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24-Archaeological Test Excavations at the Jean Klock Park Site (2DBE413), City of Benton Harbor, Michigan

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DEPARTMENT OF ANTHROPOLOGY

WESTERN MICHIGAN UNIVERSITY

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ARCHAEOLOGICAL TEST EXCAVATIONS AT THE JEAN KLOCK PARK SITE (20BE413), CITY OF BENTON HARBOR, MICHIGAN

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This report has been
prepared and submitted at
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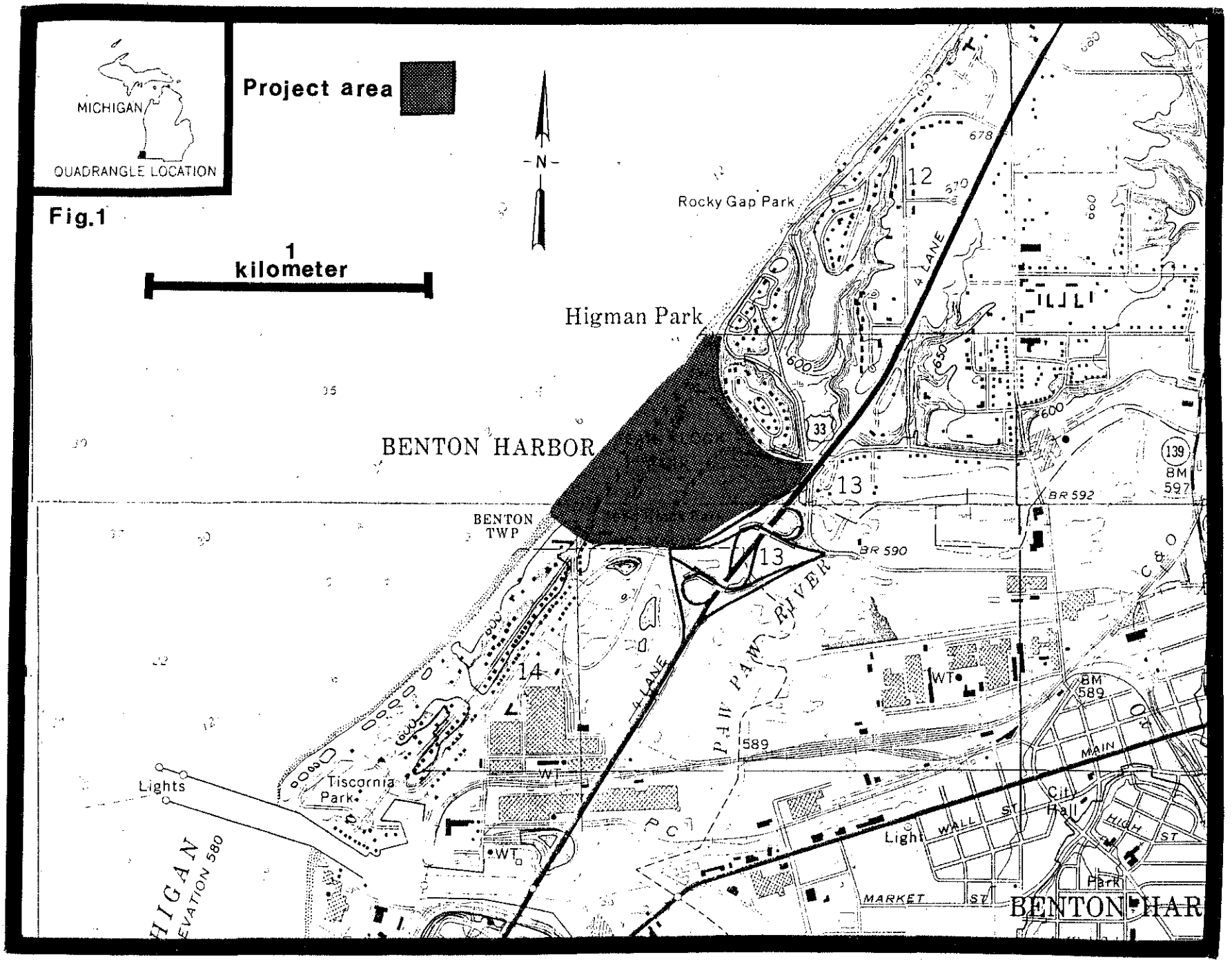
INTRODUCTION TO THE PROJECT

During Fall 1990, W.M. Cremin Consulting, under contract to the City of Benton Harbor, Michigan and the Troyer Group of Mishawaka, Indiana, conducted a Phase I archaeological assessment of Jean Klock Park. The study area occupies some 90 acres (36.4 ha) in the NW 1/4 of Section 13, Benton Township (West Part) and extends from the lake shoreline on the west to the interchange of Red Arrow Highway on the east (Fig. 1).

In the late 1950's, the channel of the Paw Paw River was filled to permit construction of this interchange, and the river was diverted to its present course which lies to the east and parallels the highway as it flows toward its confluence with the St. Joseph River to the south.

The northern limits of our study area conform to the base of the steep bluff on which the residental neighborhood of Highman Park is now situated. And on the south the project is bounded by a paved road providing access to the beach area immediately south of the park limits.

It was immediately apparent to the survey team that much landscape alteration had occurred in the project area over the years, both in and about the large expanse of marshland occupying the eastern portion where the Paw Paw River had formerly flowed and on the dunes that today separate the strip of beachfront on the west from the remainder of the study area. Disturbance took the form of bladed areas near the dunes where parking lots had been established for those people seeking to access the beach area.


MICHIGAN
QUADRANGLE LOCATION
Project area
Fig.1
1
kilometer
-N-
Rocky Gap Park
Higman Park
BENTON HARBOR
BENTON
TWP
PAW PAW RIVER
4 LANE
Tiscornia
Park
Lights
MICHIGAN
ELEVATION 580
Light
City
Hall
MAIN
WALL ST
HIGH ST
MARKET ST
BENTON HAR
BR 592
BR 590
BM
589
BM
597
12
13
14
33
139
678
670
660
650
600
589

And much of what appeared to be marsh in the southeastern portion of the project was found to constitute a fill consisting of foundry tailings, bricks, and cinders on which a vigorous vegetative cover had taken hold.

