dirt. The mine pits in this area ranged from shallow depressions to 2.6 m in depth. The northernmost mound group, 13DB385, contained three mounds, while the southernmost mound group, 13DB378, contained two mounds. In addition to the mine pits, mounds, and smelters, the locations of logging roads were also mapped (Fig. 6).

13DB376

Shovel testing in the inholding was limited to the northwest ridge spur. Eight shovel tests were conducted at 20-m intervals along the NE-SW ridge axis, and two shovel tests were excavated at a right angle to and at 20-m intervals from this axis (Fig. 7). All shovel tests were excavated to 40 to 50 cm in depth. These 10 shovel tests resulted in the recovery of one waste

flake from the 20 to 30 cm level in shovel test #6, recorded as 13DB376. Soil profiles in the shovel test were consistent with Fayette soil.

E.B. Lyons Nature Preserve

Only part of the southern two-thirds of the eastern half of the E.B. Lyons Nature Preserve was surveyed during the 1987 field school. Three new sites were recorded in this tract.

13DB375

A total of 13 shovel tests were excavated, 4 at 20-m intervals on the small terrace remnant east of the high knoll and 9 on the broader remnant west of this knoll (Fig. 8). Recovery was limited, consisting mainly of historic materials such as nails, glass, and clay pot fragments (Table 4).

Prehistoric evidence was limited to several possible flakes and shatter recovered from shovel tests #2, 5, 8-11, and 13. Numerous small rocks, pebbles, and natural chert were recovered and examined in the lab before being discarded. Soil profiles east of the knoll indicate a very thin clayey soil. Soil profiles of the shovel tests west of the knoll indicate a thicker silty alluvium with ca. 30 cm of overwash in spots to a silty colluvium at shovel test #12.

Understory vegetation was so dense at the time of the survey that no attempt was made to inspect the forested areas. The foundations of the house, barn, shed, greenhouse, and chapel (the only standing structure) associated with the Otto Junkerman farm were mapped as accurately as possible without excavation (Figs. 9 and 10). Additions to the house, visible in photographs and mentioned in miscellaneous reports (Appendix 2), were also traced and mapped, supporting the accuracy of the reports. Metal pipes were located in the area where a later bathroom addition had been indicated. The root cellar, northwest of the house and on the southeast slope of the knoll, and the wine

cellar, on the north slope of the knoll, were also recorded. The outcrop next to and above the root cellar appears to have been quarried, possibly for use in building the root cellar and the terrace rock retaining walls. These walls come right up to the outcrop and the top of the cellar. On the southeast slope ca. 10 m north/northeast of the large outcrop, there appears to be a rock talus slope extending downslope from straight east of the chapel. This raises the possibility that the whole eastern or southeastern hillslope had been quarried. Broken window glass and broken bottle glass were observed on the surface. A small surface collection of cultural material from around the house foundation was recovered during the mapping process (Table 5). The miscellaneous historic artifacts are consistent with what one would find in the early twentieth century. None of the structures from the Junkerman farm had been recorded as archaeological sites prior to the 1987 field school. The farm has now been recorded as 13DB375.

13DB379 and 13DB380

While not examined specifically, a mine pit and a mine shaft were noted in the NW corner of the E.B. Lyon Nature Preserve and recorded as 13DB379 and 13DB380, respectively.

RECOMMENDATIONS

Inholding

Subsurface testing at 13DB92 and 13DB374 may reveal additional evidence for prehistoric activities at these sites as well as determine whether any subplowzone portion of the site remains undisturbed.

The boundaries between 13DB95, 13DB131, 13DB132, and 13DB377 are arbitrary, following the contour of ravines, and these sites should be considered part of the same mining complex. Subsurface testing is recommended for selected mine pits in this area in conjunction with extensive research on lead mining in the tristate area. Pit #45 in 13DB95, containing the sheet

metal, may be a good candidate with which to start. There are also a few pits that are very deep and more straight-sided. The possibility that these may be collapsed shafts should be explored. The possible smelters should be examined in more detail and the area surrounding them subjected to subsurface testing.

Three mound groups (13DB45, 13DB378, 13DB385) are recorded in the inholding. No further survey is necessary for 13DB378 and 13DB385. Since no identifiable mounds were observed at 13DB45 during the 1987 survey, it is recommended that this site be resurveyed when vegetation is at a minimum.

E.B. Lyons

Those portions of the E.B. Lyons Nature Preserve that were not examined should be surveyed. As both the chert flakes and shatter recovered in the shovel testing are questionable, the prehistoric component can not be considered significant at this time. A history of the Junkerman farm (13DB375) should be compiled, identifying inhabitants, describing significant events, and summarizing changes and additions to the structures (see Appendix 2). Excavations around the foundations could provide additional evidence for activities from the structures' origin (ca. 1860) to the present. Melted glass fragments recovered from the surface around the house were possibly the result of the 1943 explosion and fire which destroyed the house. The exposed foundations would also be useful for public interpretative purposes.

ACKNOWLEDGMENTS

I would like to thank the Iowa Department of Natural Resources for granting permission for the 1987 Mines of Spain field school. I would also like to thank Mines of Spain park ranger Mike Abel, assistant park ranger Barb Severson, and naturalist Betty Hauptli for their interest, cooperation, and help in making the field school possible and enjoyable; Bob Miller, University of Dubuque, for his interest and help; Dick Slattery for his invaluable

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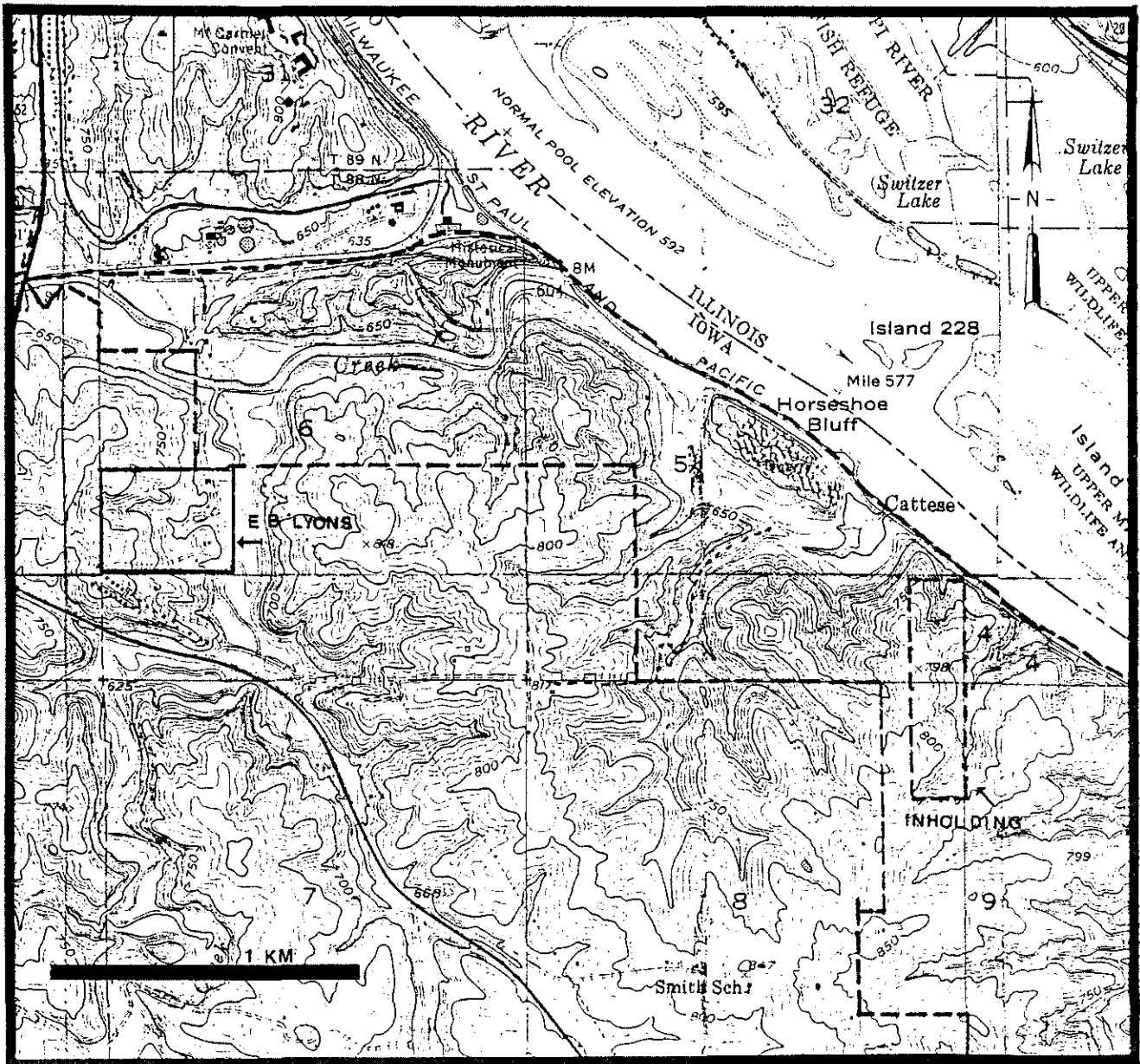


Fig. 1. Location of the inholding and E.B. Lyons at the Mines of Spain, Dubuque County, Iowa. (USGS Dubuque South quad 1955, photo revised 1972).

