Phase I Archaeological Reconnaissance of the Shades Beach Park Study Area

By

A. G. Quinn

With Contributions By

J. E. Thomas and D. C. Hyland

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Report Prepared By
Mercyhurst Archaeological Institute
Erie, Pennsylvania 16546
for
Harborcreek Township
Harborcreek, Pennsylvania 16546

29 September 1994

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A Report of the Pennsylvania Department of Environmental Resources to the National Oceanic and Atmospheric Administration Pursuant to NOAA Award No. - NA370Z0351

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ABSTRACT

Phase I archaeological investigations were conducted by Mercyhurst Archaeological Institute (MAI) at Shades Beach Park, Harborcreek Township, Erie County, Pennsylvania, between 11 April 1994 and 28 April 1994. These investigations were undertaken in order to manage effects from planned improvements to the park by Harborcreek Township. Proposed improvements to Shades Beach Park include beach restoration, breakwater construction to develop a safe harbor and boat launching facility, and the construction of necessary access road(s), parking facilities, and other appurtenant features.

The archival research conducted for the Shades Beach Park Phase I reconnaissance identified no previously registered archaeological sites from any time period within the study area (see Research Methodology, above). A total of seven prehistoric archaeological sites are recorded on the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle, but none are situated within 1.6 km (1 mi) of the study area (see Prehistoric Culture History, above). The components at these seven localities are reported to range from the Late Archaic (i.e., 36ER180) through Late Woodland (36ER63 and 152) periods. The locality closest to the study area is Terminal Archaic site 36ER165, which lies ca. 4 km (2.5 mi) to the northeast.

The Phase I archaeological investigation of the Shades Beach Park study area involved three principal tasks: (1) background documentary research on the environment, historic land-use, and culture history of the study area; (2) pedestrian reconnaissance and shovel probe testing of the study area; and (3) curation of recovered artifacts.

The pedestrian reconnaissance and shovel probe testing program was conducted by A. G. Quinn (supervisor), R. Davis, A. Linder, and C. Schaney from 11 April 1994 to 28 April 1994. After an initial pedestrian reconnaissance of the entire study area, 49 shovel test probes measuring ca. 60 cm (23.4 in) in diameter were emplaced within the Shades Beach Park study area at 15 m (49.5 ft) intervals along transects oriented to true north. Shovel test probes were *not* emplaced in those portions of the park which: (1) will not be impacted by proposed development plans; (2) were under water, concrete, or the footprints of existing buildings; (3) had steep slopes; (4) were otherwise clearly and severely disturbed.

The Phase I archaeological investigation of the Shades Beach Park study area conducted by MAI identified no significant cultural resources within the area to be impacted by the township's proposed development plans.

Thirty-seven Historic period artifacts were recovered during the Phase I shovel probe testing program. This Historic period assemblage is dominated recent by twentieth-century bottle glass and plastic fragments, and the distribution of this assemblage over 49 shovel test probes is considered diffuse. The identification of a single fragment of lumber and concrete in shovel test probe 90R120 indicates the former presence of a structure in the vicinity of the probe. Local informant interviews suggest the structure was a small outhouse associated with the park

Considered as a whole, the materials recovered during the Phase I investigations of the study area are not of sufficient number, concentration, association, or context to indicate the presence of potentially significant prehistoric or Historic period cultural resources. No additional cultural resource management work is recommended for the study area.

PROJECT SETTING

Shades Beach Park is located in north-central Harborcreek Township, adjacent to Lake Erie and north of State Route 5 (East Lake Road) (Figure 1). The park encompasses an area of ca. 14 acres (5.7 ha) with the approximate center of the park situated at UTM coordinates 585510 easting, 4670900 northing, Zone 17 (U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle). The northwestern portion of Shades Beach Park (ca. 7.5 acres [3 ha]) is wooded, and will not be impacted by the township's proposed development plans. The northeastern area of the park is currently utilized as a parking area (ca. 1.5 acres [0.6 ha]), and has been heavily disturbed. The parking area is bounded to the north by privately owned lots and to the east by a dirt access road. The southern half of Shades Beach Park includes areas covered by lawn, woods, or gravel fill (Figures 2 and 3). This portion of the park currently contains recreational facilities, such as horseshoe pits, concrete shuffleboard courts, and playground equipment, as well as picnic pavilions, rest rooms, and various other small cement-block structures.

Elevation within Shades Beach Park ranges from ca. 655 ft (198.5 m) above mean sea level (msl) in the northwestern wooded section of the park to ca. 570 ft (172.7 m) above msl at the Lake Erie shoreline. The south-central area of the park, which will be impacted by the construction of an overflow parking lot, is relatively flat, with an elevation of ca. 610 ft (184.8 m) above msl.

With the exception of moderately well drained soils in its wooded northwestern area, soils within Shades Beach Park are poorly to very poorly drained. Three wetland areas have been defined within and/or adjacent to these sections of the park, and a fourth has been identified on private property immediately east of the access road to the park. A small unnamed stream flows through Shades Beach Park from southeast to northwest, and enters Lake Erie to the west of the park.

Soils within Shades Beach Park ascribe to the Birdsall and Berrien series (Taylor 1960). In the flat-lying, south-central portion of the park, where the shovel probe testing program was focused (see the Research Methodology and Results sections, below), soils consist of Birdsall silt loam. These very poorly drained soils are derived from lacustrine deposits of glacial origin laid down in still or slack water conditions (Taylor 1960:62). Surface soil consists of very dark grayish brown to very dark gray silt loam which has a moderate, fine granular structure and is friable when moist (Taylor 1960:62). The silt loam to silty clay loam subsoil ranges from yellowish brown through grayish brown to gray in color and contains distinct mottles.

Soils of the Berrien series are found in the wooded northern area of Shades Beach Park. These soils occur on 8-25% slopes and are deep, moderately well drained, fine sandy loams derived from lacustrine sands that were sorted and deposited through water (Taylor 1960:60-61). Beneath a thin layer of leaf mold is an upper stratum of dark brown to yellowish brown fine sandy loam which is friable when moist. Underlying this stratum is a mottled dark yellowish brown to dark reddish brown firm pan subsoil which is slowly permeable to air and water. Beneath this hardpan is a gray calcareous sandy clay that is structureless, very hard when dry, and plastic when wet.

CULTURE HISTORY

Prehistoric Culture History

The prehistoric culture history of northeastern North America is often divided into three broad, sequent and overlapping cultural/chronological episodes known as the Paleo-Indian, Archaic, and Woodland periods. In recent years, the possibility of a pre-Paleo-Indian occupation of this region has been recognized by a growing number of researchers (Adovasio, Boldurian, and Carlisle 1988; Adovasio