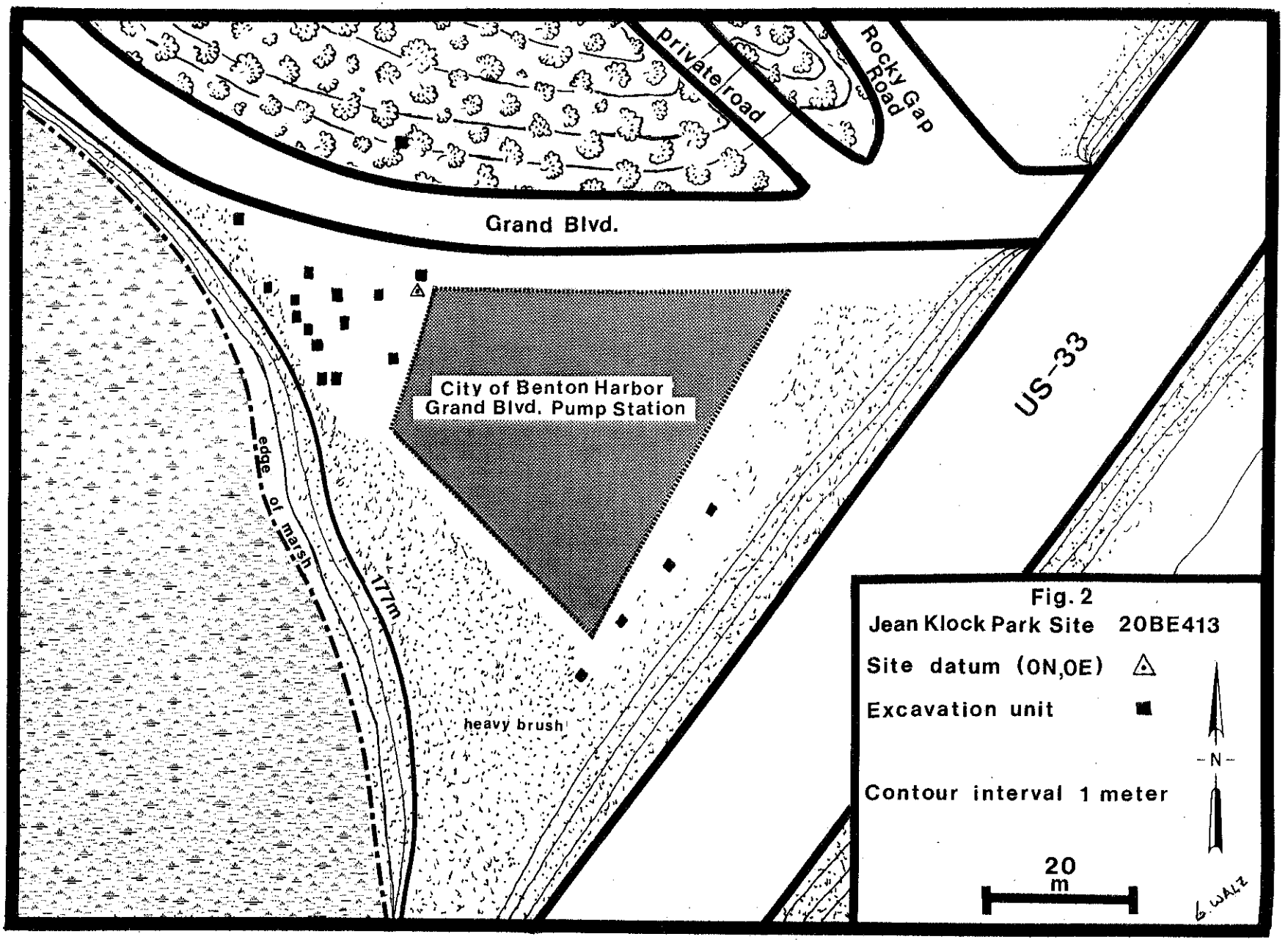
Finally, our examination of an old map of this area revealed a "hair-pin-shaped" feature extending from the former river channel in a northeasterly direction through the marsh and along the base of the bluff. While initially interpreting this to represent an old meander scar long since cut off from the channel occupied by the river prior to its recent diversion to make way for the highway interchange, we were unable to identify it while in the field. A lifelong resident of the area, Mr. R.J. Burkholz, was able to satisfy our curiousity when he informed us that a canal had been excavated here in the early 20th century to bring river traffic to a commercial enterprise formerly located near the northeastern corner of the project area. The old canal is today largely filled in and/or occupied and concealed by the marsh.

The literature and documents review undertaken as part of the Phase I study, together with an examination of the state site files, strongly suggested an absence of archaeological resources and/or professional archaeological activity in this area. The information available to us indicated that a Potawatomi village had occupied the Paw Paw "Flats" a short distance below the project area where this river joins the St. Joseph at the time of initial Euroamerican settlement. And, furthermore, the site files showed at least six sites to occur in the general area. But nothing in the way of locational information available to us at the onset of survey work pointed to a high probability of sites in the 90 acres of land we

were to investigate on this occasion (see Cremin and Walz 1990 for more information on recorded sites in the general area of the Jean Klock Park project).

Survey procedures employed during the Phase I study included visual inspection of the ground surface in those areas where beach and dunes prevailed as well as others where conditions afforded a good look at the surface for any evidence of the presence of cultural debris. Many of the areas evidencing recent disturbance were initially probed with shovels to verify that systematic and intensive shovel testing would not be necessary. In the final analysis, only three areas of the project appeared to require rigorous use of shovel testing procedures, and here surveyors walked transects and placed shovel tests at intervals of 15 m along each line of survey. These were in the northeastern and northwestern corners of the study area beneath the bluff forming the northern limits and also in the south-central portion somewhat removed from the extant marsh where foundry tailings and other debris of recent origin had previously been noted.

While the vast majority of the project area has been significantly disturbed so as to preclude recovery of archaeological material, the survey team did record the presence of one prehistoric site. Our discovery of the Jean Klock Park site (20BE413) was facilitated by Mr. Burkholz, who was curious as to our activities and came down from his home on the top of the bluff to visit with us while we were shovel testing the area about the City of Benton Harbor lift station situated in the northeastern corner of the study area (Fig. 2). He informed surveyors that at the time of lift station construction about 20 years earlier his daughter had


private road
Rocky Gap Road
Grand Blvd.
US-33
City of Benton Harbor
Grand Blvd. Pump Station
edge of marsh
177m
heavy brush
Fig. 2
Jean Klock Park Site 20BE413
Site datum (0N,0E)
Excavation unit
Contour interval 1 meter
N
20
m
G. WALZ

collected "arrowheads" while crews were leveling the land near the marsh where the lift station was to be built. Furthermore, some skeletal remains were exposed during the blading operation. These bones were subsequently taken to a local physician for identification. When he determined that the remains were human, all of the bones were turned over to the State Police. Northing more was ever heard of the skeletal remains, according to Burkholz.

Additionally, he informed us that Wilbur Cunnimgham, a local historian, when told of the discovery of artifacts and a human skeleton, proclaimed that the location had formerly been the site of an Indian camp and cemetery. If this information had ever been reported by Cunningham, we know nothing of the source(s) in which it was published.

The location of the site is today reasonably well maintained in lawn and partially fenced so as to limit access to the lift station. The surveyors commenced their work here with some visual inspection of the bank at the edge of the marsh followed by shovel testing of the lawn. The bank, strongly sloping and rising between 2-2.5 m above the marsh, revealed 32 pieces of lithic debris and one rim sherd. Additional cultural items were recovered from several nearby tests, and Mr. Burkholz's daughter was able to produce a thin, well made corner-notched point that falls within the Snyders Cluster that she had previously found here. Taken together, the cultural items recovered from the site appeared consistent with a Middle Woodland period temporal placement.

In summary, our Phase I examination of 20BE413 resulted in the recovery of the aforementioned cultural items from an area of perhaps 400 m^2 and primarily from the bank immediately above the marsh. On

the basis of our observations we concluded that while developments associated with the park master plan would have no impact on potentially significant archaeological resources over an area comprising perhaps 99.9% of the project, the small area designed as the Jean Klock Park site should be subjected to Phase II test excavation. And with this recommendation, the client concurred.

PHASE II TESTING OF THE JEAN KLOCK PARK SITE

In December 1990, the Principal Investigator and Western Michigan University were approached by Mr. Roland Klockow, City Engineer for Benton Harbor, Michigan, to prepare a proposal for additional site examination. The city felt that the presence of a potentially significant archaeological resource on the property would possibly enhance the interpretive potential of the proposed development at the park, and those preparing the master plan were anxious to know whether this prehistoric site should be more fully incorporated into the development for the benefit of the public using the park and its facilities. Our research proposal was ultimately accepted, and on 6-7 Apr 91 a crew from the university traveled to the park to undertake limited test excavation of this site. There follows a report of our program of research and the recommendations based upon our findings.