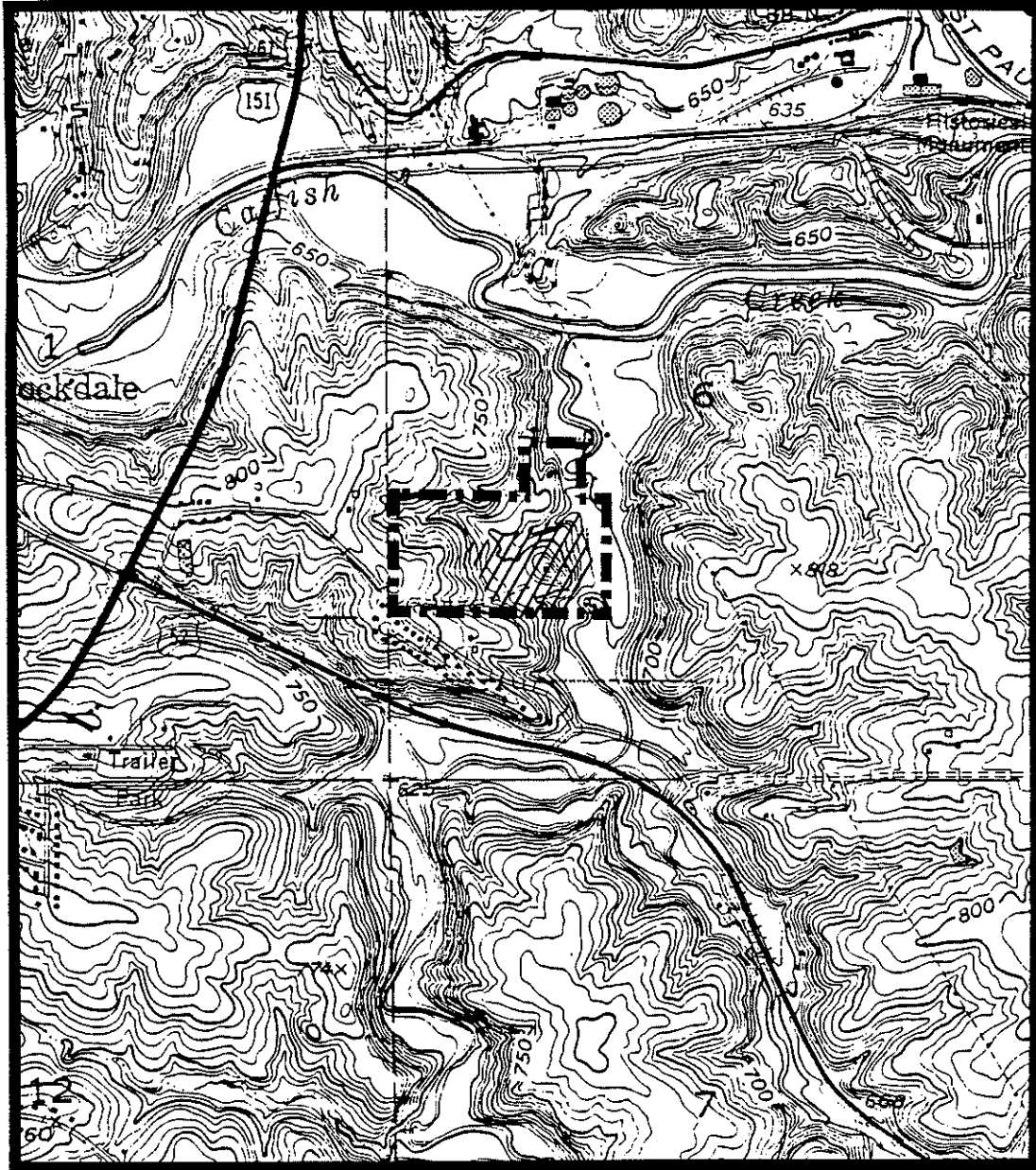


Fig. 2. Area surveyed at E.B. Lyons, Mines of Spain, during 1987 field school.

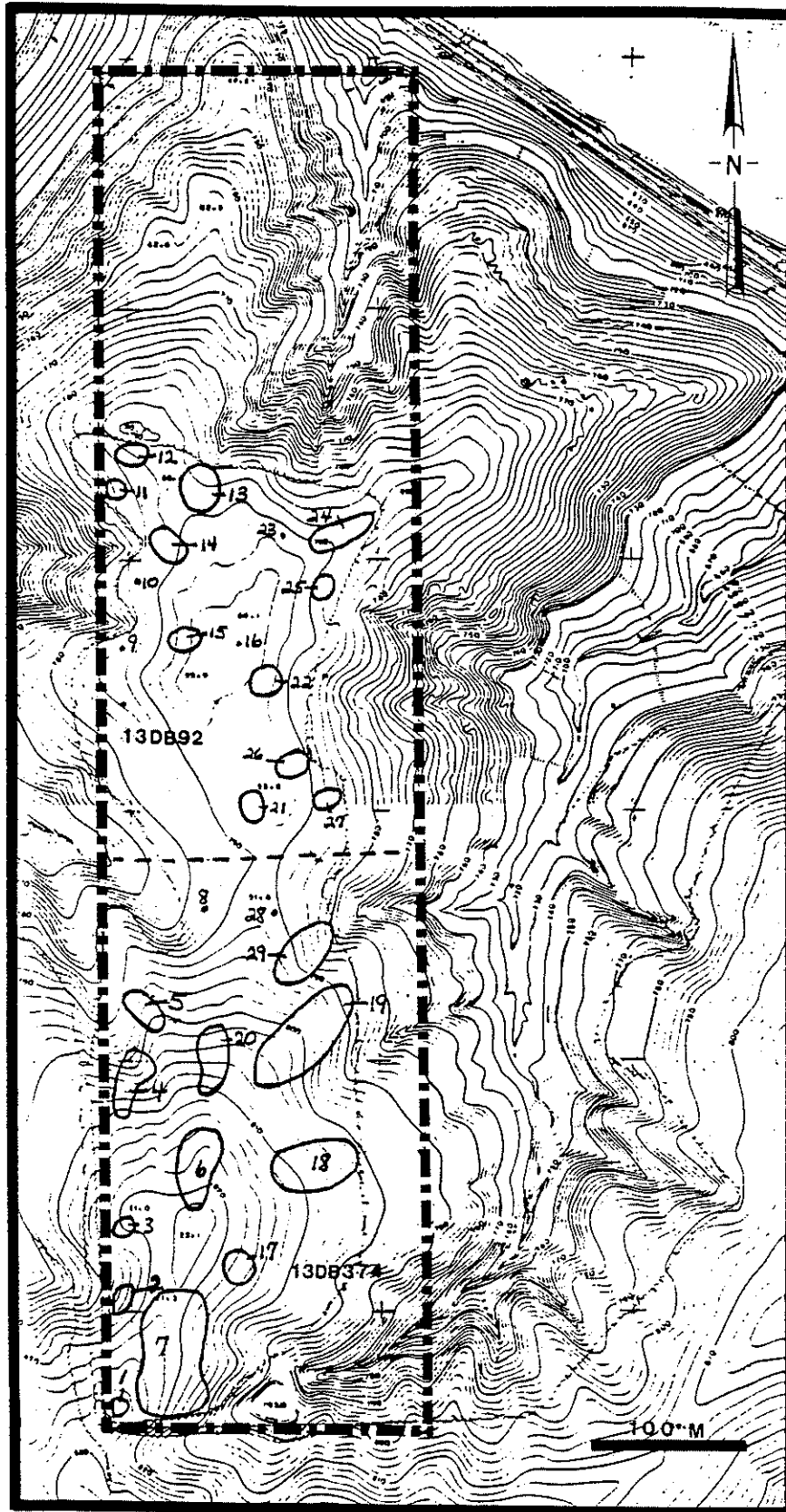


Fig. 3. Location of 13DB92 and 13DB374, inholding, Mines of Spain.