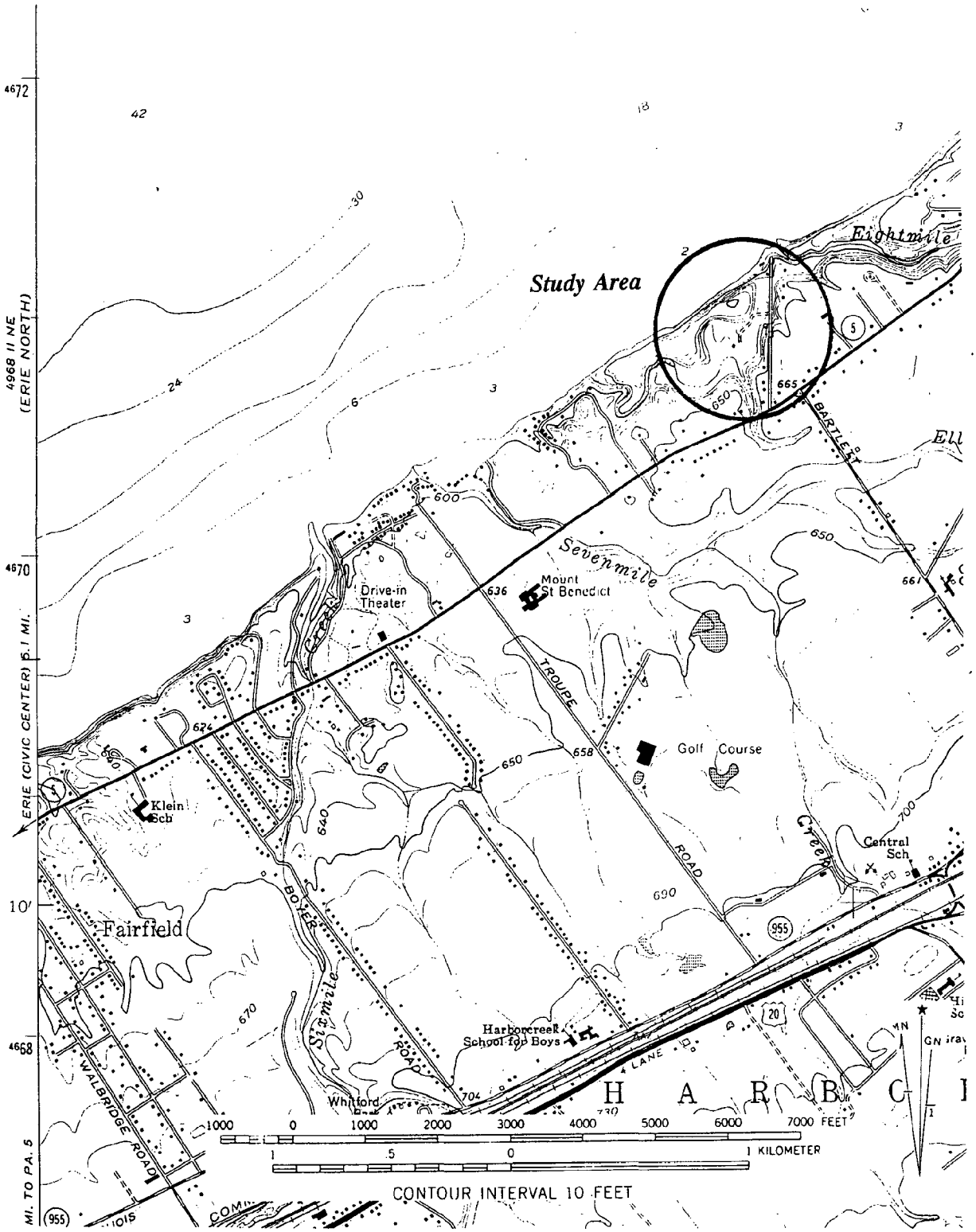

Figure 1. Location of the Shades Beach Park study area in Harborcreek Township, Erie County, Pennsylvania (from the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle).

Figure 2. General view of the Shades Beach Park study area, facing northeast.

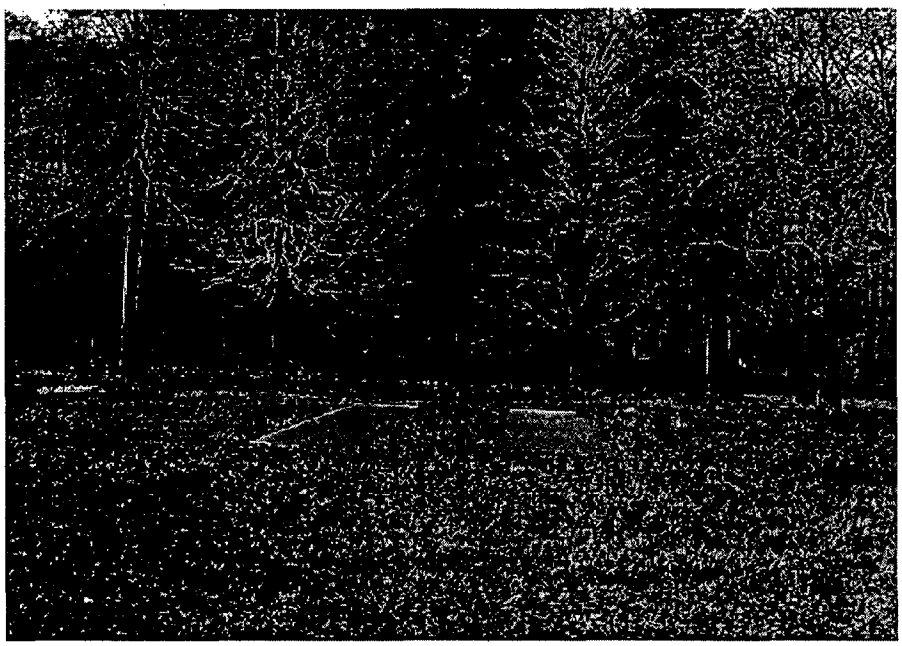

Figure 3. General view of the Shades Beach Park study area, facing south.

1993; Fagan 1987; Morlan 1988). The following discussion will briefly review the culture history of northwestern Pennsylvania and contiguous regions of western New York and northeastern Ohio in terms of these four major periods. Sites in the immediate vicinity of the project area which have been recorded by the Bureau of Historic Preservation on the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle are also described by period.

Pre-Paleo-Indian and Paleo-Indian Periods (ca. 15,000-8500 B.C.)

The pre-Paleo-Indian and Paleo-Indian periods encompass the terminal stages of the Late Wisconsinan glaciation of the Pleistocene epoch from the Woodfordian maximum to the Two Creeks Interstadial (ca. 15,000-8500 B.C. [Dreimanis 1977; Hough 1958; Muller 1977; Schooler 1974; White, Totten, and Gross 1969]). Although the Late Pleistocene environment of Pennsylvania is imperfectly understood at present, it appears that a mosaic of periglacial habitats coexisted, with tundra or steppe tundra conditions at higher elevations and short-lived combinations of boreal and deciduous floral elements at lower elevations (Adovasio 1993:207). Some of these "ecologically anomalous" vegetational communities apparently have no modern analogues (Porter 1988:19).

The first inhabitants of what is now the Commonwealth of Pennsylvania appear to have entered this mosaic of environments prior to the 11,500 B.P. benchmark provided by the first makers of fluted projectile points. Although no pre-Paleo-Indian sites are recorded for northwestern Pennsylvania, Meadowcroft Rockshelter, located 47 km (29.2 mi) southwest of Pittsburgh, Pennsylvania, and ca. 220 km (136 mi) southwest of the study area, provides compelling evidence for early occupation of the Commonwealth. This sandstone rockshelter, situated on the north bank of Cross Creek, a tributary of the Ohio River, demonstrates well-defined stratigraphy, artifacts of indisputable human manufacture, and clear stratigraphic associations between its 52 radiocarbon dates and numerous artifacts and ecofacts. The most recent review of Meadowcroft by the principal investigator of the site (Adovasio 1993:207) notes that even if an extremely conservative interpretation of the radiocarbon data is applied, the average of the seven deepest dates associated with cultural material indicates that humans were definitely present in the Commonwealth by ca. 15,950 B.P.

The flaked stone artifact inventory of the earliest inhabitants of Meadowcroft Rockshelter contains small, prismatic blades that were detached from small, prepared cores (Boldurian 1985; Boldurian and Adovasio 1986). The debitage sample reflects secondary and tertiary core reduction and biface thinning from late-stage manufacture and the refurbishing of finished implements. A small, unfluted, lanceolate biface called the Miller Lanceolate projectile point was recovered in situ and bracketed by radiocarbon assays of 12,000 $\pm$ 870 B.P. and 11,300 $\pm$ 700 B.P. Together with the prismatic blades, the Miller-type specimen reflects an early and sophisticated knowledge of flaked stone tool manufacture.

Raw materials from a fairly far-flung series of quarries were utilized by the earliest inhabitants of Meadowcroft, and include Flint Ridge in Ohio, several Kanawha chert sources in West Virginia, Pennsylvania jasper quarries well to the east of the site, and the local Monongahela chert outcrops in the Cross Creek drainage (Adovasio 1993:209).

The lithic data from Meadowcroft Rockshelter suggests that the first known inhabitants of Pennsylvania employed an essentially curated, technologically standardized and sophisticated, small, polyhedral-core- and blade-based lithic industry (Adovasio 1993:209).

Identifiable faunal and floral remains from the earliest occupation levels at the rockshelter are few, but suggest the exploitation of white-tailed deer (*Odocoileus virginianus*), hickory (*Carya* spp.), walnut (*Juglans* spp.), and hackberry (*Celtis* spp.) (Adovasio 1993:213).

The first highly visible, widespread, and undisputed archaeological sites in North America are between 11,500 and 11,000 years old and belong to the Paleo-Indian cultural tradition called Clovis, best known from the Southwest and Plains provinces of the United States (Grayson 1988:119). In these

regions, the distinctive Clovis fluted points are often associated with the remains of large, now-extinct mammals, such as mammoth, mastodon, camel, horse, and tapir.