PHASE II PROJECT PERSONNEL:

Principal Investigator - Dr. William M. Cremin, Professor of Anthropology, WMU

Field Supervisor - Mr. Gregory R. Walz, M.A., Department of Anthropology, WMU

Field Assistants - Mr. Daniel B. Goatley, M.A. Candidate in Anthropology, WMU
- Mr. Timothy D. Knapp, M.A. Candidate in Anthropology, WMU
- Mr. David K. McConkey, M.A. Candidate in Anthropology, WMU

SITE SETTING:

The Jean Klock Park site (20BE413) occupies the extreme northeastern corner of the park for which it is named, in the NE 1/4, SE 1/4, NW 1/4 of Section 13, Benton Township (West Part), Berrien County, Michigan (Fig. 2). It is situated on a level bench at an elevation of approximately 177 m ASL. Immediately to the south lies a marsh that now occupies a former channel of the Paw Paw River. The marsh is characterized by emergent vegetation consisting of cattails and water lilies at the margins and patches of open water toward the middle where this depression is presumed to be much deeper. The marsh is 2-2.5 m below the edge of the bank delimiting the site on this side.

There is abundant evidence in the form of concrete slabs, asphalt, and other construction and general waste attesting to the use of the bank as a convenient dumping point. Dumping has impacted the bank to some degree and may in fact have resulted in its impingement into the former floodplain along this segment of the old river channel.

Immediately to the north is a steeply rising bluff, 15-20 m in height. The bluff slope is heavily wooded in climax vegetation, here being comprised of red oaks, maples, and tulip trees. Understory species include stems of the canopy dominants for the most part. The site area is further delimited by modern asphalt roads (Grand Boulevard and Rocky Gap Road to the north and US-33 to the

east) and the City of Benton Harbor Grand Boulevard Pumping Station which occupies the central portion of the area delineated as site (Fig. 2).

For the most part, the site area is today well maintained lawn, both within and outside of the chainlink fence that restricts access to the lift station. The margins of the site, both along the bank to the south and in the US-33 right-of-way to the east, support dense shrubby vegetation dominated by sumac. Given the presence of the city facility, itself, and evidence of considerable disturbance along the bank and adjacent roadways, we were certainly concerned that the estimated site area of 6500 m^2 might lack site integrity, especially as we approached the fenced area and the site's margins. Thus, we proposed to place our test squares with an eye toward those areas within the site limits where recent disturbance might be anticipated to be minimal.

PHASE II FIELD PROCEDURES:

Upon arrival on the site, excavators elected to locate the site datum 2.0 m west of the northwest corner of the fenced area and 6 m south of Grand Boulevard. The grid established from datum enabled us to focus our testing on the western (and seemingly least disturbed) portion of site, where 14 of 19 test squares were excavated. In addition, a single unit was placed on the lower slope across Grand Boulevard, and four units were located in the narrow strip of grass immediately east of the fenced area and just outside of the US-33 right-of-way (Fig. 2). The locations of all excavation units are summarized in Table 1 below.

Hand excavation techniques were employed on this occasion and followed standard archaeological procedures. All units were taken

Table 1: 20BE413 Excavation Units.

Unit	Provenience
1	2N, 0E
2	2S, 18W
3	20N, 3W
4	4S, 18W
5	8S, 15W
6	11S, 12W
7	6S, 16W
8	13S, 12W
9	0N, 22W
10	13S, 14W
11	10N, 26W
12	5S, 11W
13	1S, 5W
14	46S, 28E
15	41S, 35E
16*	54S, 22E
17*	29S, 41E
-	
19	2N, 16W
20	10S, 4W

* Units 16 and 17 were not excavated in their entirety after excavation of Test Squares 14 and 15 established that the eastern margin of the site was thoroughly disturbed as a result of construction of US-33.

down in arbitrary 10 cm levels until contact was made with the sterile subsoil. All sediment was passed through 6.4 mm hardware cloth to augment recovery of small-scale remains. Excavators checked all unit walls and the floor for evidence of staining that might be attributable to human behavior, and all observations were recorded on the appropriate forms. In the event that staining suggestive of the presence of a cultural feature was observed, the feature was to be assigned

a number and excavated as a "unit" in its own right.

RESULTS OF THE FIELDWORK:

Upon completion of our initial test squares, it became apparent to excavators that alteration of the landscape about the lift station had caused considerable disturbance to the archaeological sediments. While screen recovery of cultural items attested to the presence of a site, soil profiles from unit after unit were clearly indicative of topsoil removal or grading, resulting in the mixing of prehistoric and recent material. Typically the units showed a very thin (and often poorly developed) humic layer conforming to the depth of grass root penetration, perhaps 5 cm, and were underlain by either a very gravelly orange subsoil or a heavy clay subsoil. In either instance, the subsoil was almost always encountered in the initial 10 cm level. A few units revealed a mottled zone beneath the humus which appeared to be primarily subsoil into which some of surface humic material had been introduced as a result of mixing during blading of the site. Representative soil profiles are illustrated in Figure 3.

Despite the loss of an unknown depth of soil across the site during the blading operation associated with the construction of the lift station, a moderate quantity of lithic reduction flakes, several tools and tool fragments, and a handful of potsherds were recovered from excavation units. In addition, a small quantity of lithic items were collected from the bank above the marsh. Also recovered from excavations were 9 pieces of bone, aggregating 24.0 g by weight. These specimens include: one bovine molar; one fragment of turtle shell; and seven pieces of mammal bone (with one specimen bearing a possible butchering mark made by a saw-like implement). None of the bone specimens or the shell fragment reveals any indication of