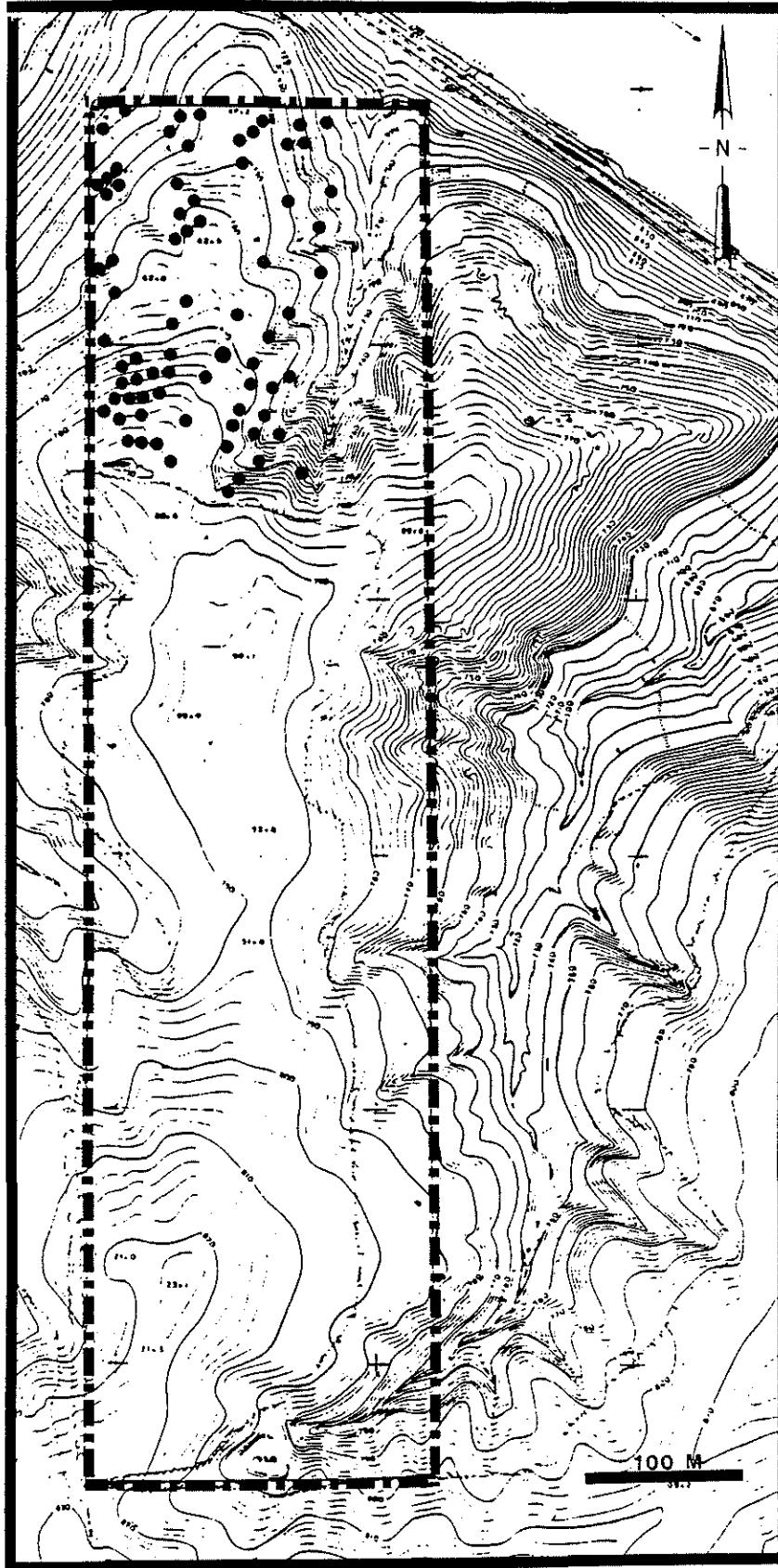


Fig. 4. Location of mine pits at 13DB377, inholding, Mines of Spain.

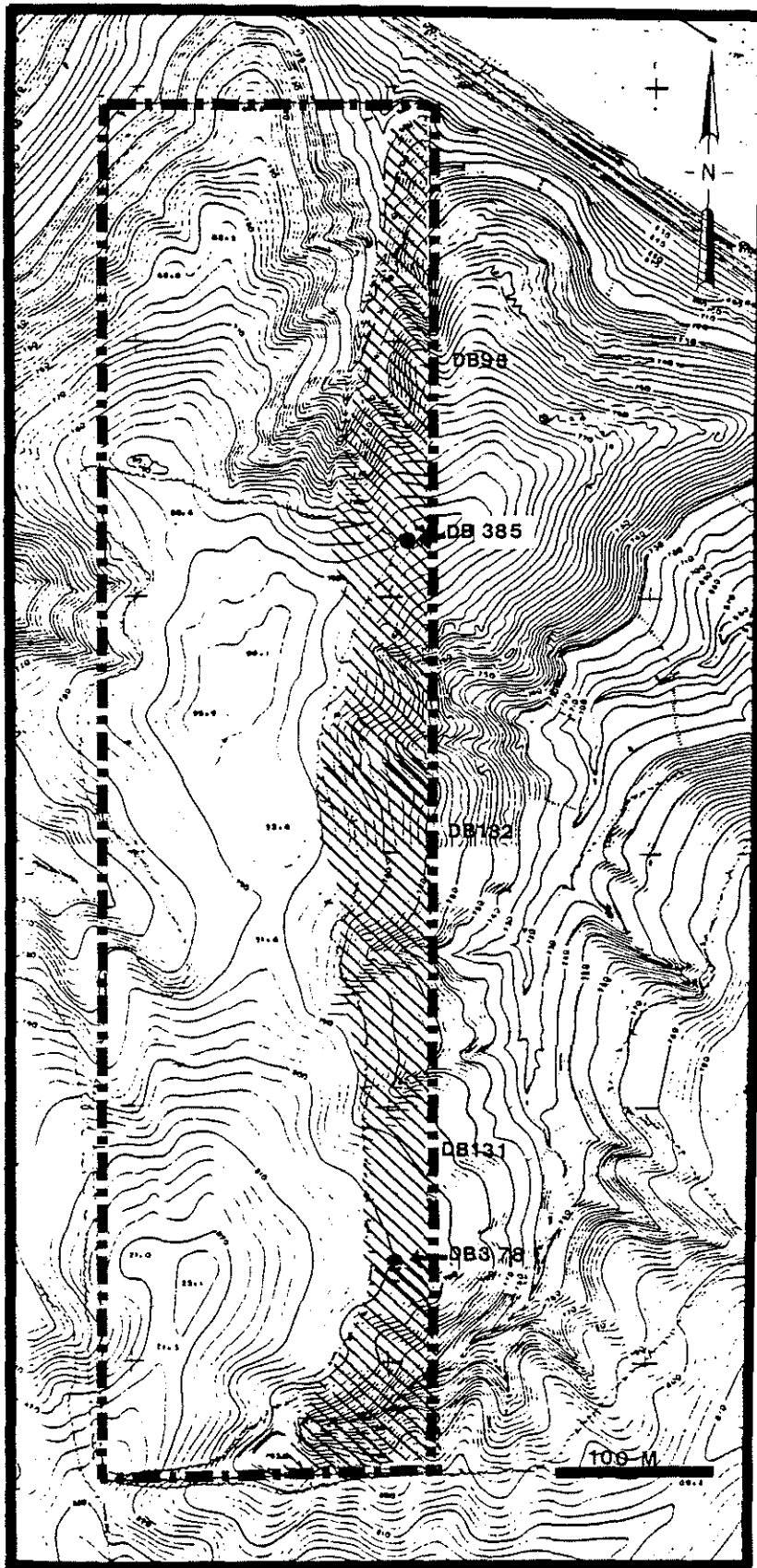


Fig. 5. Location of 13DB95, 13DB131, 13DB132, 13DB378, and 13DB385, inholding, Mines of Spain.

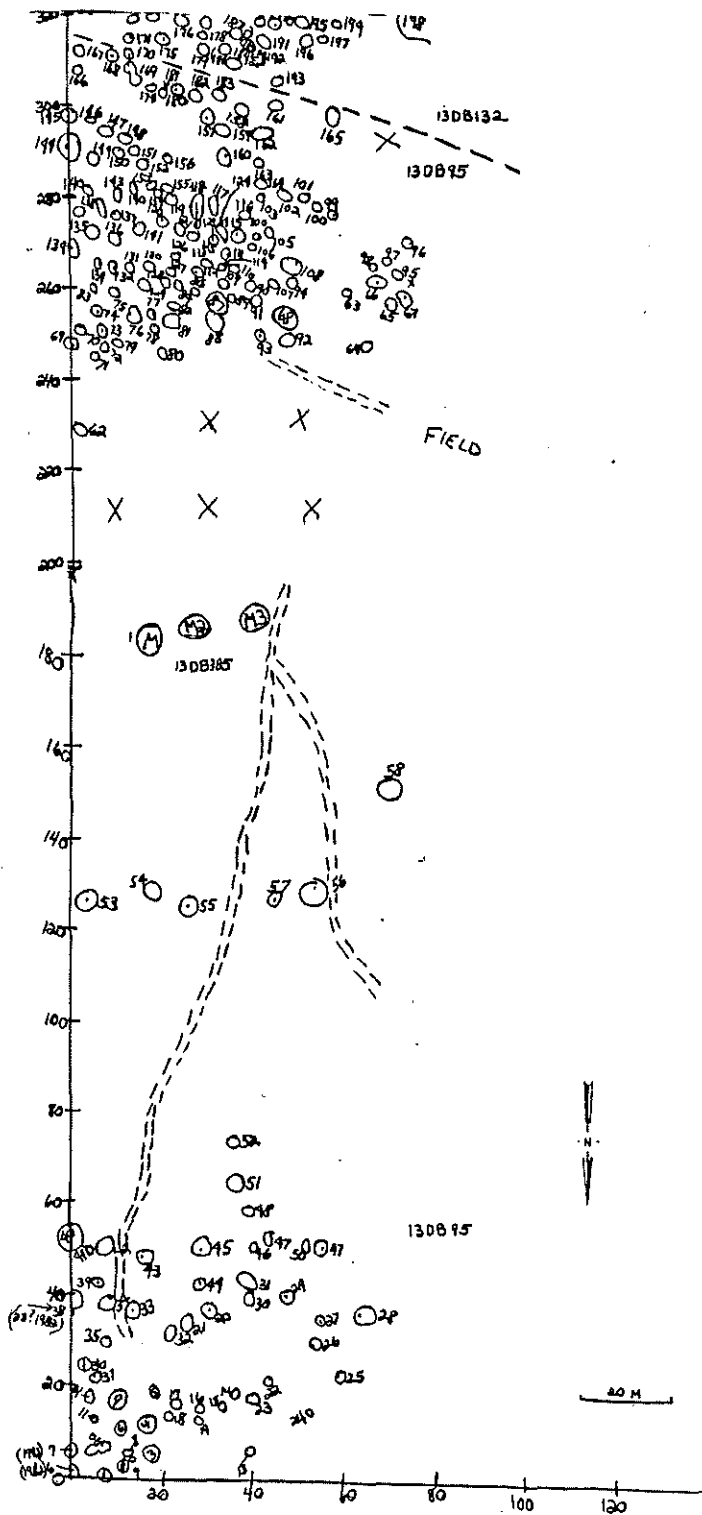


Fig. 6. Continuation of mine pits and features in inholding property for 13DB95, 13DB131, and 13DB132, and location of mound groups 13DB385 and 13DB378, Mines of Spain.