In Pennsylvania and the Northeast generally, however, no direct association between extinct Pleistocene megafauna and Paleo-Indian cultural remains has yet been documented (Vento and Raber 1993:2). Rather, most Paleo-Indian sites in the Northeast consist of sparse lithic assemblages of widely scattered or solitary tools, such as fluted points, spurred/keeled unifaces, end scrapers with graver facets, and blades, and often occur in upland settings. Although megafauna, including mammoth and mastodon, were available, most data suggest a reliance on caribou by Paleo-Indian peoples of the Northeast, perhaps augmented by white-tailed deer in the more temperate locales of the region (Cleland 1965; Fitting 1966; Guilday 1969; Kopper, Funk, and Dumont 1980; Speiss, Curran, and Grimes 1984; Johnson and Siemon 1991). Recent analysis of the faunal assemblage from the Udora site in south-central Ontario, Canada, also indicates a Paleo-Indian caribou adaptation for northeastern North America (Strorck and Spiess 1994).

Many Paleo-Indian sites recorded in the Northeast have been disturbed by cultivation or construction activities, resulting in a frequent loss of stratigraphic context and a dearth of radiocarbon dates. Sites with intact or partially intact deposits include Shawnee-Minisink (36MR43) on the Delaware River in eastern Pennsylvania (McNett 1985; Dent and Kauffman 1985); Shoop (36DA20) on an upper branch of Armstrong Creek in Dauphin County, Pennsylvania (Witthoft 1971); Dutchess Quarry Caves No. 1 and No. 8 in the Wallkill River Valley of Orange County, New York (Funk, Walters, and Ehler 1969); West Athens Hill, near Catskill, New York (Ritchie and Funk 1973); Debert in Nova Scotia (MacDonald 1968); and Bull Brook in northeastern Massachusetts (Byers 1955). A suite of radiocarbon dates from the Debert site suggests occupation from ca. 10,000 B.P. to 11,000 B.P. (MacDonald 1968).

In northwestern Pennsylvania, the Portage Escarpment and the Lake Plain physiographic province, which encompasses the study area, became ice-free and available for human occupation ca. 11,800 B.C. with the withdrawal of the Laurentide ice sheet from the Lake Border-Valley Heads moraine system (Johnson, Richardson, and Bohnert 1979:55). Although the Lake Plain around proto-Lake Erie would have provided a resource-rich environment supporting a high bio-mass, evidence to date of Paleo-Indian habitation of this relatively narrow zone is scarce, and is restricted primarily to stray finds of diagnostic projectile points. Lantz (1984:213), for example, reports only two recorded Paleo-Indian sites within the Lake Erie drainage. One is located on the Lake Warren strandline at the confluence of Elk Creek and Lake Erie in Girard Township, and the second is situated at the headwaters of Conneaut Creek, north of the Appalachian Escarpment (Lantz 1984:213).

Recorded Paleo-Indian loci are also scarce in the Glaciated Appalachian Plateau province adjacent to the Lake Plain. Lantz calculates a Paleo-Indian site density of one site per 101 km^2 (39 mi^2) for the physiographic province (Lantz 1984:213). Most of these Paleo sites appear to cluster on glacial features near post-glacial lakes, swamps, streams, and rivers, particularly the Allegheny River and its tributaries (Lantz 1984:219). These settings may have provided prime locations for ambush hunting of caribou herds as they funneled north and south during their annual migration cycle (Johnson, Richardson, and Bohnert 1979:56). Twenty-four Paleo-Indian sites are reported for Crawford County in the Conneaut Lake, French Creek, and Sugar Creek drainages, with six sites concentrated on glacial terraces of Leboeuf and French Creeks in Erie County just south of Waterford, Pennsylvania (Lantz 1984:219).

No Paleo-Indian sites have been recorded within the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle.

Archaic Period (ca. 8500-1000 B.C.)

With the final retreat of the late Wisconsinan glaciers, the Pennsylvania environment shifted to support more temperate woodlands. This environmental shift was apparently quite rapid, and was accompanied by changes in the subsistence strategies of the Commonwealth's prehistoric aboriginal

populations, perhaps in response to the presence of a greater diversity of plant and animal resources in the post-Pleistocene environment (Vento and Raber 1993:5).

The Archaic period is generally divided into Early, Middle, Late, and Terminal phases. Considerable continuity is evidenced between the Paleo-Indian and Early Archaic (ca. 8500-6000 B.C.) lithic tool kits, with the balance of the Early Archaic inventory remaining essentially the same (Johnson and Siemon 1991:9). Notable changes to this inventory include the evolution of projectile point styles to types, such as various barbed and tanged forms, more suited to the ambush hunting of white-tailed deer, and the addition of flaked stone adzes and celts (Johnson and Siemon 1991:9). Early Archaic projectile point types recorded in Pennsylvania include Kirk, Palmer, Stanly, Hardaway, MacCorkle, LeCroy, Kanawha, and various bifurcate forms (Coe 1964; Broyles 1971).

Johnson, Richardson, and Bohnert (1979:59-60) note a dramatic increase in the number of Early Archaic projectile points over Paleo-Indian points for northwestern Pennsylvania, a trend which is paralleled in the southwestern portion of the state as well. This increased point frequency from the Paleo-Indian period to the Early Archaic period is particularly marked in the Glaciated Appalachian Plateau, and may be linked to the rise of a Mixed Mesophytic forest with nut-bearing hardwood trees, which would have provided a broader subsistence base for deer-hunting human populations (Johnson and Siemon 1991:10).

The Middle Archaic (ca. 6000-4000 B.C.) appears to have been a period of decreased human occupation throughout much of Pennsylvania, including the Commonwealth's northwest corner, with fewer sites and diagnostic tools reported for this time. In the Lake Plain and Glaciated Plateau of Erie and Crawford Counties, points of the Big Sandy/Otter Creek series are the only diagnostic types clearly ascribable to the Middle Archaic, and are far less common than points of the preceding Early Archaic and succeeding Late Archaic. This apparent Middle Archaic population decline may be illusory, however, and may result from a failure by researchers to distinguish between Middle Archaic and Late Archaic assemblages.

The Late Archaic (ca. 4000-1800 B.C.) is interpreted as a period of increased cultural diversity and the attainment of heretofore "unprecedented" population sizes over much of the Northeast (Funk 1978:27). Late Archaic sites tend to be larger and richer in cultural remains, with evidence for seasonal hunting and gathering strategies in areas of maximum resource potential. Sites from this period typically include seasonal base camps as well as a variety of special-purpose loci used for hunting, fishing, gathering, food processing, or raw material acquisition (Vento and Raber 1993:7). In addition, there is evidence for the beginnings of mortuary ceremonialism and the expansion of regional exchange systems (Vento and Raber 1993:7).

In Pennsylvania, diagnostic projectile point types dating to the Late Archaic include those of the Laurentian Tradition, such as the Brewerton series, and Vosburg and Otter Creek points; those of the Lamoka Tradition, especially common in northeastern Pennsylvania; and those of the Narrow Point or Piedmont Tradition, such as Bare Island and Poplar Island points, especially common in southeastern Pennsylvania.

In northwestern Pennsylvania, points ascribable to the Brewerton phase represent the most common Late Archaic point series, and comprised ca. 25% of the diagnostic projectile points recovered during the Carnegie Museum's 1978 survey of Erie and Crawford Counties (Johnson, Richardson, and Bohnert 1979:63). Diagnostic artifacts of the Narrow Point Tradition and the Lamoka Tradition are less common in the area, with Lamoka points clustered along the upper Allegheny River's floodplain and the floodplain of its tributaries, such as French Creek (Johnson, Richardson, and Bohnert 1979:64).

The Terminal Archaic (ca. 1800-1000 B.C.) is often considered a semi-distinct transitional phase between the Late Archaic and Early Woodland periods, and is characterized primarily by stemmed projectile points such as Koens-Krispin/Snook Hill, Lehigh Broad, Perkiomen Broad, and Susquehanna Broad. A major addition to the utilitarian tool assemblage at this time is the carved steatite (soapstone) bowl, which is often associated with Susquehanna Broad and related points.

Although Koens-Crispin/Snook Hill and Perkiomen points occur at Terminal Archaic sites in northwestern Pennsylvania, Susquehanna Broad points are by far the most common point type for this period. The latter point type is frequently found on the Lake Plain and French Creek Valley, and is often manufactured from non-local rhyolite (Johnson, Richardson, and Bohnert 1979:68). Especially numerous on the Lake Plain to the west of Erie are Ashtabula points, an apparent relative of the Susquehanna Broad (Johnson, Richardson, and Bohnert 1979:68).