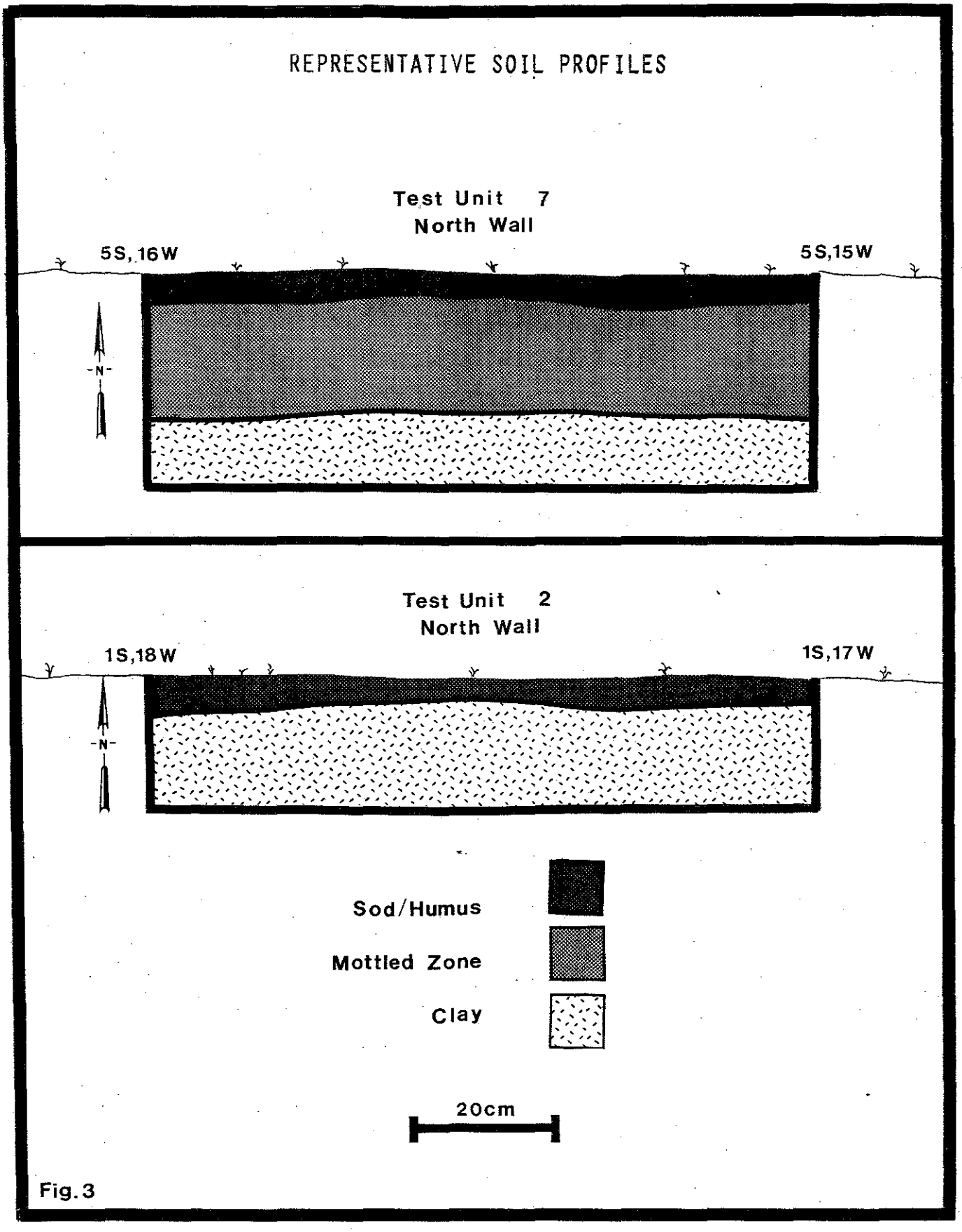

REPRESENTATIVE SOIL PROFILES
Test Unit 7
North Wall
5S,16W
5S,15W
-N-
Test Unit 2
North Wall
1S,18W
1S,17W
-N-
Sod/Humus
Mottled Zone
Clay
20cm

Fig. 3

burning or exposure to heat, and their proximity to the surface in an unprotected depositional context calls into question their age. Most, if not all, of these elements are probably of relatively recent origin.

In an attempt to ascertain whether recent disturbance was limited to the area west of the lift station, excavators established four test squares in the area east of the facility. Unfortunately, these units revealed similar disturbance and were, perhaps, even more severely impacted by episodes of grading and raising the roadbed of US-33 well above the level of the marsh.

It would certainly appear from our program of test excavation that site integrity has been thoroughly compromised by recent work related to the construction of the lift station. The recollections of Mr. Burkholz regarding the discovery of a partial human skeleton some 20 years ago during landscape alteration (Cremin and Walz 1990: 9) would suggest that subsurface features were probably present on the site; however, we can only guess as to the range of feature types and functions these facilities may have served. The Jean Klock Park site (20BE413), to the extent that it survives today, represents only a scattering of lithic and ceramic debris without good context.

ANALYSIS OF THE CULTURAL REMAINS FROM 20BE413

All cultural items recovered during the Phase II testing of the Jean Klock Park site were returned to the Archaeological Laboratory in the Department of Anthropology, Western Michigan University for processing preparatory to study and subsequent curation. The assemblage in broken down by raw material category and presented below.

LITHIC ASSEMBLAGE:

The examination of lithic materials, all of which represent chipped stone specimens, utilized a three step approach. First, an attempt was made to identify the raw material source for each item recovered. Secondly, all pieces of debitage were classified as to stage in the reduction process. Finally, both formal and informal tools were analyzed in greater detail.

RAW MATERIALS:

Each lithic item was compared with type specimens of known raw material from throughout the Midwest and western Great Lakes. The analysis was performed primarily on a macroscopic level with the aid of a 10x magnifier; however, recourse to a microscope capable of 45x magnification occurred occasionally during the analysis. Determination of lithic raw material sources can provide insight into long distance trade and communication which were ultimately responsible for materials finding their way from source areas to the site. And an understanding of such economic activity in prehistory can be an important aspect of the reconstruction of past lifeways.

Examination of the lithic debitage resulted in the identification of 13 specific raw material types, including quartz and 12 different cherts. These include the six chert types identifed in the small assemblage recovered during the Phase I survey when this site was recorded (Cremin and Walz 1990). Of the 467 lithic items retrieved from screens during the Phase II fieldwork, 187 (40.0%) have been positively identified as to source (Table 2).

The identified specimens have been broken down into locally derived material and nonlocal or exotic cherts. Local raw material

Table 2: Jean Klock Park Site Lithic Assemblage.

	STAGE OF REDUCTION										
CHERT	DECORT	PRI	SEC	TER	FRAG	BLK	OTR	CT	WT	% CT	% WT
Bayport			1					1	0.1	0.2	0.0
Burlington		1	3	7	2			13	7.8	2.8	1.6
Burlington (HT)				2				2	0.7	0.4	0.1
Cordell	1							1	0.5	0.2	0.1
Flint Ridge			1	1				2	1.8	0.4	0.4
Onondaga			1					1	2.7	0.2	0.6
Upper Mercer		1	1	4	1			7	1.9	1.5	0.4
Wyandotte			2	1				3	1.6	0.6	0.3
Hudson Bay Lowland ?			2	3			1	6	3.7	1.3	0.8
Total Exotic	1	2	11	18	3	0	1	36	20.8	7.7	4.3
Deer Lick	6	17	24	16	15	1	5	84	84.2	18.0	17.2
Lambrix	1		5	1	1			8	13.1	1.7	2.7
Purple	3	4	9	7	2		1	26	38.4	5.6	7.9
Quartz			1					1	2.0	0.2	0.4
Yellow/White	1	3	12	9	6	1		32	19.0	6.9	3.9
Total Local	11	24	51	33	24	2	6	151	156.7	32.3	32.0
Unidentified	47	18	93	51	65	2	4	280	311.6	60.0	63.7
Identified	12	26	62	51	27	2	7	187	177.5	40.0	36.3
TOTAL	59	44	155	102	92	4	11	467	489.1	100.0	100.0
% OF TOTAL	12.6	9.4	33.2	21.8	19.7	0.9	2.4	100.0	100.0	100.0	100.0

materials exploited by the site's inhabitants include both cherts and quartz which were available in glacial till and streambed deposits within a short distance of the site. Exotic materials are defined as those that would have required trade, gift exchange, or extensive travel to procure.

Local Sources:

Identified locally derived raw materials are represented by 151 pieces, or 32.3% of all lithic debitage. The majority of unidentified specimens are also believed to be of local origin, having been collected from as yet unidentified glacial till or streambed deposits. Situated near the confluence of the Paw Paw and St. Joseph rivers, the site would seem ideally located for the procurement of a wide range of native raw materials.

It is presently felt that three of the local cherts represented in the assemblage, Deer Lick Creek, Purple, and Lambrix, are in actuality variations of a single raw material type. By count, these cherts (or variations) constitute 63.1% of the identifiable pieces and 25.3% of the entire assemblage.

Deer Lick Creek chert is known to be available along the course of a small creek flowing into Lake Michigan just south of South Haven, Michigan. Lambrix chert quarries are known to exist in Oceana County (Campbell 1988; Luedtke 1976). Purple chert is a common constituent of glacial tills throughout southwest Michigan (Campbell 1988; Clark 1981; Luedtke 1976). It is also probable that each may have also been available in other as yet unknown locations along the Lake Michigan shoreline.

Yellow/White chert is represented by 21.2% of the identifiable local material and 6.9% of all lithic debitage. This raw material

is present in glacial tills throughout the area and has also been observed to occur in small nodular form along the lake shoreline immediately west of 20BE413.