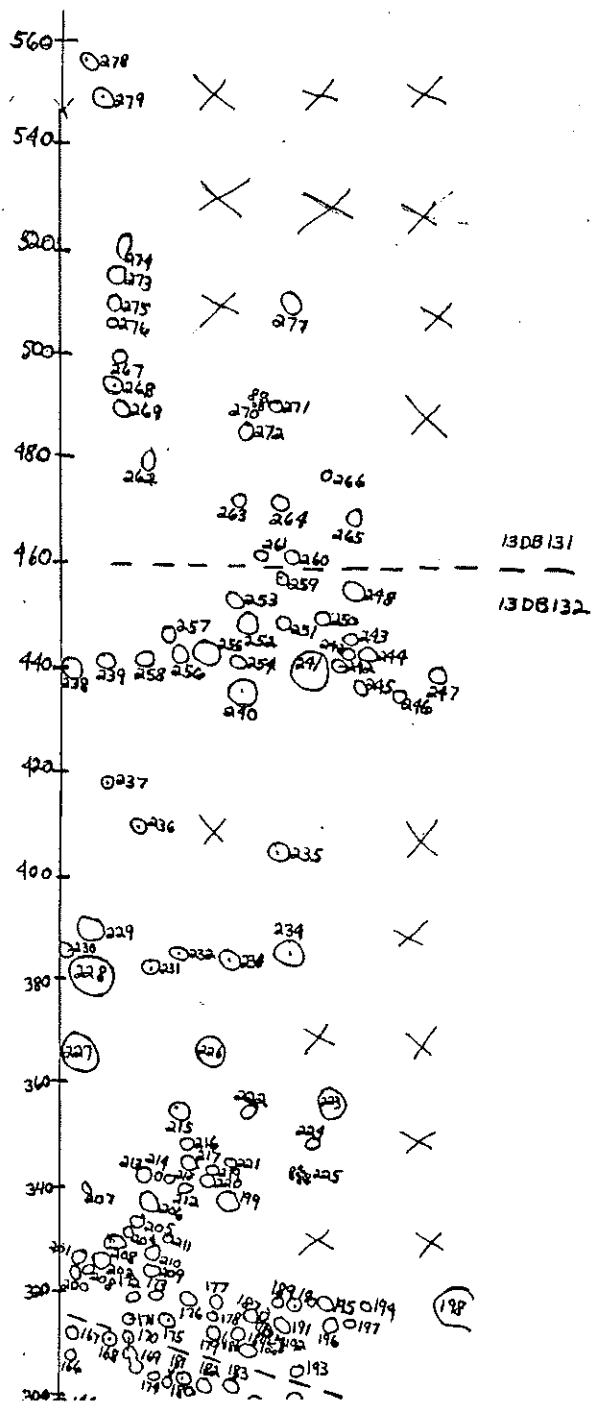


Fig. 6. (continued).

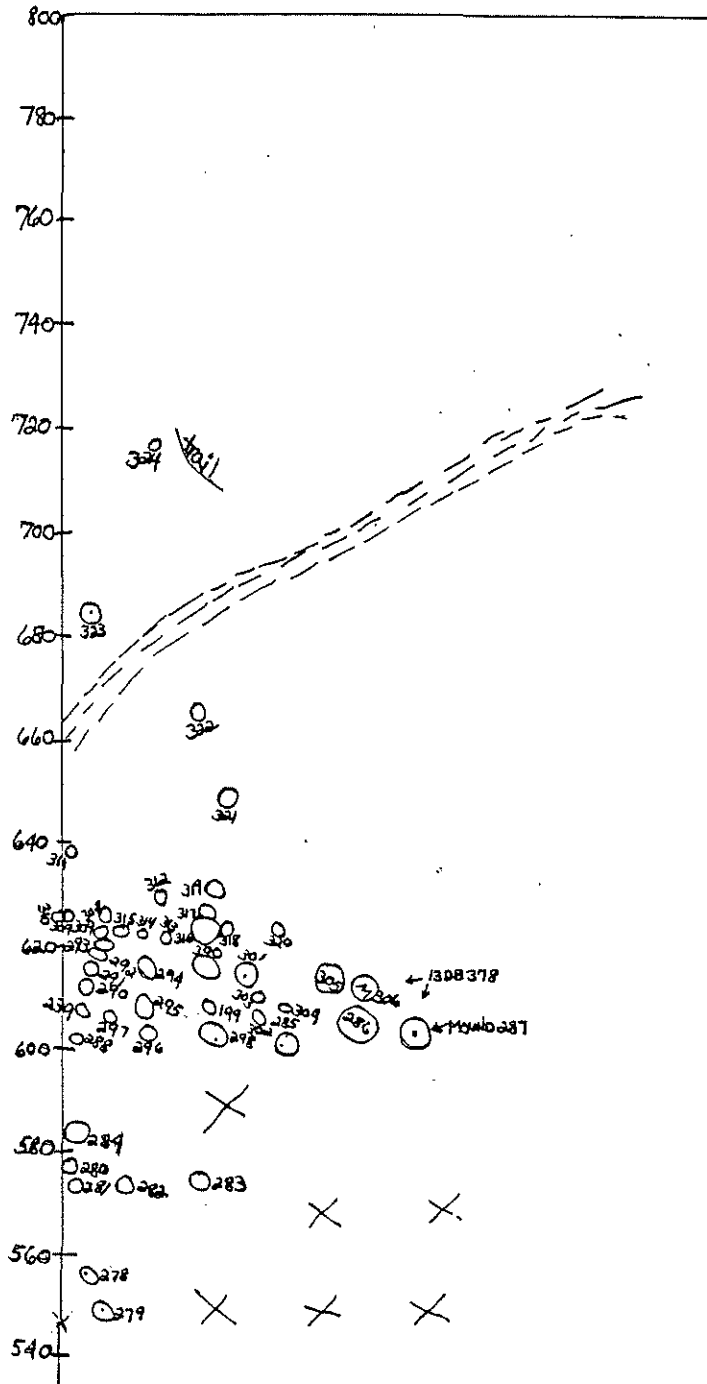


Fig. 6. (continued).

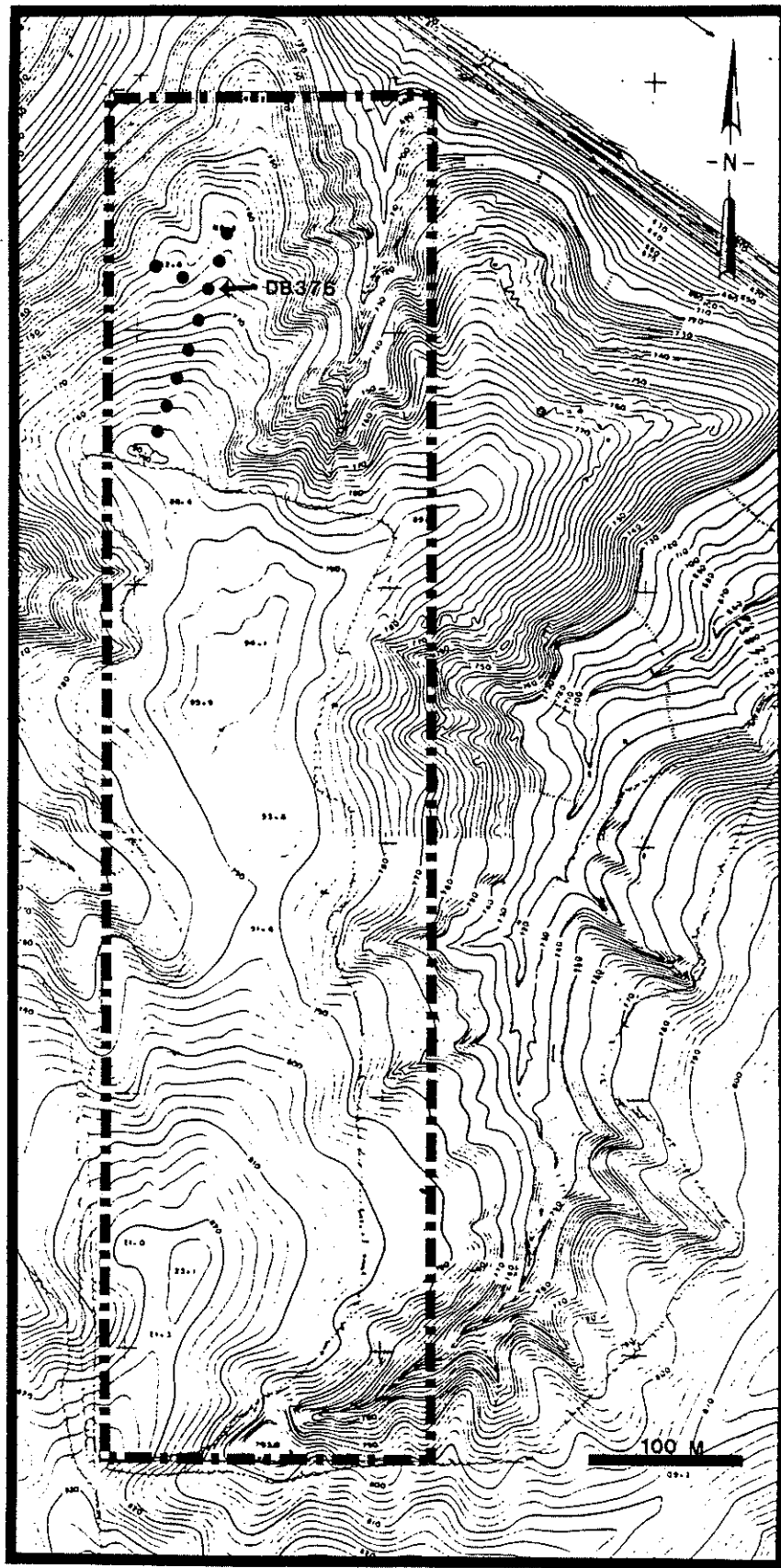


Fig. 7. Location of shovel-tests for inholding and 13DB376, Mines of Spain.