One site with a Late Archaic component (36ER180) and three sites with Terminal Archaic components (36ER164, 165, and 166) have been recorded in the vicinity of Shades Beach Park. Site 36ER180 is a multicomponent site located ca. 6.6 km (4.1 mi) northeast of the park on a terrace of a tributary of Twelvemile Creek. The Late Archaic period component at 36ER180 consists of points ascribable to the Brewerton phase. Site 36ER164 is a multicomponent site located ca. 7.1 km (4.4 mi) northeast of Shades Beach Park and ca. 0.1 km (0.06 mi) east of Cemetery Road. Although the site is alleged to have a Terminal Archaic component, no diagnostic artifacts for this period are described. Site 36ER165 is located ca. 4 km (2.5 mi) southeast of Shades Beach Park, ca. 1.5 km (0.9 mi) southwest of the intersection of Moorheadville Road and Interstate 20, and immediately south of the Norfolk and Western Railroad line on a tributary of Eightmile Creek. The Terminial Archaic component at 36ER165 consists of Susquehanna Broad points fashioned from Onondaga chert. Site 36ER166 is a Terminal Archaic site located ca. 4.7 km (2.9 mi) northeast of Shades Beach Park and ca. 0.1 km (0.06 mi) northeast of the intersection of Leet Road and Moorheadville Road on the lower terraces of Twelvemile Creek. A single Perkiomen point manufactured from Onondaga chert has been recovered from this site.

Woodland Period (ca. 1000 B.C.-A.D. 1550)

The Woodland period is a time of significant cultural change in Pennsylvania and the Northeast generally, and includes the development or elaboration of incipient horticulture, semi-permanent and permanent village life, far-reaching trade and exchange systems, and mortuary ceremonialism (Vento and Raber 1993:9). During the Early Woodland period (ca. 1000 B.C.-A.D. 1), however, continuity with the preceding Terminal Archaic is evident, and it is unlikely that local groups led a life considerably different from that of their immediate predecessors.

The major technological advance during the Early Woodland was the development of ceramic vessels for cooking and storage. Although isolated finds of Marcey Creek Plain pottery dating to the Terminal Archaic are reported for Pennsylvania, this technology becomes widespread in the Commonwealth only after ca. 1000 B.C. These early ceramic vessels are quite similar in design to the earlier steatite vessels, with straight sides, flat bottoms, and lug handles (Kent 1980:28).

At least three Early Woodland cultural complexes are represented in the archaeological record of northwestern Pennsylvania. One local cultural complex is apparently affiliated with the terminal Susquehanna Tradition and is characterized by Forest Notched points, tubular clay and stone pipes, and perhaps the earliest pottery in the region (Johnson, Richardson, and Bohnert 1979:69). The Forest Notched complex is most prevalent along French Creek, although it has also been identified in collections from the Lake Plain (Johnson, Richardson, and Bohnert 1979:70).

The existence of a second Early Woodland tradition in northwestern Pennsylvania is indicated by the occasional occurrence of the diagnostic Meadowood projectile point. The presence of Meadowood points throughout this corner of the Commonwealth suggests continued cultural ties with western and central New York and the Genesee Valley (Johnson, Richardson, and Bohnert 1979:71).

More numerous than the Meadowood points in Erie and Crawford Counties are variations of the Ohio Valley Adena stemmed point. These points, which are often manufactured from Flint Ridge chert, decline in frequency from the Ohio-Pennsylvania border to the Allegheny Valley, while the relative incidence of Forest Notched and Meadowood points increases over this distance (Johnson, Richardson, and Bohnert 1979:72).

By ca. A.D. 300 local early Middle Woodland groups in northwestern Pennsylvania and southwestern New York, especially those groups along the Allegheny River and its major tributaries, were participants in the Hopewellian Interaction Sphere. From ca. A.D. 300-500, Hopewellian artifacts and materials, and possibly Hopewell people, were moving from Ohio northeast through the Allegheny valley (Lantz 1989a:46). Artifacts and materials most diagnostic of the Interaction Sphere which are well-represented at sites in the Allegheny corridor include Chesser Notched, Manker, and Snyder points, flake knives of Ohio,lithics, gorgets, platform pipes, cache blades, ear spools, copper crescent gorgets, silver, copper, galena, obsidian, mica, ochre, and steatite (Lantz 1989a:47). At a number of Middle Woodland sites in the upper Allegheny valley, these exotic materials and artifacts are associated with burial mounds whose construction is reminiscent of the classic Hopewell mounds of central Ohio, with earth-fill construction, stone slab retaining walls, stone slab-lined cists, and covered burial pits (Johnson, Richardson, and Bohnert 1979:75).

Two of the most significant complexes of Hopewell-influenced Middle Woodland sites in northwestern Pennsylvania are those at Sugar Run Flats and Irvine Flats (Buckaloons) in Warren County. Sugar Run Flats is an extensive river terrace located ca. 19 km (11.8 mi) northeast of Warren, Pennsylvania, which is presently inundated by the Allegheny Reservoir. Sites exhibiting Hopewell traits extend north along the flats for several kilometers from the Berkabile #1 site (36WA15) and Berkabile Mound (36WA235) to the Langler Mound (36WA24) and include the Sugar Run Mounds and Village (36WA2) (Lantz 1989a:38).

Irvine Flats (Buckaloons) occupies a ca. 101.2 ha (250 acre) terrace of the Allegheny adjacent to the mouth of Brokenstraw Creek ca. 8.5 km (5.3 mi) southwest of Warren, Pennsylvania. Seven of the 10 recorded Middle Woodland sites on the Irvine Flats (36WA29, 30, 31, 95, 96, 97, and 98), including at least two of the Irvine Flats mounds, have concentrations of Hopewellian materials, including Chesser, Manker, and Snyder points, often manufactured from Ohio lithics such as Flint Ridge, Plum Run, and Coshocton, exotic prismatic flake knives, Hopewell ceramics, sheet mica, and cache blades (Lantz 1989a:39).

Early Middle Woodland Hopewellian manifestations in northwestern Pennsylvania, such as those at Sugar Run Flats and Irvine Flats, fit within Ritchie's Squawkie Hill phase Hopewell, which he defined on the basis of Interaction Sphere artifacts from a mound group adjacent to the Genesee River in western New York (Ritchie 1965:215).

By ca. A.D. 500 participation in the Hopewellian Interaction Sphere apparently ceased in northwestern Pennsylvania, as diagnostic Hopewell artifacts, materials, and traits disappear from the archaeological record. A new Middle Woodland phase, termed by Lantz (1989a:6) the Allegheny River phase, appears at this time and by its termination ca. A.D. 950 attains a distribution in the upper Allegheny valley from Warren, Pennsylvania, upriver to Olean, New York, and northeast toward Lake Erie. The Allegheny River phase is associated with the Raccoon Notched lithic assemblage, defined by Lantz (1989a:9) as consisting of five Raccoon Notched projectile point types, four drill types, strike-a-lights, and scrapers. The corner-notched Raccoon points are similar in form to Ritchie's Jack's Reef Corner Notched type, but are, in general, significantly smaller than the latter point type (Lantz 1989a:6). Triangular Levanna points are also frequently included in the lithic inventory of Raccoon Notched assemblages.

Three major Allegheny River phase regional centers have been identified in northwestern Pennsylvania, each associated with numerous smaller ancillary sites utilized for hunting and gathering or the procurement of raw materials. Each of the three centers (Sugar Run Flats and Irvine Flats on the Allegheny River, Warren County, and French Creek Flats on French Creek, near Waterford, Erie County) occupies an extensive terrace with a large catchment zone (Lantz 1989a:35). A settlement system of village removal was probably utilized, with each village abandoned for a new location several miles away when firewood was exhausted, houses rotted or flooded, or soil was depleted at the original locale (Lantz 1989a:36). This settlement pattern resulted in the scattering of occupational debris over a large

area at the regional centers. For example, Allegheny River phase materials dating from between A.D. 500-800 occur over 9 ha (22.2 acres) at the Melknick sites (36ER31 and 181) on French Creek Flats (Lantz 1989a:36).

At least four cultural entities have been identified in northwestern Pennsylvania during the Late Woodland period (ca. A.D. 1000-1550). These four are the Allegheny Iroquois or Erie, the Lake Plain Erie, the Mead Island culture, and the Whittlesey Focus. The Allegheny Iroquois/Erie occupied the Upper Allegheny valley from the river's confluence with Kinzua Creek to at least its confluence with Great Valley Creek above Salamanca, New York (Johnson, Richardson, and Bohnert 1979:78). Most of our knowledge of the Allegheny Iroquois is derived from an extensive archaeological salvage program conducted on the Allegheny Reservoir prior to the construction of the Kinzua Dam. The Allegheny Iroquois emerged from a Middle Woodland base and occupied the Upper Allegheny for some 700 years between ca. A.D. 800 and A.D. 1500, after which time the area was apparently abandoned by people with an Allegheny Valley Iroquois culture (Johnson, Richardson, and Bohnert 1979:81).