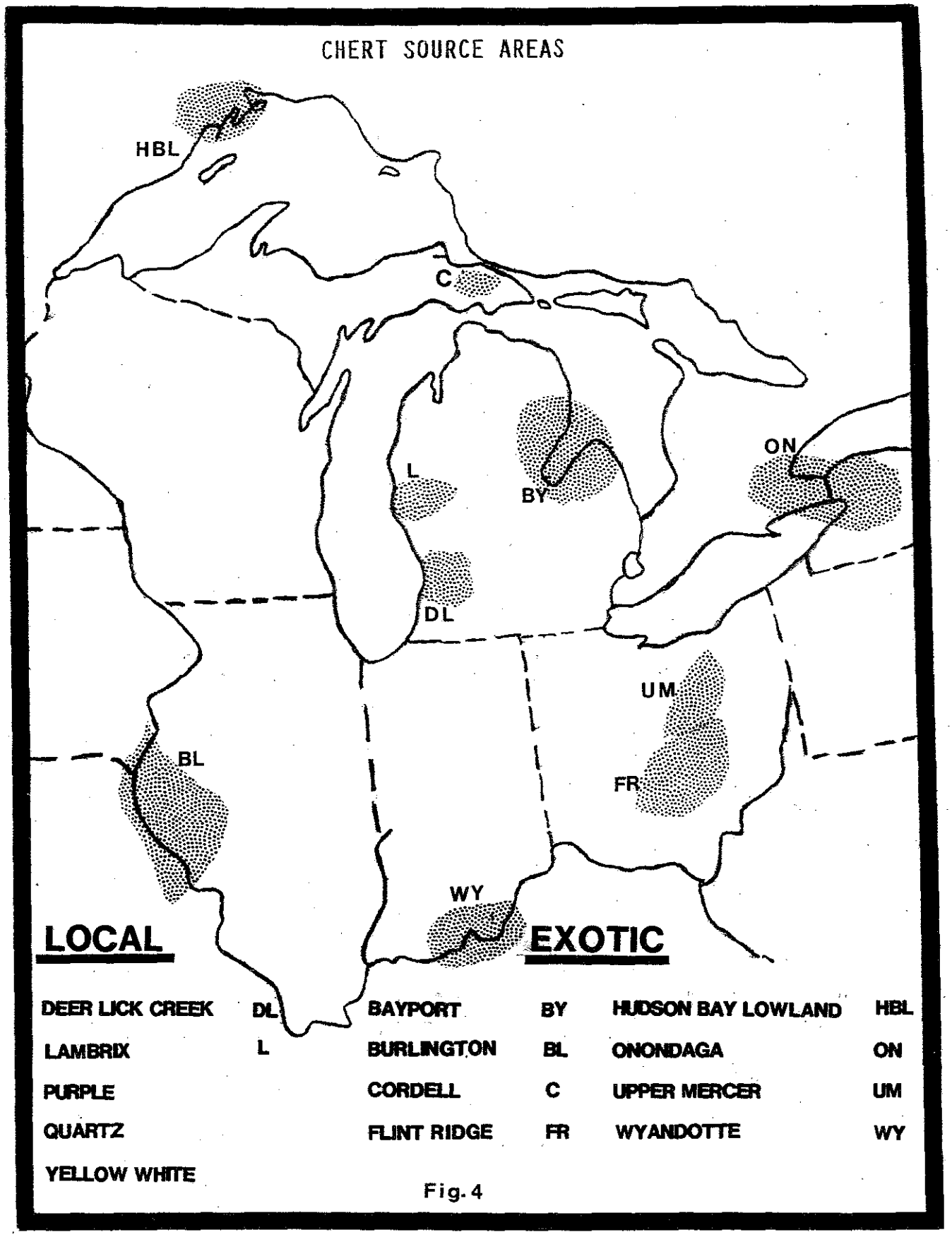
Finally, the only other identifiable local raw material is represented by a single flake of quartz. Quartz nodules commonly occur in glacial till in the region of southwest Michigan.

Exotic Sources:

Thirty-six pieces in the lithic assemblage represent eight chert types occurring outside the region and account for 7.7% of all lithic debitage. The source areas of these cherts are shown together with local source areas in Figure 4. These sources span a vast area of the midcontinent, from southern Indiana and Ohio, to the Upper Peninsula of Michigan, east to Lake Ontario, and west to the Mississippi River.

Burlington chert from west-central Illinois is the most abundant nonlocal material, accounting for 3.2% by count of all lithic debitage. The second most common material from outside this region is Upper Mercer chert from central Ohio, representing 1.5%. Other exotics represented by trace quantities include: Bayport chert from the Saginaw Bay area of eastern Michigan; Cordell from Upper Michigan; Onondaga from western Lake Ontario/eastern Lake Erie; Wyandotte (formerly Indiana hornstone) from southern Indiana; and Flint Ridge from central Ohio. There is no clear suggestion that exotic cherts constituted a daily necessity, nor can they be related to any ritual or mortuary activity at Jean Klock Park.

Six pieces of an unidentified translucent brown material were observed in the lithic assemblage, including one that represents a broken biface fragment (Fig. 5: A). Visually, this material is very


CHERT SOURCE AREAS
HBL
C
L
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ON
DL
UM
BL
FR
WY
LOCAL
EXOTIC
DEER LICK CREEK DL
LAMBRIX L
PURPLE
QUARTZ
YELLOW WHITE
BAYPORT BY
BURLINGTON BL
CORDELL C
FLINT RIDGE FR
HUDSON BAY LOWLAND HBL
ONONDAGA ON
UPPER MERCER UM
WYANDOTTE WY

Fig. 4

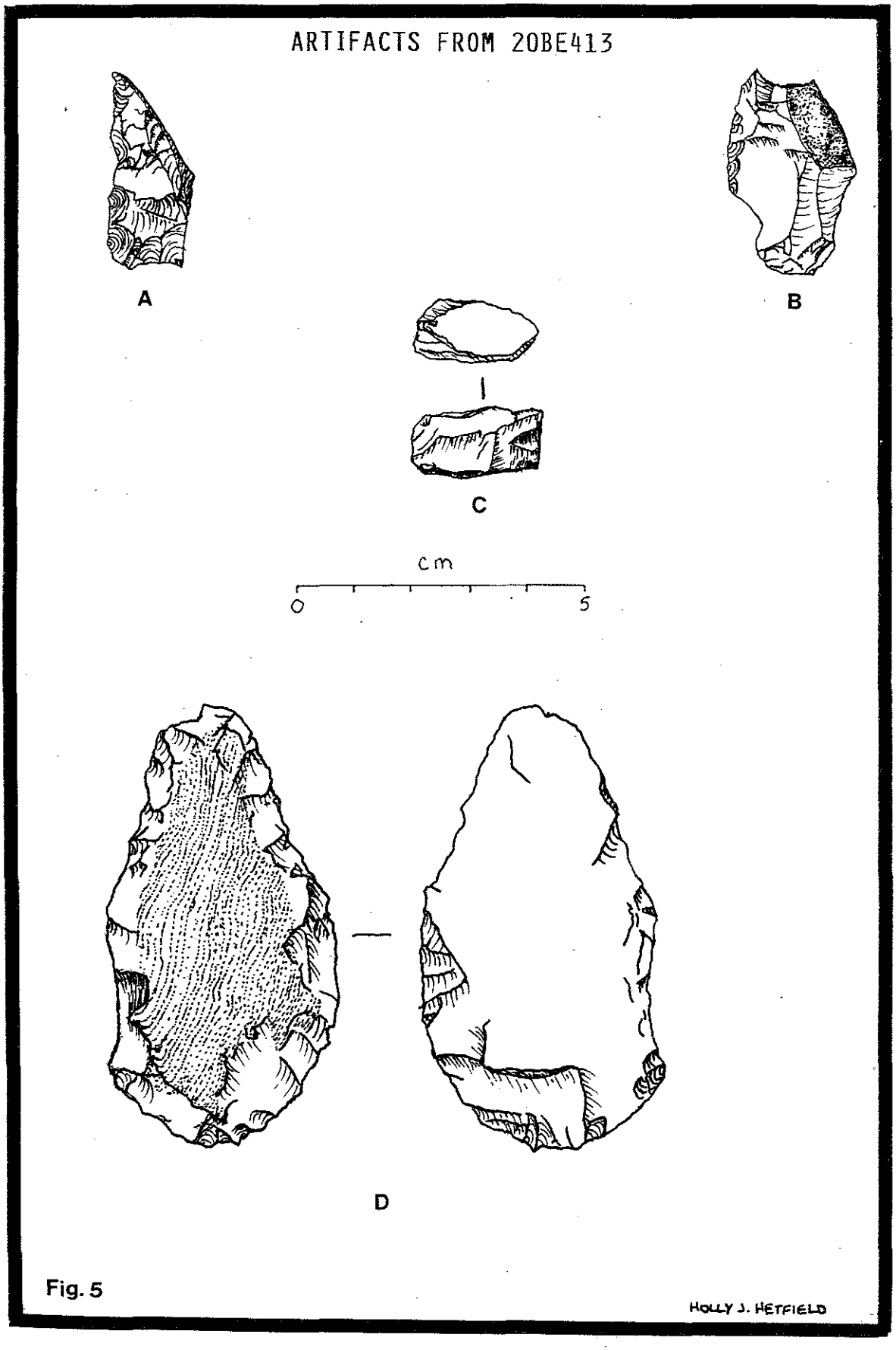

Fig. 5

similar to Knife River flint from North Dakota. However, Julig et al. (1988) note that Hudson Bay Lowland chert from the Thunder Bay region of Lake Superior is often mistaken for Knife River flint. While these cherts and the specimens from 20BE413 are very similar with respect to color, texture, and quality, only the Knife River material contains a discernable internal parallel sedimentary structure.