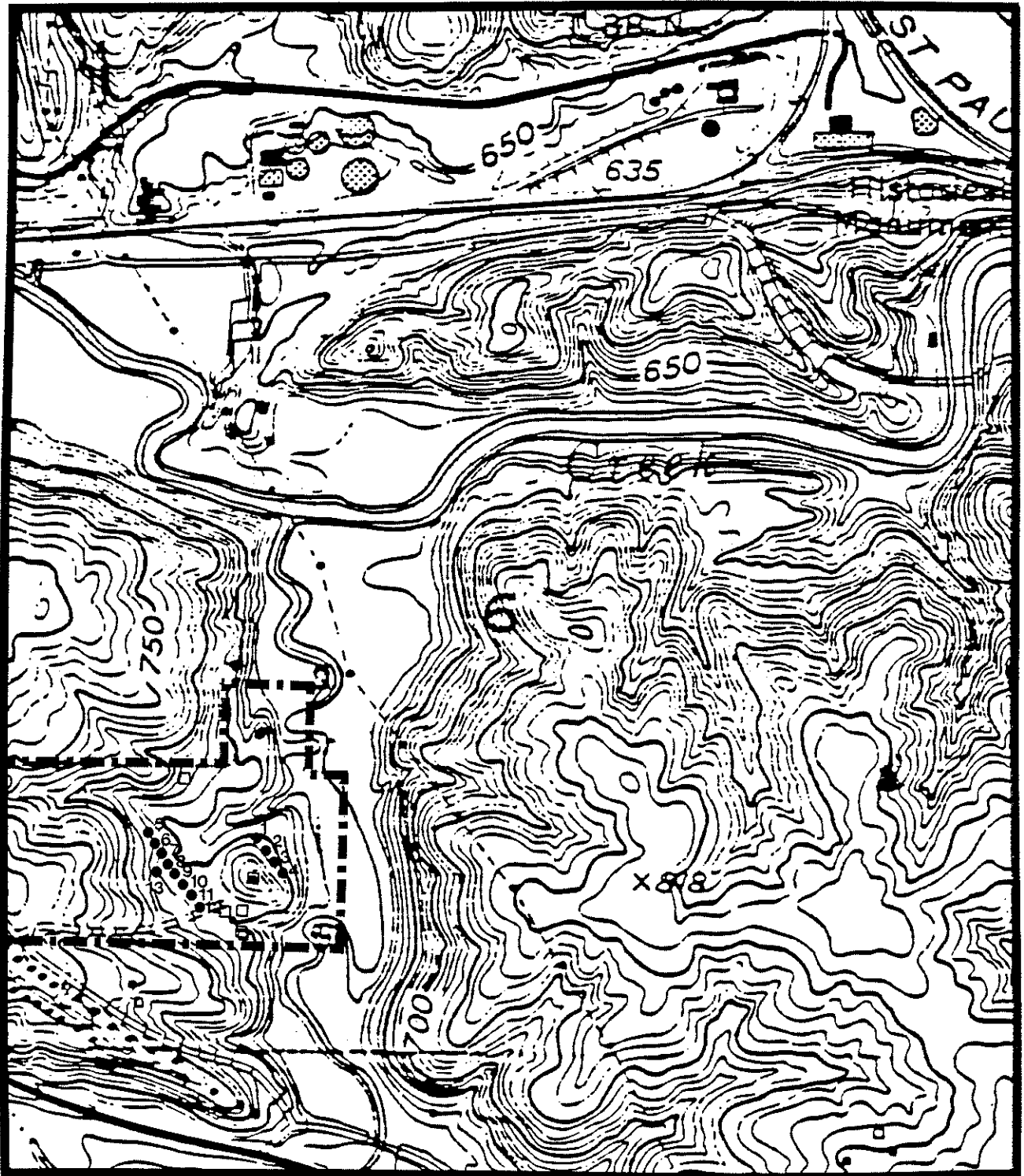
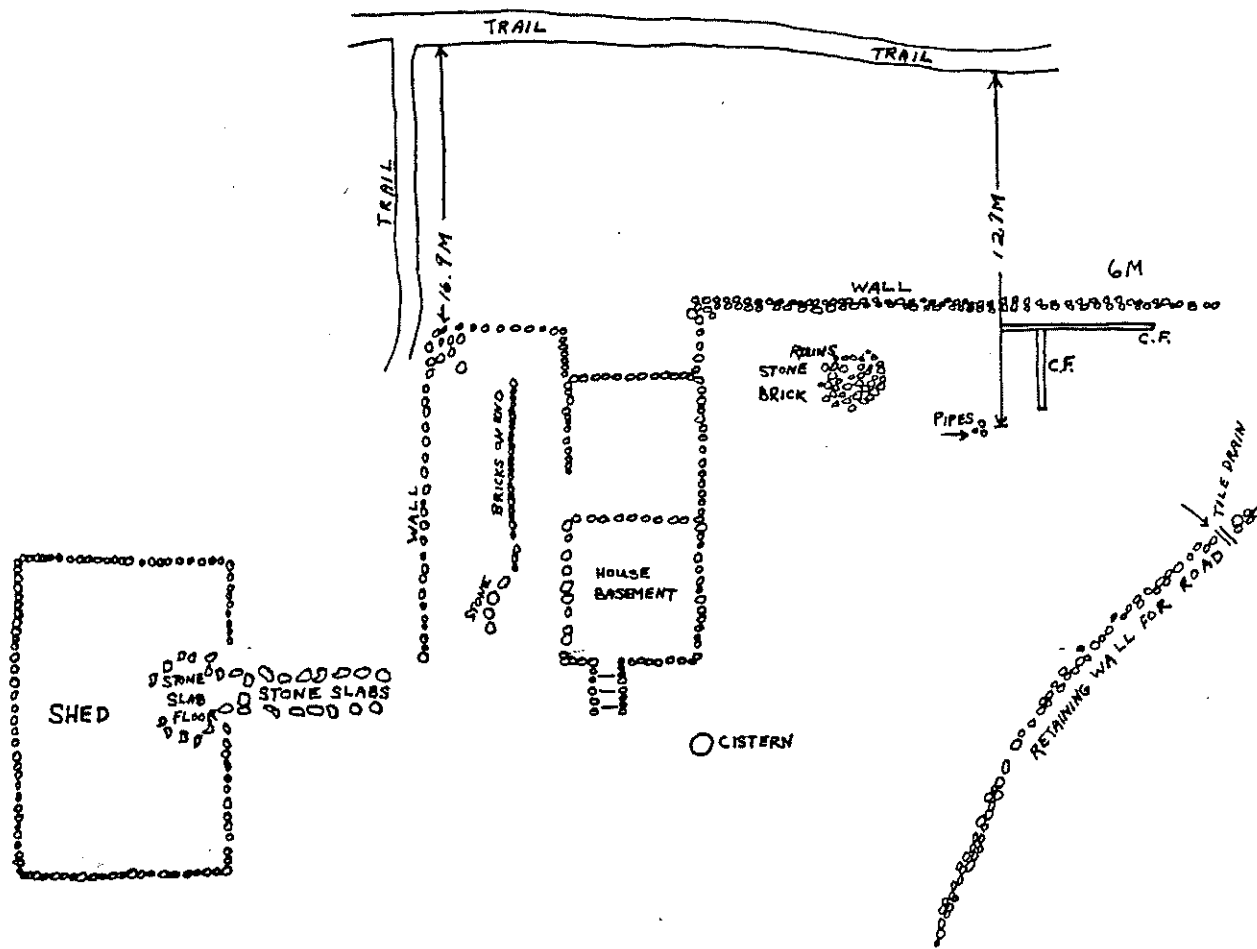


Fig. 8. Location of shovel tests and foundations for E.B. Lyons, Mines of Spain.



SCALE
← 5M →

C.F. = CONCRETE FOUNDATION
OOOO = STONE WALLS/FOUNDATION

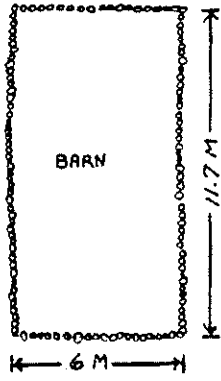


Fig. 9. Foundation of the house, shed and barn at the Junkerman Farm Site, 130B375, E.B. Lyons, Mines of Spain, June 1987.