Ceramic evidence suggests that these proto-Iroquoian people interacted with the Lake Plain Erie to the north, the Whittlesey Focus to the northeast, and the Mead Island culture to the south (Lantz 1989a:2-4). A tribal-linguistic affiliation between the Allegheny Iroquois and the Lake Plain Erie has been suggested on the basis of similarities in material culture, particularly ceramics and textiles, as well as implied similarities in economic strategy (Johnson, Richardson, and Bohnert 1979:78).

Allegheny Iroquois villages were circular in plan and ranged from 40 m (132 ft) to over 100 m (330 ft) in diameter (Lantz 1989a:4). There is a trend over time to larger, palisaded settlements, with all known villages postdating A.D. 1100 possessing a stockade (Lantz 1989a:4). The rectangular long houses occupied by the Allegheny also enlarged over time, and by A.D. 1400 villages had multiple long houses which extended to over 30 m (99 ft) in length (Lantz 1989a:4).

Although faunal and floral remains are generally poorly preserved in the acidic soils of Allegheny Iroquois sites, the remains which have been recovered and the existence of numerous apparently contemporaneous nucleated villages in a relatively circumscribed area suggests a reliance on maize horticulture (Johnson, Richardson, and Bohnert 1979:82). The frequent location of villages adjacent to stream riffles suggests additional reliance on fishing (Johnson, Richardson, and Bohnert 1979:82).

The distribution of the Late Woodland-Proto-Historic Lake Plain Erie on the southern margin of Lake Erie is imperfectly understood at present, and has been a subject of considerable debate (White 1978; Bush 1984; Bush and Callender 1984). Much of the uncertainty about the range of the Erie is due to vague and sometimes contradictory ethnohistoric accounts by seventeenth century French Jesuits who, lacking direct contact with the Erie, obtained their information about this group second hand from other Iroquoian peoples (White 1978:412; Bush and Callender 1984:32). Although the Erie have been located by some researchers across the southern lakeshore from Buffalo, New York to Toledo, Ohio, and as far south as Virginia (Hoffman 1964), the most reliable ethnohistoric information and available archaeological data limits Lake Plain Erie settlement to the area from the Niagara Frontier region of western New York to approximately Conneaut, Ohio (White 1978:415; Lantz 1989a:26).

To date, only four major Erie sites from the Lake Plain south of Cattaraugus Creek have been reported on. These are the Westfield site (30CW1), situated on the Lake Whittlesey beach in Chautauqua County, New York; the Ripley site, on the bluffs directly above Lake Erie ca. 9.7 km (6.0 mi) from the Pennsylvania state line in Chautauqua County, New York; the Sceiford site (36ER8), located on the proglacial Lake Warren III beach ridge ca. 1.5 km (0.9 mi) west of the New York state line and ca. 1.5 km (0.9 mi) south of Lake Erie, in Erie County, Pennsylvania; and the East 28th Street site in Erie, Pennsylvania. In addition, the Orton Quarry site (36ER243), a major ossuary of possible proto-Erie affiliation, is located ca. 3.4 km (2.1 mi) east of the boundary of the Borough of North East, Pennsylvania. Although the analysis of materials from the Orton site is in its early stages—precluding a firm cultural placement—ceramic data suggest a Glen Meyer affiliation for the site with a minor representation of Allegheny Valley Iroquois decorative attributes (Dirkmaat et al. 1993:9).

As with the Allegheny Valley Iroquois, the Lake Plain Erie were semi-sedentary horticulturalists who also relied on seasonal fish runs. A pattern of village removal was probably practiced by one or more tribes occupying the Lake Plain, with sites such as Westfield, Ripley, Sceiford, and East 28th Street representing the villages of geographically separate groups of Erie, or successive removals of the same village group(s)(Johnson, Richardson, and Bohnert 1979:80). A recent re-examination of the Ripley site, however, suggests it may have functioned as a mortuary encampment rather than a village (Neusius, Sullivan, and Neusius 1993:15). Smaller sites, such as the Peacock site at the mouth of Chautauqua Creek, New York, the Griswold site (36ER56) at the mouth of Walnut Creek, the Reese site (36ER63) at the mouth of Twelvemile Run, the East Wall site (33AB40) at the mouth of Conneaut Creek, Ohio, the Sommerheim Park site (36ER155) located on the Lake Warren strandline near Presque Isle Bay, and three sites at or near the mouth of Elk Creek (36ER53, 160, and 161) may represent fishing stations utilized seasonally during spawning runs (Lantz 1982:61; Johnson, Richardson, and Bohnert 1979:79).

Jesuit accounts depict the demise of the Erie following a brief war with the Five Nations Iroquois in the mid-seventeenth century. It appears that the location of the Erie prevented the Five Nations from raiding and hunting for beaver in the Ohio Valley (Trigger 1978:355). Therefore, in order to remove this impediment to their fur trade with the French, a large Iroquois army composed primarily of Onondaga and Mohawks entered Erie territory in 1654 and destroyed several Erie villages, taking numerous captives (White 1978:416). Although fighting may have continued among the Five Nations and Erie for several more years, this campaign effectively marks the end of the Erie as a distinct cultural entity. Many of the Erie were absorbed by the Seneca while still others took refuge with the Susquehannock (Bush and Callender 1984:32).

Sites of the Late Woodland period Mead Island culture are found on islands, floodplain, and surrounding uplands of the middle Allegheny River and its tributaries. Although the complex is named for an island in the Allegheny River at Warren, Pennsylvania, and is known primarily from excavations in Warren County, Mead Island sites have been documented from the mouth of Conewango Creek downstream to Kittanning, Pennsylvania (Lantz 1989a:7). The temporal range for the Mead Island culture established by radiocarbon assays is ca. A.D. 800-1200 (Lantz 1989a:7).

Mead Island houses are circular, average ca. 8.0 m (29.0 ft) in diameter, and often contain a hearth and deep, cylindrical storage pit. At the Mead Island type site (36WA111), the houses and ca. 78 m (257 ft) occupation zone were enclosed within a stockade and double palisade trench (Lantz 1989a:9). Both grit-tempered and shell-tempered pottery occur at Mead Island sites, and it appears that shell was beginning to replace grit as a tempering agent by the time of the culture's disappearance from the archaeological record (Johnson, Richardson, and Bohnert 1979:85). Mead Island ceramics most closely resemble those of the Ohio Fort Ancient and Whittlesey, with rounded to conical bases, incipient castellations, collars, and small lug handles (Lantz 1989a:10). The lithic inventory from Mead Island sites includes triangular Levanna and Madison points, and, in contrast to the pottery, none of the points are classic Fort Ancient (Lantz 1989a:12).

Floral and faunal remains were well preserved at the Penelec site (36WA152) and suggest a subsistence pattern for Mead Island based upon maize horticulture supplemented by fishing and hunting and gathering. Identifiable food remains include Eastern eight-row maize, hickory, walnut, lamb's quarter, amaranth, drumfish, turtle, mussel shell, deer, turkey, rabbit, squirrel, bear, elk, passenger pigeon, and beaver (Lantz 1989a:14).

From the northwestern edge of Pennsylvania west of Erie, Pennsylvania, into northeastern Ohio to the Black River, a Late Woodland-Late Prehistoric period (ca. A.D. 900-1650) culture termed the Whittlesey Focus has been recognized since the 1930s (Brose 1978:574). The early phase (ca. A.D. 900-1300) Whittlesey sites consist of small lacustrine and floodplain summer horticultural villages, smaller autumn and spring fishing stations, and upland and beach ridge winter hunting camps (Brose 1978:574). Whittlesey sites are unfortified at this time, and the emphasis is clearly on seasonal movement (Brose

1976:71). Early phase ceramics are grit-tempered and cordmarked to the rim, and most closely resemble several Fort Ancient types (Brose 1978:275).

Middle and late phases of the Whittlesey focus (ca. A.D. 1300-1650) evidence an evolution from semi-permanent occupation sites to larger, fortified, permanent villages; the introduction of new crops and styles; intensification of maize-beans-squash agriculture; and population increase (Bush 1984:19). Oval house structures have been reported for the Whittlesey focus, Although by the late phase of the Whittlesey these structures may have become larger, they do not approach the size or configuration of Iroquoian longhouses (Bush 1984:19). Whittlesey burial practices also contrast with those of the Iroquois, with individual or small multiple burials the rule at middle to late phase Whittlesey sites. To date, there is no evidence that ossuaries were employed by the Whittlesey (Bush 1984:19).

Shell tempering of ceramics appears during the middle phase of Whittlesey and increases in frequency during the late Whittlesey phase. The relationship to Fort Ancient types continues, with Iroquoian types also comprising a significant proportion of the ceramic inventory by late Whittlesey (Brose 1978:580).