Recently, lithic material from a number of Late Woodland and Upper Mississippian components in the Lower Kalamazoo River Valley has been favorably compared with our specimens from Jean Klock Park. Samples from the former sites have been submitted to Dr. Patrick Julig of Laurentian University for neutron activation analysis. Hopefully, his testing of this material will enable us to positively identify the source of this translucent brown chert.

Heat Treatment of Raw Material:

Evidence of thermal alteration has been observed on two pieces of debitage from the site. Both of the specimens are tertiary flakes of Burlington chert. Identification of heat treatment rests on changes in both color and luster previously documented for this raw material (Rick 1978). Heat treated specimens of this chert have been observed at many archaeological sites in southwest Michigan.

Discussion:

The lithic raw materials from this site document the occupants' ability to obtain high quality flaking material from throughout the Midwest. Some of the source areas occur at distances of more than 500 km from Jean Klock Park. Given the disturbance observed here, it is impossible to suggest just what sorts of contexts these pieces formerly occurred in. While we cannot rule out the presence of

mortuary activity on the site, the high quality exotic material could just as easily reflect on the performance of tasks of a utilitarian nature.

LITHIC REDUCTION AT JEAN KLOCK PARK:

Debitage is the waste product generated during stone tool manufacture, and the production of stone tools is a "subtractive" or reduction process. Raw materials occurring as blocks, nodules, or pebbles are reduced through the removal of lithic material, with both tools and waste or debris being the outcome of the knapping process.

During this study, all flakes, including those showing some evidence of further modification for use as tools, were initially treated as debitage. Following treatment as debitage, modified or utilized flakes were subjected to further analysis (see below).

The categories used to classify debitage are those which have been used previously in Western Michigan University investigations (e.g. Clark 1984). Flakes were placed into one of the following categories: decortication; block; primary; secondary, tertiary; or fragment. Placement in the order indicated is believed to reflect the sequence of flake removal during tool manufacture. Thus, decortication flakes were detached prior to primary flakes, primary before secondary, etc. By assigning flakes to appropriate stages in the reduction sequence, the reduction continuum can be modeled as a series of discrete steps (Raab et al. 1979). Debitage classification is therefore the analyst's attempt to describe and quantify the lithic reduction activity undertaken on a particular site.

Decortication flakes are the byproduct of the initial processing of raw material, and these are typically large flakes with cortex or

rind extending over more than 50% of a flake's dorsal surface. Primary debitage results from further modification of the preform. These relatively thick flakes exhibit few dorsal flake scars and may have up to 50% of the dorsal surface covered with cortex. Secondary flakes are somewhat thinner and typically exhibit no cortex at all. Tertiary flakes, representing the final stage in the sequence and subsequent resharpening of tools, are typically small, thin, and show complex flake scar patterns on the dorsal surface. The angle formed between the platform and dorsal surface on tertiary flakes is usually acute, and associated with this acute platform angle is a high incidence of platform lipping.

Block debitage consists of angular pieces which do not typically display flake attributes. Clark (1984) has suggested that block fragments result from the initial testing of the raw material by the knapper. Thus, he places block debitage early in the lithic reduction sequence. Only four such specimens have been identifed in the assemblage, and because of their equivocal place in the reduction sequence they are herein omitted from further consideration.

Fragments, the final category of debitage, is a catch-all designed to include all flakes not assignable to one of the other categories. Since it is possible for fragments to represent any stage in the reduction sequence, they have likewise been omitted from further consideration.

A total of 456 pieces of debitage comprise these categories, of which 360 can be assigned to a specific stage of reduction (Table 2). Flakes representing late stages in the reduction sequence (i.e. secondary and tertiary specimens) dominate, aggregating 257 pieces or 71.4% of all flakes assigned to a specific stage. When we

consider only the exotic materials, the percentage (90.6%) is even more striking. By way of comparison, flakes of known local sources comprise only 70.6%. The dominance of late stage lithic reduction at Jean Klock Park is taken as evidence of chert being brought here in semiprocessed (preform or blank) form for final shaping and sharpening prior to use.

CORES AND TOOLS (BOTH FORMAL AND INFORMAL):

In this section of the report, the following categories of implements are presented: modified/utilized flakes; bifaces; bladelet and bladelet cores; and bipolar lithics.

Modified/Utilized Flakes:

Seven specimens represent flakes that have either been deliberately modified or show damage indicative of use as a tool. Three of these show clear evidence of intentional modification along at least one margin. One is a unifacially modified flake of Upper Mercer chert, and another of Deer Lick Creek chert is unifacially work on the ventral surface along a slightly convex edge. The last intentionally modified specimen, made on a primary flake of Burlington chert, appears to be a hafted knife (Fig. 5:B). The right lateral margin of the dorsal surface exhibits unifacial retouch for a length of 22.2 mm, and the proximal portion appears to have been modified for hafting, having upward sloping asymmetrical shoulders and a straight stem. No grinding in evident, however.

Four flakes that exhibit edge damage appear to have functioned as expedient tools. While the damage to the margins may be coincidental, we believe that these specimens display such regular edge wear that it is most probable to attribute the damage to deliberate use. One decortication flake on Deer Lick Creek chert shows edge

damage on the right margin of the dorsal surface. This wear pattern extends for 21.2 mm along an irregularly shaped margin. Two primary flakes of unidentified material are also interpreted to be utilized flake tools. One has unifacial damage on two margins, one area on the right edge of the ventral surface and the other on the right edge of the dorsal surface. In the case of the former, the margin is subconcave; the margin of the latter is straight. The second flake is roughly triangular, expanding rapidly from the platform. The distal edge of the dorsal surface shows use-wear damage. This utilized margin has two convex portions on either side of a deeply concave segment. Each shows damage. The final specimen is a piece of Burlington chert. This secondary flake exhibits damage along the subconcave right margin of the ventral surface.

Bifaces:

Lithic artifacts evidencing bifacial workmanship along all margins were placed in this category. It includes: a point; two biface fragments; and four preforms.

The only point found during either the Phase I or Phase II study was the proximal portion of an expanding stem or corner-notched form. It is broken at the neck, thus precluding any statements about blade attributes. The base is straight and has been bifacially thinned and lightly ground. The width at the base is 17.7 mm and at the neck 14.6 mm. It is made on chert from an unidentified source, and its temporal placement is uncertain due to its fragmentary condition. This point base could date from the Late Archaic to the Late Woodland period.

Two biface fragments were recovered from excavation units. One (Fig. 5: C) is a medial fragment of a relatively thick tool

(19.9 mm wide and 8.8 mm thick). This specimen is biconvex in cross-section and is made on an unidentified chert. The other specimen (Fig. 5: A) is made on a translucent brown chert. Little can be said about this fragment other than it is part of a relatively large (31.4 mm long) and quite thin (5.1 mm thick) biface.