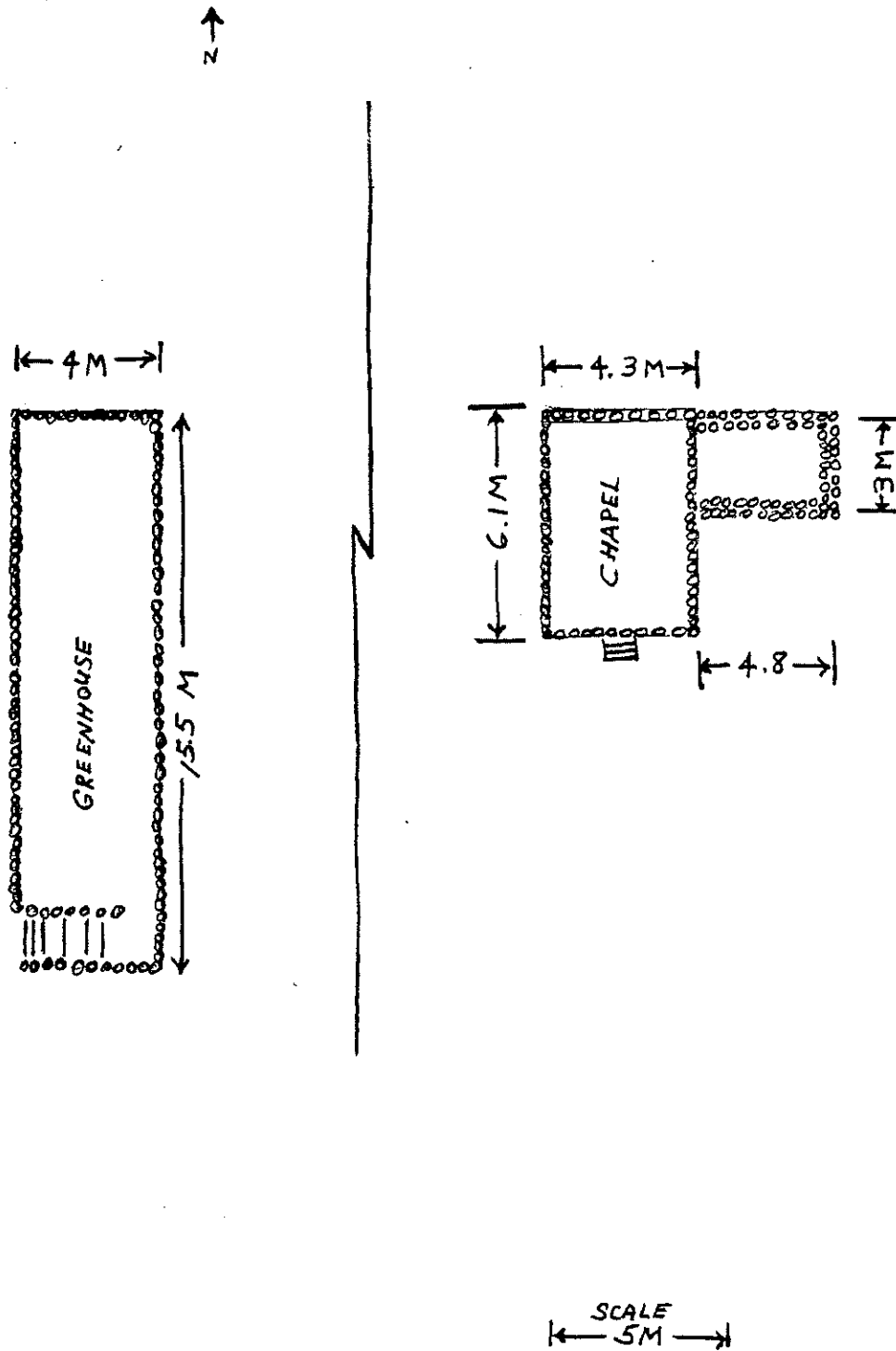


Fig. 10. Foundations of the chapel and greenhouse at the Junkerman Farm Site, 13DB375, E.B. Lyons, Mines of Spain, June 1987.

Table 1. Inventory of Cultural Material Recovered from Surface, 130B92.

Conc. 9

1 projectile point tip

Conc. 10

1 chert flake

Conc. 11

1 chert flake

1 limestone slab, observed in field but not collected

Conc. 12

1 chert flake

5 chert shatter

3 chert pieces, unworked, 373.4 g, discarded

15 limestone, 2067.2 g, discarded

2 introduced rock, 43.9 g, discarded

Conc. 13

5 chert shatter

1 quartzite rock, unworked

8 limestone, fist-sized, observed in field but not collected

Conc. 14

4 chert flakes

1 chert shatter

Conc. 15

5 chert pieces, unworked, 262.2 g, discarded

1 flat glass, clear

Conc. 16

1 chert flake

Conc. 21

1 nail, square

Conc. 22

2 chert shatter

large concentration of limestone-small rocks and slabs, observed in field but not collected

Conc. 23

1 chert flake

Conc. 24

3 chert flakes

3 chert shatter

3 limestone, 594.7 g, discarded

1 sandstone, 84 g, discarded

Conc. 25

1 chert flake

3 limestone, burned, 149.6 g, discarded

Conc. 26

1 chert shatter
4 limestone, burned, 318.4 g, discarded

Conc. 27

1 chert flake
1 milk glass fragment, canning jar lid

Table 2. Inventory of Cultural Material Recovered from Surface, 13DB374.

Conc. 1

- 1 chert flake
- 1 historic ceramic, yellowware fragment
- 1 curved glass fragment, aqua
- 1 nail, poor condition

Conc. 2

- 1 historic ceramic, porcelain, possible doll part fragment
- 1 metal staple
- 1 metal fragment, rim of vessel

Conc. 3

- 2 mussel shell fragments
- 2 historic ceramics, white-glazed earthenware fragment

Conc. 4

- 1 historic ceramic, white-glazed earthenware (hotel-ware) fragment
- 1 historic ceramic, stoneware fragment
- 1 pump spout (one side "Des Moines", other side ".D Hydrant Co." "105")

Conc. 5

- 1 historic ceramic, red stoneware, soft glaze (possibly locally produced) fragment

Conc. 6

- 2 chert flakes
- 2 chert shatter
- 1 historic ceramic, white porcelain, embossed design (all white) fragment
- 1 curved glass fragment, brown
- 1 nail, poor condition
- 1 metal strip fragment

Conc. 7

- 2 chert shatter
- 2 chert cobbles, unworked - 343 g, discarded
- 1 hammerstone
- 2 bone fragments
- 1 mussel shell fragment
- 3 historic ceramics, earthenware fragments, 2 white-glazed, 1 yellow
- 1 historic ceramic, transfer printed semi-porcelain fragment
- 2 historic ceramics, porcelain fragments
- 1 milk glass fragment
- 1 flat glass, aqua
- 1 metal ring for farm implement
- 1 metal point for farm implement
- 1 metal piece, fragment from large bolt?, plus several small fragments
- 1 metal ratchet plate

Conc. 8

- 1 historic ceramic, white-glazed earthenware fragment

Conc. 17

- 4 mussel shell fragments

Conc. 18

- 2 chert shatter (possible)
- 2 limestone, one burned, 153.8 g, discarded
- 1 large limestone slab, observed in field, not collected
- 3 mussel shells, with hinges
- 2 bone fragments, 1 butchered-modern
- 15 historic ceramics, white-glazed earthenware (all but one hotel-ware) fragments
- 1 historic ceramic, white-glazed semi-porcelain, thick, fragment
- 1 historic ceramic, stoneware
- 1 milk glass fragment
- 1 curved glass, rose-pressed design
- 1 metal hinge fragment plus several small fragments

Conc. 19

- 2 introduced rocks, 124.5 g, discarded
- 15 limestone, some burned, 3177.3 g, discarded
- 1 chert cobble, unworked, 155.5 g, discarded
- 5 bone fragments
- 7 historic ceramics, earthenware fragments, 6 white-glazed, 1 yellow
- 1 historic ceramic, stoneware, ginger beer bottle fragment?
- 4 historic ceramic stoneware fragments, same vessel
- 2 historic ceramics, red stoneware, soft glaze (possibly locally produced), fragments
- 2 flat glass, aqua
- 3 curved glass, 2 brown, 1 aqua
- 1 flat tin fragment
- 1 metal, thick, flat fragment
- 4 nail fragments, poor condition
- 3 brick fragments, 44.1 g, discarded

Conc. 20

- 2 chert flakes
- 2 chert shatter
- 4 historic ceramics, white-glazed, earthenware fragments
- 1 historic ceramics, red stoneware, soft-glaze (possibly locally produced), fragment
- 2 nails, square
- 1 oxshoe?

Conc. 28

- 1 limestone, 439 g, discarded

Conc. 29

- 3 limestone, burned, 434.3 g, discarded
- 1 molar, non-human
- 10 historic ceramics, white-glazed, earthenware fragments
- 2 historic ceramics, white-glazed, semi-porcelain
- 1 historic ceramic, possibly flow-blue earthenware fragment
- 9 historic ceramics, stoneware
- 1 flat glass, aqua
- 6 curved glass, 3 aqua, 1 brown, 2 rose (handle fragments)
- 1 slate fragment
- 2 flat metal fragments (1 curved)
- 9 small fragments of nails
- 1 brick
- 16 brick fragments, 1579.7 g, discarded

Table 3. Descriptions of mine pits and features mapped at 13DB95, 13DB131, and 13DB132 on inholding property, Mines of Spain, during 1987 field school. (Pit unless otherwise identified. Numbers correspond to map, Fig. 6).