By the time of the initial European exploration of northwestern Pennsylvania and northeastern Ohio, the people of the Whittlesey focus had abandoned the southern shores of Lake Erie. Preliminary analyses of the skeletal population from the late phase Whittlesey site of Norma Granatham, dated to the early to middle seventeenth century, suggests that the introduction of European diseases, perhaps unknowingly spread by Iroquois who had come in contact with the French, may have contributed to the demise of the Whittlesey (Bush 1984:25).

Five sites with Woodland components (36ER63, 152, 164, 167, and 180) are recorded on the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle. Site 36ER63 is located on the east bank of Twelvemile Creek at its confluence with Lake Erie, ca. 5 km (3.1 mi) northeast of Shades Beach Park. A Late Woodland ascription for the site is indicated by Levanna points and grit-tempered, punctated, cordmarked ceramics. Site 36ER152 is located ca. 6 km (3.7 mi) northeast of the park, ca. 1.5 km (0.9 mi) east of Moorheadville Road and 0.4 km (0.3 mi) north of Interstate 20 on a knoll overlooking Twelvemile Creek. The site is alleged to date to the Late Woodland period on the basis of the recovery of an untyped triangular projectile point. In addition to its Terminal Archaic component, Early and Middle Woodland components are also recorded for 36ER164 on the basis of pottery and a ground stone artifact recovered from the site. Site 36ER167 is situated on a knoll overlooking Lake Erie ca. 8.1 km (5 mi) northeast of Shades Beach Park and ca. 3.1 km (1.9 mi) northeast of the confluence of Twelvemile Creek and the lake. An Early to Middle Woodland ascription for the site is suggested by the presence of triangular points and ceramics. In addition to its Late Archaic component, Early and Late Woodland occupations of site 36ER180 have been recorded. The Early Woodland component consists of Adena projectile points, while the Late Woodland component is characterized by Levanna points and grit- and shell-tempered ceramics. The specific cultural affiliations of all of these sites are unknown.

Historical Summary

by
J. E. Thomas
(with Contributions by D. C. Hyland)

Erie County

Erie County, Pennsylvania, was created by an act of the legislature dated March 12, 1800 (Warner, Beers and Co. 1884:138). This same act also created Butler, Crawford, Mercer, Venango, and Warren counties. As the northwestern area of the state was at that time poorly populated, a single governing body was established at Meadville, Crawford County. Erie, Crawford, Mercer, Venango, and Warren counties

were all governed from this seat until 1803, when the first county officers were elected in Erie County. Prior to the act of 1800, the land contained within Erie County was defined in turn as part of Lancaster, Cumberland, Bedford, Westmoreland, and Allegheny counties. In 1798, while still a part of Allegheny County, Erie Township was erected and its boundaries established in the same configuration as the present county borders.

Erie County is the northwesternmost county in Pennsylvania and provides the state with its only Great Lake port. Erie County is bounded on the north by Lake Erie; on the east by Chautauqua County, New York, and Warren County, Pennsylvania; on the south by Crawford County; and on the west by Ashtabula County, Ohio. The length of the county along the lake is ca. 72 km (45 mi); along Chautauqua and Warren counties its length is ca. 57.6 km (36 mi); along Crawford County its length is ca. 72 km (45 mi); and along Ashtabula County its length is ca. 14.4 km (9 mi). The land encompassed by these borders is 192,839 ha (476,515 acres). The county was named after Lake Erie, which was in turn named for the Erie Indians who previously inhabited the region. The county seat is located at Erie, Pennsylvania.

The northwestern third of the state including the land within Erie County south of 42° N latitude (the Pennsylvania-New York border) was purchased from the Six Nations (Iroquois) in 1784 in an agreement known as the second Treaty of Fort Stanwix. The land north of this latitude and extending to the lake, known as The Triangle, was not easily incorporated as part of Pennsylvania. No less than five states laid claim to this region: Pennsylvania, New York, Connecticut, Massachusetts, and Virginia (Warner, Beers and Co. 1884:194-199). King James I granted to the Plymouth Company "all the land lying in the same latitude with Connecticut and Massachusetts, as far west as the Pacific Ocean" (Warner, Beers and Co. 1884:194-95), thereby granting Connecticut's claim to the northern third of Pennsylvania. A congressional investigation of 1782 determined, however, that Connecticut had no right to The Triangle. Virginia claimed the entire territory west of a line drawn east of the Allegheny and Monongahela rivers. In 1786, it was agreed that the western boundary of Pennsylvania would extend northward from a point on the Mason-Dixon line 5° west of the Delaware River. New York's charter defined its western boundary as a longitudinal line drawn from the western end of Lake Ontario. But it was unclear whether the western end of the lake was to include Burlington Bay. Surveyors determined that the lake's western end was to be defined as the peninsula separating the bay from the lake proper. Thus, the western boundary of New York was set at ca. 32 km (20 mi) east of Presque Isle. Additionally, and by mutual agreement, the east-west boundary between New York and Pennsylvania was formally set at 42° N latitude in 1785. And at that time, this border, which excluded The Triangle, was accepted as the northern boundary of Pennsylvania. This configuration corresponds with the borders set by the Royal Charter of 1681 in which King Charles II granted William Penn claim to the lands between 39° N latitude and 42° N latitude and from the Delaware River westward for five degrees of longitude.

General William Irvine was sent by Pennsylvanian authorities to examine the lands to the northwest and reported that it would be desirable to secure the harbor at Presque Isle since the commonwealth had no harbor on Lake Erie (Warner, Beers and Co. 1884:196). After much negotiation, New York (1781), Massachusetts (1785), and Connecticut (date unknown) relinquished their claims on The Triangle to the United States Federal Government which in turn conveyed them to Pennsylvania in 1788. In 1792, Pennsylvania purchased the Triangle tract from the United States for $151,640.25 in certificates of debt plus interest. The Iroquois, however, still claimed title to the land.

While still negotiating with the federal government, Pennsylvania proceeded to obtain a release of the Triangle tract from the Iroquois (Warner, Beers and Co. 1884:196-199). This was accomplished in 1789 in exchange for $2,000 from Pennsylvania and an additional $1,200 from the U.S. government. However, the Seneca nation was dissatisfied with the cession of the Triangle tract, which they used as a hunting ground, claiming that they were not fairly represented. Thus, in 1792, the Pennsylvania legislature passed an act authorizing the dispersal of $800 for the purchase of The Triangle. However, the area of Erie County was still not secured against attack by the Six Nations until in August 1794, when General Anthony Wayne defeated the western confederation of Wyandots, Ottawas, Chippewas, and

Potawatomis at the Battle of Fallen Timbers (Lechner 1984:27-28). This defeat, in turn, caused the Iroquois to settle their differences with the United States and sign the Treaty of Canandaigua in November 1794.

In 1792, the General Assembly of Pennsylvania passed an act for the laying out of the town of Presque Isle, otherwise known as Erie (Whitman 1896:387-89). This act mandated the survey of 1,600 acres (647.5 ha) of inlots or town lots measuring of 0.33 acre (0.13 ha) each and an adjoining survey of 3,400 acres (1,376 ha) partitioned into 5-10 acre (2-4 ha) outlots. A subsequent act was passed in 1795 which superseded the 1792 act and was more specific in outlining how the town, now to be called Erie, was to be laid out.

In June 1795, Generals William Irvine and Andrew Ellicott arrived to lay out the town, accompanied by surveyors and a company of state militia. The town was laid out in three adjoining sections along the bayfront (Irvine and Ellicott 1795). Each section was ca. 1 mi^2 (2.59 km^2) in area, and each was to be provided with a central public area. All of the sections extended from the bay, south to Twelfth Street. The First Section ran from Parade to Chestnut Streets, the Second Section from Chestnut to Cranberry Streets, and the Third Section from Cranberry to West Streets.

Erie was incorporated as a borough in 1805 (Whitman 1896:389). Previously, it had been a part of Millcreek Township. In 1832, the Third Section was donated to the borough by the Commonwealth, divided into 50 acre (20.2 ha) lots, and sold to the highest bidder. The proceeds of this sale were to be used for the construction of piers, wharves, and a canal basin along the waterfront. In 1840, the borough was divided into East and West wards which corresponded to the eastern and western halves of the First Section. A city charter was granted in 1851 and in 1858 the city was divided into four wards. The two additional wards extended south of the original two. In 1870, the borough of South Erie was consolidated with the city, thereby comprising the Fifth and Sixth wards. The boundaries of these wards were redefined a number of times throughout the nineteenth century.