Four specimens are preforms, representing stages along the continuum from unmodified to finished biface. Following Clark (1984), we segregated our specimens into three stages along this trajectory, with three Stage 1 and one Stage 2 preform being represented in the Jean Klock Park assemblage.

Stage 1 preforms result from the initial working of the raw material-the removal of decortication flakes. Generally, Stage 1 preforms have ovate shapes, are thick in cross-section, have large flake scars, and often exhibit the remnants of cortex. The three falling into this category are all made on locally available raw materials: Deer Lick Creek chert - 1; Purple chert - 1; and unidentified glacial material - 1.

Stage 2 preforms are the product of further shaping and thinning of Stage 1 preforms. Flake scars are smaller and more numerous, outlines more symmetrical, and yet the tool is still relatively thick in cross-section. One specimen from 20BE413 (Fig. 5: D) is such a preform. This large bifacial form is made on an unidentified, presumably local chert. It has not been made through bifacial reduction of a cobble, but rather is the result of bifacial working of a large decortication flake. It appears that modification of this ovate preform may have been aborted as a result of production error. The majority of the work is on the dorsal surface, a surface which still exhibits a considerable amount of cortex. The ventral surface

has far fewer flake scars. A flake scar originating at the proximal end of the ventral surface ends in a hinge fracture. The depth of the flake scar at the hinge line is slightly greater than 4.0 mm. It would seem that a flake was driven off the left lateral margin of the ventral surface in an attempt to thin the preform near the point of the hinge fracture. This effort was unsuccessful , and it was apparently at this point that attempts at further modification ceased.

No Stage 3 preforms, representing the final stage of thinning prior to modification of the hafting element, were recovered from the site.

Bladelet and Bladelet Cores:

Found on the site were one bladelet and one bladelet core (Fig. 6: D and E respectively). The bladelet conforms to most definitions of a blade (Crabtree 1982; Sanger 1970). It is more than twice as long as it is wide, exhibits flake scars parallel to the long axis of the blade on the dorsal surface, is triangular in cross-section, and has parallel lateral margins. The platform shows minimal preparation for the removal of the blade. The term bladelet is here used to emphasize the diminutive nature of this specimen and to distinguish it from much larger blades. This artifact is made on locally available Deer Lick Creek chert.

The bladelet core is also of this same material. It is 17.5 mm in length and has an asymmetric pentagonal cross-section, resulting from the removal of at least five bladelets. The flake scars, extending from one end of the core to the other, range in width from approximately 5.0-11.0 mm. This piece is a double-ended core, both ends serving as striking platforms for the removal of bladelets

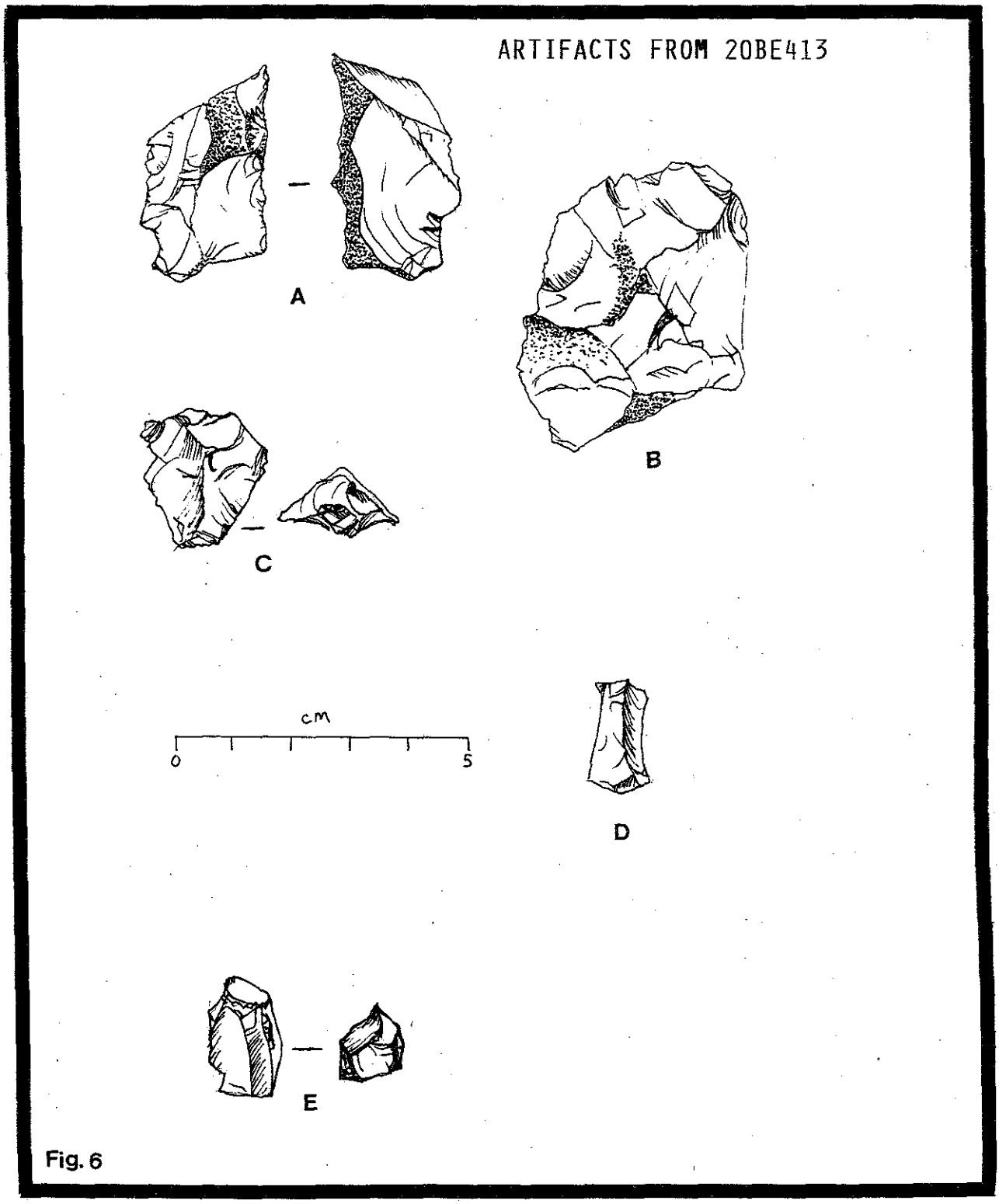

Fig. 6

Gregory Brubaker

(White 1963). Since both bladelet and core were fabricated on Deer Lick Creek chert, an attempt was made to see if the bladelet could be refitted to the core. While the two did not fit, the similarity in size of the bladelet and the scars on the core, the congruence in flake and flake scar curvature, as well as the similarity in platform treatment, are remarkable! It is very possible that the bladelet was removed from this core prior to those bladelets represented by the visible flake scars. This core is quite likely exhausted and no longer thought useful by the knapper, weighing a mere 2.9 g and with maximum cross-sectional dimensions of 11.0 mm and 10.0 mm.

Bipolar Lithics:

Bipolar percussion is another technique used in the production of stone tools; a technique which has been well documented in the Great Lakes region (Clark 1984). This method of manufacture involves the technique of "resting core, or lithic implement, on anvil and striking the core with the percussor" (Crabtree 1982:16). The resulting pieces evidence damage at the location of application of force, as well as the area of contact between core and anvil. The function bipolar pieces played is the center of much debate; some argue that these are cores, while others regard them as having been used as wedges. Clark (1984) dismisses the significance of this debate for southwest Michigan specimens, arguing that bipolar artifacts from this region fall into both categories of use.