<u>Dimensions (m)</u>					
L	W	D			
1.	3.5	x 3.0	x .96	46.	1.6 x 1.6 x .25
2.	3.1	x 3.0	x 1.03	47.	2.3 x 2.9 x .56
3.	3.4	x 3.0	x 1.05	48.	2.3 x 2.3 x .45
4.	2.6	x 2.8	x .88	49.	3.4 x 3.8 x .94
5.	2.7	x 2.7	x .98	50.	3.5 x 2.5 x .30
6.	3.0	x 3.0	x 1.00	51.	3.5 x 3.5 x .65
7.	2.8	x 2.8	x 1.00	52.	2.4 x 1.9 x .25
8.	2.0	x 2.1	x .56	53.	3.5 x 3.5 x .71
9.	1.5	x 1.5	x .64	54.	3.0 x 2.8 x .67
10.	4.8	x 2.9	x .99	55.	3.0 x 3.0 x .70
11.	2.4	x 2.2	x .81	56.	5.0 x 5.0 x 1.8 old cut tree
12.	2.0	x 2.0	x .76	57.	2.8 x 2.8 x .66
13.	1.8	x 1.8	x .63	58.	3.8 x 3.8 x 1.0
14.	1.9	x 1.9	x .52	59.	5.0 x 5.0 x .30 Mound 1*
15.	2.5	x 2.6	x .75	60.	5.5 x 6.1 x .40 Mound 2
16.	2.9	x 3.0	x .73	61.	5.7 x 9.0 x .50 Mound 3
17.	2.4	x 3.0	x .70	62.	2.0 x 2.4 x .48
18.	2.5	x 3.0	x .66	63.	1.3 x 1.9 x .20
19.	2.6	x 2.6	x .70	64.	1.0 x 1.0 x .28
20.	3.5	x 3.3	x .73	65.	2.8 x 2.7 x .46
21.	3.4	x 3.7	x .84	66.	2.7 x 3.8 x .90
22.	3.9	x 3.5	x .45	67.	4.3 x 3.1 x .35
23.	2.0	x 1.9	x .52	68.	6.0 x 6.0 x 2.1
24.	2.5	x 1.9	x .50	69.	2.8 x 2.3 x .60
25.	2.1	x 1.8	x .34	70.	1.8 x 1.8 x .40
26.	2.5	x 2.5	x .36	71.	2.3 x 2.5 x .50
27.	1.7	x 1.8	x .30	72.	3.1 x 3.6 x .61
28.	5.2	x 5.1	x 1.0	73.	3.6 x 3.3 x 1.0
29.	2.7	x 2.1	x .43	74.	2.6 x 2.6 x .50
30.	1.9	x 2.1	x 3.6	75.	2.4 x 2.3 x .75
31.	4.2	x 3.6	x .68	76.	4.1 x 3.7 x 1.3
32.	3.3	x 2.8	x .80	77.	2.1 x 2.0 x .36
33.	3.0	x 3.0	x 1.1	78.	2.4 x 3.1 x .67
34.	3.4	x 3.7	x 1.4	79.	2.7 x 2.6 x .56
35.	2.2	x 2.1	x .68	80.	3.1 x 2.6 x .68
36.	2.5	x 2.6	x .78	81.	5.0 x 5.1 x 1.5
37.	2.4	x 2.4	x .55	82.	1.8 x 1.8 x .37
38.	3.8	x 3.2	x 1.4	83.	1.3 x 1.3 x .10
39.	3.0	x 3.0	x .82	84.	1.3 x 1.3 x .10
40.	5.3	x 5.3	x 2.1	85.	2.9 x 2.9 x .10
41.	1.5	x 1.2	x .25	86.	2.3 x 2.3 x .35
42.	3.0	x 3.0	x .80	87.	7.5 x 7.5 x 2.6
43.	2.1	x 2.1	x .54	88.	5.6 x 4.5 x 1.9
44.	2.3	x 2.3	x .67	89.	2.0 x 2.0 x .48
45.	4.1	x 4.0	x 1.0 artifact + large talus	90.	1.6 x 2.0 x .16
				91.	3.3 x 3.3 x .97
				92.	2.3 x 3.0 x .50
				93.	2.5 x 2.9 x .75
				94.	2.2 x 2.2 x .48
				95.	3.1 x 3.2 x .47
				96.	2.3 x 2.3 x .10
				97.	2.8 x 2.8 x .38
				98.	2.3 x 1.6 x .10
				99.	1.7 x 1.7 x .25
				100.	2.0 x 2.1 x .15
				101.	2.4 x 2.4 x .40
				102.	3.4 x 3.4 x .45
				103.	1.6 x 1.6 x .20
				104.	1.5 x 1.3 x .20
				105.	1.7 x 1.7 x .48
				106.	2.1 x 2.3 x .42
				107.	1.6 x 1.6 x .35
				108.	4.7 x 5.5 x 1.5
				109.	2.5 x 2.4 x .64
				110.	2.0 x 1.7 x .10
				111.	2.7 x 2.4 x .50
				112.	2.8 x 2.9 x .60
				113.	2.7 x 2.4 x .60
				114.	1.5 x 1.5 x .15
				115.	3.6 x 3.5 x 1.2
				116.	2.4 x 2.1 x .64
				117.	4.0 x 2.3 x .40
				118.	6.2 x 4.6 x .26
				119.	3.3 x 3.3 x .77
				120.	3.3 x 3.3 x .80
				121.	2.8 x 2.8 x .72
				122.	2.2 x 2.8 x .63
				123.	2.0 x 2.0 x .15
				124.	3.4 x 2.4 x .41
				125.	2.3 x 2.3 x .28
				126.	1.6 x 1.6 x .20
				127.	3.3 x 2.3 x .25
				128.	2.5 x 2.8 x .40
				129.	4.0 x 3.3 x .64
				130.	2.9 x 2.8 x .60
				131.	2.8 x 2.8 x .90
				132.	3.0 x 3.8 x .75
				133.	2.5 x 2.5 x .60
				134.	2.5 x 3.0 x .73
				135.	4.0 x 3.6 x .90
				136.	3.0 x 2.9 x .70
				137.	2.4 x 2.4 x .50
				138.	4.6 x 2.5 x .65
				139.	2.4 x 2.4 x .42
				140.	2.3 x 2.3 x .55
				141.	2.8 x 2.8 x .85
				142.	3.5 x 1.5 x .64
				143.	3.8 x 2.5 x .67
				144.	5.6 x 5.1 x .60
				145.	3.7 x 3.4 x .20
				146.	2.0 x 2.0 x .20
				147.	3.4 x 3.4 x .66
				148.	2.5 x 2.4 x .65
				149.	2.8 x 3.2 x .65
				150.	3.2 x 3.3 x .72
				151.	3.0 x 3.1 x .43
				152.	2.3 x 1.9 x .56
				153.	2.3 x 2.5 x .42
				154.	1.7 x 1.7 x .10
				155.	2.7 x 2.1 x .50
				156.	2.5 x 2.5 x .20
				157.	4.9 x 4.8 x .81
				158.	2.4 x 3.1 x .52
				159.	4.0 x 3.6 x .43
				160.	4.3 x 3.0 x .10
				161.	2.6 x 3.0 x .52
				162.	4.4 x 2.2 x .75
				163.	2.7 x 3.1 x .62