Early Settlement of Erie County

The principal Historic period Native American trail through Erie County is the Lake Shore Path (Wallace 1971:85-87; Figure 4). The Lake Shore Path paralleled the southern shore of Lake Erie and ran from Sandusky, Ohio, through Conneaut, Ohio; Erie, Pennsylvania; North East, Pennsylvania; Westfield, New York; and then to Buffalo, New York. East of Erie, Pennsylvania, the path was set back from the lakeshore and traversed a low, morainic ridge presently occupied by U.S. Route 20. West of Erie, Pennsylvania, the path diverged into two, one hugging the shoreline and the other set back from the shoreline running along the top of the bluff.

Of the two westerly routes, the shoreline path provided easier travel, but was only accessible when water levels were low. Evidence for the existence of the beach route is provided by Jacob Eyerly, a Moravian who in 1794 walked along the beach from Erie to the vicinity of Conneaut, Ohio, in a single day. John Adlum's 1789 map *Reserve Tract at Presque Isle* shows the fort at Presque Isle, a road extending southward to Fort LeBoeuf (a portage route connecting the Lake Erie and Ohio River drainages established by the French), and a path beginning at this road ca. 1,500 m (4,920 ft) south of the fort and extending to the west only (Adlum 1789). Adlum provides no evidence for the existence of a beach route. However, as his map is little more than a well-drafted sketch, its veracity as to the presence and placement of Native American trails may not be wholly accurate.

During the Historic period the Lake Shore Path was used as the principal means of communication between the Iroquois and western Native American groups. Evidence for such communication comes from a letter written by Isaac Craig at Fort Franklin to Lieutenant Jeffers, which states that the Miami Confederates would pass through Conneaut at the lake rather than through Cussewago (Meadville, Pennsylvania) when travelling to meet with the Iroquois.

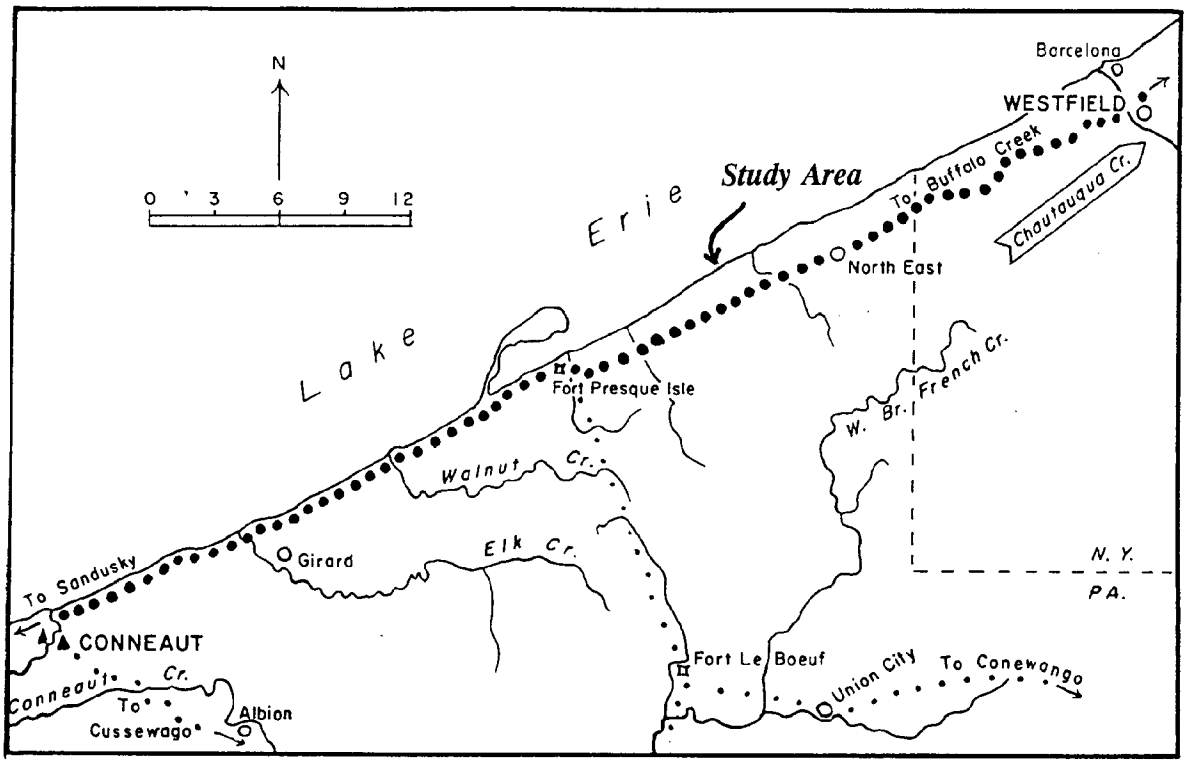

Figure 4. Route of Lake Shore Path in the vicinity of the Study Area (from Wallace 1971:87).

Little is known of the early Native American habitations in the greater study area. Kolb (1981:33) states that "no European ever visited an Erie community," and information concerning the Erie comes primarily from the *Jesuit Relations*. According to Kolb (1981:38), three archaeological sites in this portion of northwestern Pennsylvania may be considered as Erie: the Ripley site, the East 28th Street site, and the Wesleyville site. The Sceiford site (36ER8) is defined by Lantz (1989b:2) as a Lake Plain Iroquois (Erie) occupation. Additionally, excavations at the recently discovered Orton site (36ER243) in North East Township may have identified a possible Erie or proto-Erie occupation. What is known about the Erie is that they inhabited the southern shores of Lake Erie and were dispersed between A.D. 1640 and A.D. 1656, when they suffered their final defeat at the hands of the Senecas and their allies (Kolb 1981:41).

The first Euro-Americans to set foot at Presque Isle were the French, who erected Fort de la Presqu'ile in 1753 (Parkman 1991:424). The French entered the area south of Lake Erie in response to British resolve to secure the valley of the Ohio River. Governor Dinwiddie of Virginia dispatched George Washington to deliver a message to the French at Fort LeBoeuf demanding that the French retreat from the territory claimed as belonging to the British crown. In 1758, General John Forbes captured Fort Duquesne. In the following year, the French abandoned and burned the forts south of Lake Erie, including the fort at Presque Isle. These strategic locations, at Venango, LeBoeuf, and Presque Isle then passed into the hands of the British. In 1760, the British erected a fort on Presque Isle at the approximate location of the former French fort (Claridge 1982:5). It was burned to the ground in 1763 during Pontiac's Conspiracy. As late as 1785, after the signing of the peace treaty in Paris, the British still had a small garrison at Presque Isle. The fort then passed into the hands of the Americans, but the area remained unsafe for settlement for some time.

The first Euro-American settler to remain at Erie was Thomas Rees, a Deputy Surveyor, who arrived in the spring of 1795 and was joined by his wife that same year. Rees was hired in 1792 by the Pennsylvania Population Company (PPC) to survey the 390 warrants secured in the Erie area prior to their settlement. Native American hostilities delayed Rees's survey until 1794 (Stoffa-Wieczorek 1991:7). As partial compensation for the survey work, Rees purchased, from the PPC, a tract of 30,000 acres (12,146 ha) in two 15,000 acre (6,073 ha) parcels. One of the parcels, referred to as "Rees Reserve," included the eastern section of the City of Erie, the western portion of Harborcreek Township, and a portion of Millcreek Township (Stoffa-Wieczorek 1991:10). Rees established the first real estate office in a log cabin on the bay in Erie where he served as an agent for the PPC. Judah Colt replaced him as agent when Rees became the state commissioner for the sale of lots in 1796.

The second individual to settle in Erie was Captain John Grubb, who commanded the state militia accompanying Generals Irvine and Ellicott, the two state commissioners who were appointed to lay out the town. Both Rees and Grubb remained in Erie until their deaths. William Miles and William Cook, accompanied by their wives, settled in the southern part of the county. Colonel Seth Reed, accompanied by his wife and sons, arrived by sail boat from Buffalo and also took up residence in the county in 1795. Captain Martin Strong stated in a letter that he arrived in Erie in 1795 to find only four families (i.e., the Reed, Talmage, Miles, and Baird families) residing in Erie (Stoffa-Wieczorek 1991:15).

Seth Reed and his wife Hannah built the first actual house in Erie, near the mouth of Mill Creek. Made of logs and stone, Reed opened it as a public house named the Presque Isle Hotel, which became the first tavern in Erie (Everts, Ensign, and Everts 1876:19; Wellejus 1980:11). In 1796, Colonel Reed moved 6.4 km (4 mi) south of Erie on Walnut Creek, and his son, Rufus, became the proprietor of the tavern. Rufus Reed and his son, Charles, became leading citizens in Erie and figured prominently in the growth of the city.