Three specimens from 20BE413 show damage indicating use of the bipolar technique (Fig. 6: A, B, and C). All three are manufactured on locally available Deer Lick Creek chert, and all are of the opposed ridge type, with bipolar damage on the two ridge-like margins opposite one another (Binford and Quimby 1963). One piece (Fig. 6: C), in

particular, appears to have functioned as a wedge. This piece is very thick (11.4 mm) and has a prominent ridge running perpendicular from one ridged margin to the other. This ridge would have functioned to transfer the force of the blow to the opposite ridge (Clark 1984). This possible wedge weighs 3.9 g, while the other two bipolar pieces weigh 4.2 g and 2.2 g.

Comments on Lithics:

Lithic raw materials from this site document the ability of the site's inhabitants to obtain high quality cherts. Raw materials were procured from as far away as 500 km. These materials appear in disturbed contexts at the site; therefore, no information relevant to the use of lithic tools in either ritual or mortuary activities can be inferred (albeit a skeleton has reportedly been disinterred at this site in the recent past). We think it reasonable to postulate utilitarian applications for the stone tools, but no evidence of intersite patterning associated with such use can be illustrated, either.

The evidence from the classification of debitage by reduction stage and raw material source suggests that cherts arrived at the site as partially reduced and trimmed preforms, with only final shaping occurring here. That this suggestion in especially appropriate for the exotic raw materials is not surprising. The percentage of late stage reduction debitage is significantly higher than that recorded for locally available cherts. Be that as it may, all four preforms recovered are derived from either identified locally available chert or material thought to have a local source.

Two of three intentionally modified flake tools were made on exotic chert. Three of four expedient flake tools were fabricated

on local materials. While this is a very small sample, it is interesting to note that intentional modification of flakes is more frequently observed on nonlocal cherts, with locally available cherts being more commonly used to prepare expedient tools.

Little in the way of formal tools have been recovered from the site. The one point base is not diagnostic and is made on an unidentified raw material. The only other finished tools are represented by biface fragments. One was of an unidentified chert; the other translucent brown chert specimen may represent Hudson Bay Lowland chert. It is perhaps noteworthy that 8.3% of the lithic pieces on nonlocal material were tools, while only 1.6% of the local and unidentified cherts were so utilized. This apparent difference seems even more significant when considering the diminutive nature of most of the debitage of nonlocal origin-pieces frequently too small for further modification or use.

CERAMIC ASSEMBLAGE:

Thirteen body sherds were recovered during the Phase II study, with an additional rim sherd coming from the initial survey of the site in Fall 1990. All ceramics were carefully cleaned, avoiding the use of any abrasive which might alter or obscure surface treatment. The following observations were recorded for each sherd: interior and exterior color using the Munsell soil color charts; surface treatment; temper type; sherd thickness; maximum sherd dimension (measured using a series of concentric rings graded at 5.0 mm intervals); and sherd weight.

Due to limited sample size and small sherd sizes, considerations of ceramic typology for the Jean Klock Park site material are very tentative. Five of the specimens are extremely eroded, precluding any statements beyond noting the appropriate attributes listed above.

Four of the body sherds are similar to Allegan Ware as described by Brashler (1981). This ware is predominantly exterior cord-marked, with minority occurrences of smoothed-over cord-marked and fabric impressed surfaces. Vessels of this ware are tempered with grit, the largest pieces typically being greater than 2.0 mm. Vessel colors include: yellowish-brown; red-brown to cinnamon; and medium brown. Our specimens are either cord-marked or smoothed-over cord-marked on the exterior surface, and the colors recorded for the interior and exterior of the sherds also fall within the range proposed by Brashler (1981). Finally, Brashler (1981) believes that Allegan Ware persisted from approximately A.D. 500-1300 and had a distribution concentrated in the Kalamazoo River Valley, but possibly occurring as far south as the St. Joseph River. Thus, the four sherds from 20BE413, in terms of surface treatment, temper type and size, and geographical range, are consistent with Allegan Ware.

The single rim sherd features a very eroded exterior, precluding observation of surface treatment. The rim is straight, lacks any deliberate thickening, and the lip is flat in cross-section. Other than a single possible cord-mark oriented obliquely across the lip, no decoration is visible. Color and temper are similar to those described for Allegan Ware, as are rim form and treatment which are consistent with the type Allegan Undecorated Lip (Brashler 1981).

Four specimens feature grit temper that is almost exclusively dark, suggesting affiliation with Hacklander Ware. Kingsley (1989) describes this ware as having a sandy clay paste with black and white granitic temper. The other distinctive characteristics of Hacklander Ware are the presence of interior horizontal striations and striated, cord-marked, and smoothed exterior surface treatment (Kingsley 1989). Surface treatment on two of the dark grit-tempered

sherds from 20BE413 is smoothed-over cord-marking on the exterior of the vessel(s). One of these also possibly has interior striations, albeit difficult to discern. The other specimen is thoroughly eroded on the interior surface. Inasmuch as both were recovered from the same excavation unit, they may represent a single pot. Finally, the two remaining dark grit-tempered sherds appear to have smooth exterior surfaces, but both are too small to be absolutely certain. And one of them appears to have interior striations.

The evidence for the presence of Hacklander Ware on the Jean Klock Park site is equivocal at best, but should be considered a possibility. The distribution of this ware appears limited to southwest Michigan, in particular the Kalamazoo and Grand River valleys (Kingsley 1989). Temporal placement is also far from secure. While Kingsley (1989) believes that it dates to the latter part of the Late Woodland period, based on radiocarbon dates of A.D. 1020$\pm$110 and A.D. 1070$\pm$100 from the Hacklander site (Garland cited in Kingsley 1989), the excavator, Dr. Elizabeth Garland (personal communication) suggests that there are problems with these dates and is of the opinion that this ware should date much earlier, possibly ca. A.D. 600.

Although the assemblage is very small, some tentative remarks may be warranted. First, all of the ceramic data point to Late Woodland period occupation of 20BE413. Allegan Ware, or at the very least a most similar kind of pottery, is represented. Less certain is the evidence for Hacklander Ware. The temper characteristics for several of the sherds are quite similar to Hacklander Ware. Additionally, a few of the sherds exhibit possible interior striations. This is also characteristic of this ware. Finally, Allegan Ware has

a relatively lengthy temporal span, from the end of the Middle Woodland (ca. A.D. 500) until the end of the 13th century; thus this ware spans almost the entire Late Woodland period. If Hacklander Ware is present on the site, it would constitute evidence for the occupation falling earlier rather later in this time span, arguably anywhere from approximately A.D. 600-1100.

CONCLUSIONS AND RECOMMENDATIONS

Our Phase I and Phase II studies conducted for the City of Benton Harbor in Jean Klock Park have resulted in the discovery of 20BE413 and recovery from this site of a small collection of pre-historic materials dating from the Late Middle Woodland to the Late Woodland (Allegan Tradition?) period. This material has provided us with information regarding lithic resource procurement and stone tool manufacture on the part of the site's inhabitants.

Unfortunately, our Phase II work has established an absence of site integrity at Jean Klock Park; the archaeological sediments have been thoroughly disturbed as a result of construction activities undertaken by the city about 20 years ago when a lift station was located on the site. Hence, the interpretive potential of the site simply cannot be realized.

Be that as it may, the reported disinterment of a human skeleton and the recovery of a Snyders point by a neighbor suggest that the Jean Klock Park site may not have functioned merely as a resource procurement camp. While proximity to the old Paw Paw River channel and its adjacent wetlands can be anticipated to have provided some motive for locating a site here, the aforementioned observations did serve to pique our interest and the interest of the client in

sponsoring a Phase II study.

Given the absence of archaeological context across the site area, we can only recommend that additional research would prove fruitless. We have probably recovered all the useful information that this site has to provide. Hence, as the City of Benton Harbor continues to develop its master plan for the park, we would strongly suggest that no special attention need be given to the archaeological resource that we have identified as the Jean Klock Park site.

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