164.	3.0 x 2.8 x .65	221.	2.8 x 2.8 x .70	280.	2.9 x 2.6 x .58
165.	4.0 x 3.7 x .34	222.	2.4 x 2.4 x .40	281.	3.2 x 3.1 x .80
166.	2.8 x 2.8 x .33	223.	6.6 x 6.5 x 1.88	282.	3.1 x 3.1 x .63
167.	2.4 x 2.6 x .43	224.	3.3 x 2.7 x .73	283.	3.3 x 3.3 x .43
168.	3.2 x 2.4 x .74	225.	rocks to check	284.	4.5 x 3.9 x .72
169.	5.5 x 2.6 x .75	226.	6.2 x 6.2 x 1.88	285.	5.2 x 5.2 x 1.22
170.	2.8 x 2.7 x .62	227.	5.5 x 5.9 x 1.24	286.	5.9 x 6.2 x 1.32
171.	2.9 x 2.9 x .73	228.	6.7 x 6.4 x .65	287.	7.2 x 4.6 x .30 mound*
172.	1.8 x 2.5 x .35	229.	4.4 x 4.1 x .41	288.	2.0 x 2.0 x .33
173.	2.5 x 2.5 x .30	230.	2.8 x 2.8 x .37	289.	2.2 x 1.8 x .30 many rocks here
174.	3.4 x 3.5 x .75	231.	3.4 x 3.3 x .60	290.	2.6 x 2.6 x .38
175.	3.8 x 3.6 x .88	232.	3.0 x 3.0 x .42	291.	3.0 x 3.0 x .45
176.	3.9 x 3.6 x .46	233.	4.3 x 4.6 x .90	292.	4.1 x 3.7 x .52
177.	3.5 x 3.0 x .68	234.	5.3 x 5.3 x 1.1	293.	3.9 x 4.3 x .42
178.	2.8 x 2.8 x .60	235.	4.6 x 4.7 x 1.0	294.	4.8 x 4.0 x .62
179.	2.8 x 2.6 x .70	236.	2.2 x 2.2 x .37	295.	4.3 x 4.3 x 1.10
180.	2.8 x 2.8 x .62	237.	2.4 x 2.3 x .50	296.	3.3 x 3.0 x .50
181.	2.6 x 2.8 x .26	238.	3.1 x 3.3 x .46	297.	3.0 x 3.0 x .37
182.	3.9 x 3.5 x .90	239.	2.7 x 2.7 x .40	298.	4.2 x 4.6 x .74
183.	3.2 x 3.7 x .70	240.	5.4 x 5.0 x .92	299.	1.9 x 1.9 x .20
184.	3.5 x 3.5 x .78	241.	7.7 x 7.3 x 2.20	300.	5.4 x 5.4 x 1.20
185.	2.6 x 2.7 x .56	242.	2.9 x 2.2 x .42	301.	5.7 x 5.4 x 1.42
186.	3.3 x 3.5 x .80	243.	2.5 x 2.5 x .40	302.	3.8 x 4.2 x .50
187.	3.4 x 3.1 x .78	244.	3.3 x 3.6 x .63	303.	3.2 x 3.2 x .33
188.	2.4 x 2.4 x .68	245.	2.6 x 2.6 x .44	304.	2.6 x 2.3 x .30
189.	2.2 x 2.1 x .27	246.	2.9 x 2.9 x .22	305.	6.6 x 7.1 x 1.33
190.	2.4 x 2.8 x .60	247.	4.1 x 4.0 x .80	306.	4.0 x 4.0 x .30 mound*
191.	2.6 x 2.8 x .54	248.	5.7 x 5.7 x .54	307.	2.8 x 3.0 x .52
192.	3.1 x 2.9 x .5 possible smelter (stone circle)	249.	1.7 x 2.3 x .26 poss. smelter	308.	3.3 x 3.7 x .57
193.	1.8 x 1.8 x .21	250.	2.0 x 2.0 x .26	309.	3.8 x 2.4 x .58
194.	1.5 x 1.5 x .40	251.	2.5 x 2.1 x .41	310.	2.7 x 2.5 x .58
195.	3.6 x 2.6 x .37	252.	2.6 x 2.2 x .55	311.	2.5 x 2.2 x .30
196.	3.5 x 3.5 x .55	253.	3.1 x 3.1 x .65	312.	3.2 x 3.2 x .38
197.	2.4 x 2.4 x .50	254.	3.2 x 4.3 x .50	313.	3.7 x 3.0 x .79
198.	7.3 x 7.3 x .35 large shallow basin	255.	5.8 x 4.4 x 1.1	314.	3.1 x 3.0 x .53 large tree on edge
199.	5.0 x 5.0 x 1.78	256.	3.7 x 3.7 x .97	315.	3.0 x 3.0 x .47
200.	2.1 x 2.0 x .45	257.	3.2 x 3.8 x .80	316.	5.4 x 5.7 x 1.68 small hole in bottom vertical goes down at least 1.3m probably more-natural sink?
201.	3.5 x 3.5 x .67	258.	3.4 x 3.1 x .39	317.	4.5 x 3.5 x 1.33
202.	4.0 x 4.0 x .67	259.	2.4 x 3.3 x .43	318.	3.6 x 3.5 x .74
203.	3.8 x 2.6 x .58	260.	2.6 x 2.9 x .35	319.	6.0 x 6.0 x 1.75
204.	2.5 x 2.1 x .42	261.	2.8 x 3.2 x .39	320.	3.0 x 2.6 x .55
205.	3.0 x 3.3 x .81	262.	2.8 x 4.5 x .53	321.	5.3 x 4.8 x 1.10
206.	4.9 x 4.9 x 1.6	263.	3.2 x 2.9 x .56	322.	5.3 x 4.7 x .63
207.	2.1 x 2.1 x .31	264.	3.0 x 2.7 x .28	323.	4.7 x 4.0 x .68
208.	2.2 x 2.2 x .30	265.	3.8 x 3.4 x .54	324.	3.2 x 2.0 x .28
209.	4.0 x 3.0 x .50	266.	2.1 x 2.1 x .18		
210.	3.8 x 3.3 x .72	267.	2.2 x 2.6 x .32		
211.	2.4 x 2.1 x .46	268.	2.7 x 2.4 x .38		
212.	2.3 x 2.4 x .36	269.	2.3 x 2.6 x .41		
213.	3.7 x 3.7 x .90	270.	2.0 x 1.5 x .5 poss. smelter		
214.	1.9 x 1.9 x .30	271.	2.2 x 2.1 x .20		
215.	4.3 x 4.3 x 1.65	272.	3.2 x 3.1 x .21		
216.	2.6 x 2.6 x .33	273.	3.0 x 3.3 x .36		
217.	3.0 x 3.0 x .60	274.	4.8 x 2.5 x .53		
218.	2.0 x 2.1 x .44	275.	2.7 x 2.5 x .32		
219.	2.3 x 2.2 x .30	276.	2.0 x 2.0 x 1.5		
220.	2.1 x 2.2 x .50	277.	3.6 x 3.8 x .83		
		278.	3.7 x 3.7 x .32		
		279.	4.2 x 4.2 x .30		

*#59, 60 and 61 = 13DB385

*#287 and 306 = 13DB378

Table 4. Inventory of Cultural Material Recovered from Shovel Tests at 13DB375.

Shovel Test #1

0-10 cm

- 1 charcoal
- 1 window glass
- 1 clothing snap

10-20 cm

- 3 metal chips

20-30 cm

- no recovery

Shovel Test #2

0-10 cm

- 1 possible chert flake
- 4 charcoal
- 1 unidentifiable burned bone
- 1 nail

10-20 cm

- 2 possible chert flakes
- 2 possible chert shatter
- 1 rock
- 1 partially charred wood fragment
- 1 brick fragment

20-30 cm

- no recovery

Shovel Test #3

0-10 cm

- 5 nail fragments
- 2 cinders

10-20 cm

- 1 curved glass fragment
- 1 small metal ring, snap fragment?

20-30 cm

- no recovery

Shovel Test #4

0-10 cm

- 7 nail fragments

10-20 cm

- 1 charcoal
- 1 flat glass fragment

0-20 cm (wall scrapings)

- 1 charcoal
- 1 curved glass fragment

20-30 cm

1 glass fragment
7 nail fragments

Shovel Test #5

0-10 cm

1 chert flake
1 charcoal
1 glass fragment
1 historic ceramic, porcelain

10-20 cm

1 charcoal
1 historic ceramics, white-glazed

20-30 cm

no recovery

30-45 cm

no recovery

Shovel Test #6

0-50 cm (10-cm levels)

no recovery

Shovel Test #7

0-10 cm

no recovery

10-20 cm

no recovery

20-30 cm

1 nail

30-40 cm

no recovery

40-50 cm

no recovery

Shovel Test #8

0-10 cm

1 seed fragment
1 cinder
1 flat glass fragment

10-20 cm

2 possible chert shatter
3 charcoal

20-30 cm

no recovery

30-40 cm

2 possible chert shatter

Shovel Test #9

0-10 cm

no recovery

10-20 cm

1 possible chert shatter
1 cinder
2 nail fragments

20-30 cm

1 possible chert shatter
1 cinder

30-45 cm

no recovery

Shovel Test #10

0-10 cm

1 slate fragment
5 cinders
2 nail fragments
1 flat glass fragment

10-20 cm

2 charcoal
1 flat glass fragment

20-30 cm

3 nail fragments

30-40 cm

1 possible chert flake

Shovel Test #11

0-27 cm

1 chert flake
1 cinder
1 historic ceramic, white glazed earthenware
34 historic ceramic, clay flowerpot

27-37 cm

no recovery

Shovel Test #12

0-10 cm

2 cinders
2 nail fragments

10-20 cm

11 cinders
2 flat glass fragments

20-30 cm

2 cinders
3 nail fragments

30-40 cm
7 coal fragments

40-50 cm
no recovery

Shovel Test #13

0-10 cm
1 cinder

10-20 cm
1 chert flake
13 charcoal
5 cinder

20-30 cm
2 charcoal
2 metal fragments

30-40 cm
no recovery

Table 5. Inventory of Cultural Material Recovered from Surface Around House Foundation, 13DB375.

- 1 historic ceramic, porcelain, painted, fragment of sugar bowl or pitcher
- 5 historic ceramics, earthenware fragments, 3 white-glazed, 2 turquoise
- 5 historic ceramics, porcelain or semi-porcelain, white-glazed 1 with red design, 1 with dark blue, 1 cobalt blue fragment
- 2 porcelain doll parts, 1 head fragment (boy with cap), 1 leg or arm fragment
- 1 flowerpot base fragment
- 1 insulator fragment
- 3 milk glass fragments (one appears to be neck or feathers of decorative bird or chicken)
- 9 curved glass fragments - 1 from measuring cup, 4 from other utilitarian bottles or containers, 3 pressed glass bowl or bottle fragments, and 1 handle fragment
- 5 melted glass fragments
- 1 faceted bead, cobalt blue
- 1 plastic, molded, fragment from radio case?
- 1 metal snap, from clothing
- 1 small metal hinged lid, possible brass
- 3 metal wire fragments
- 3 nails
- 1 metal brace or bracket, possibly made in local forge, holes of unequal size and not aligned
- 1 bone fragment
- 2 glazed brick - "Flint" Engraved in surface

Appendix 1. Correspondence Relating to the 1987 MOS Field School.