In all, ca. 40 settlers arrived during 1795 (Warner, Beers and Co. 1884:229). Many of the subsequent settlers in the area originated from southwestern Pennsylvania and travelled to Erie via the Venango Path and the Presque Isle Portage (Lechner 1984:23). This route offered an overland alternative to the river route connecting the Forks of the Ohio and Lake Erie.

One such person was Daniel Dobbins (1776-1859) who arrived in Erie in 1796 after spending a year working for PPC agent Judah Colt, at Colt's Station (Wellejus 1980:19). Upon his arrival at Erie, Dobbins entered into naval work and quickly became one of the lake's primary navigators. He and Rufus Reed entered into several merchant marine ventures including the purchase and rebuilding of the *Salina* (Wellejus 1980:19).

Dobbins played an integral role in the War of 1812 and the famous Battle of Lake Erie. At the outbreak of war, Dobbins and the *Salina* were captured and released twice by the British who had a large fleet cruising the lake. His report of the capture and British operations on Lake Erie prompted Washington authorities (in September 1812) to grant Dobbins a naval Sailing Master's commission and issue orders to commence building gunboats in Erie. Dobbins returned home from Washington and began recruiting workers (Wellejus 1980:21; Reed 1925:340: Everts, Ensign, and Everts 1876:19).

In March 1813, Lieutenant Oliver Perry was sent to the newly established naval harbor at Erie to direct operations. Daniel Dobbins and his crew of 300 workers were well into ship-building when Perry arrived. By early August, Perry and Dobbins had completed construction of six gunboats: the *Lawrence, Niagara, Ariel, Tigress, Porcupine,* and *Scorpion*. Perry's small fleet, bolstered by five ships brought in from Buffalo, met the British navy off the coast of Put-in-Bay near Sandusky, Ohio, on September 10, 1813. Within three hours, the American squadron, consisting of nine ships, defeated the British squadron of six ships (equipped with greater number of guns) in the Battle of Lake Erie. With the victory, Perry sent the famous message to General William Harrison, "We have met the enemy and they are ours." (Reed 1925:343; Wellejus 1980: 25-26) .

The battle did not end the war, but it did clear Lake Erie of British opposition and paved the way for General Harrison's victory at the Battle of the Thames in Ontario (Wellejus 1980:26). Although not a participant of the actual battle, Dobbins was always viewed, particularly in Erie, as a hero of the great battle. He continued to live in Erie and became a leader in civic affairs.

Early Transportation in Erie County

Road construction in Erie County had its beginnings in 1753 with the road built by the French, connecting forts at Presque Isle and LeBoeuf (presently known as Waterford). It was 34 years, however, before another road was surveyed in the county. Pennsylvania Population Company agent Judah Colt opened a road in 1797 from the mouth of Sixteenmile Creek (present-day Freeport) to his agency station (present-day Colt Station) near Greenfield. It was extended the next year to the forks of French Creek (present-day Wattsburg). In 1800 a road from North East to Wattsburg was opened paralleling, but running east of, the one from Freeport (Reed 1925:328; Spencer 1962:133).

Construction quickened during the early 1800s, with roads being built connecting Erie to Buffalo (Buffalo Road [U.S. Route 20]) in 1805; Erie to Cleveland (Ridge Road [U.S. Route 20]) in 1805; Northeast to Waterford in 1804; Erie to Ohio and New York borders (Lake Road [State Route 5]) in 1806; and Wesleyville to Colt Station (Colt Station Road [State Route 430]) in 1813.

Several toll roads were constructed by private companies, who also extracted fees for their use. One of the earliest, the Erie and Waterford Turnpike Company with Judah Colt as treasurer, built the Erie and Waterford Turnpike (present-day U.S. Route 19) in 1805. Surveyed by Captain Martin Strong (who also manned one of the toll houses), the road facilitated the transport of goods over the portage from Lake Erie to Lake LeBoeuf and hence, to Pittsburgh via a river route (Spencer 1962:134). Until 1819 and the discovery of salt wells near Pittsburgh, the principal business of the City of Erie and the Erie and Waterford Turnpike was the transport of salt, which was being shipped over Lake Erie from Buffalo. More than 6,000 barrels were hauled across the turnpike in 1806 (Spencer 1925:230) with teamsters receiving $1.50 per barrel (Spencer 1962:134; Reed 1925:333).

Stage routes were established between Erie and Pittsburgh in 1826; Erie and Buffalo in 1820; and Erie and Cleveland in the 1820s (Reed 1925:332). Objections to turnpike fees prompted one stage company to build the "Shunpike" road, connecting Erie and Waterford, in 1828 (Spencer 1925:331). Several planking companies were formed during the mid-1800s to ameliorate muddy road conditions which made routes impassible during inclement weather. Unfortunately, plank roads were costly and often fell into disrepair. With the advent of macadam later in the century, plank roads were discontinued (Reed 1962:135).

During the early 1800s, canals were viewed as the answer to transportation and commerce difficulties. Spurred by New York's Erie Canal, which by 1824 connected the Hudson River with Lake Erie, Pennsylvania began construction of a canal that would join Philadelphia and Pittsburgh. After 10 years of work, the first boat reached Pittsburgh in 1834 (Spencer 1962:137). In 1838 the "Erie Extension" canal, which would connect Pittsburgh with Lake Erie, was begun. Captain Daniel Dobbins had the honor of turning the first spade of earth (Reed 1925:348). Although initially a state-funded operation, the state ceded the project to newly-formed Erie Canal Company (with Rufus Reed as president). The canal was completed in 1844.

The canal entered Erie County in Conneaut Township, passing through Albion to Lockport (present-day Platea) in Girard Township, and then to Girard on Elk Creek. From there the canal turned east and entered Erie on West 18th Street. The canal, at that point, ran through the city from southwest to northeast, terminating at the foot of Sassafras Street (Reed 1925:348). Many locks were required to navigate the elevation difference between the lake plain and upper hills. Lockport had 28 locks within a 2 mi (3.2 km) stretch of the canal, and the City of Erie had 15 locks alone (Spencer 1962:138).

The port at Erie benefited greatly from canal traffic. Not only were goods (particularly coal and iron ore) transported, but thousands of migrants passed through Erie on their way west, using the Erie Extension canal to access the Ohio River (Wellejus 1980:34). However, as with all of the canals built in this region (i.e., Pennsylvania, Ohio, and New York), their success was short-lived. Competition from the burgeoning railroads quickly displaced canal usage, and canal systems either fell into disrepair or often were replaced by railway lines. The Erie Canal Company, with Charles M. Reed as president, was sold in 1856 to the Erie and Pittsburgh Railroad Company (also headed by Charles M. Reed). Operated by the railroad company for a number of years, the canal was abandoned in 1871 when a portion of aqueduct over Elk Creek was destroyed during a storm (Spencer 1962:140).

In order to improve commercial connections, Erie leaders turned to railroads. In 1852 the Erie and Northeast Railroad Company (Charles Reed, president) constructed a line to the New York border at State Line, where it was to meet the Dunkirk and State Line Railroad. Later the same year, the Franklin Canal Company completed a rail line from Erie to the Ohio border. The Civil War delayed completion of a southern route, but by 1864, the Erie and Pittsburgh Railroad had reached New Castle (Spencer 1962:144).

The nascent railroads were built by private companies and the choice of track gauges was a company decision. At that time, there were three gauges or track widths: (1) the English standard gauge of 56½ in (1.43 m); (2) the "Ohio gauge" which was 58 in (1.47 m) wide; (3) the 72 in or 6 ft (1.83 m) gauge (Spencer 1962:146). Although there was some attempt at coordination of track gauge, the results were often a confusion of mismatched rail lines that produced costly delays. Such was the case in Erie County, which led to the Railroad War of 1853.

By Ohio law, companies in Ohio used the "Ohio gauge" and their section of the Cleveland to Buffalo rail line was 58 in (1.47 m) wide. Early contacts between officials of Erie and Northeast Railroad Company and New York Central brought an agreement that both companies would use the wider, and presumably safer, 6 ft (1.83 m) gauge for their sections. Erie and Northeast completed the Erie and Northeast Line to State Line using the agreed-upon gauge. New York Central, however, rescinded and built the Buffalo and State Line Railroad with the "Ohio gauge" (Spencer 1962:147). Meanwhile, the Franklin Canal Company opted for the 58 in (1.47 m) "Ohio gauge" on its section from Erie to the Ohio line (later known as the Cleveland and Erie Railroad).

Consequently, a traveller (as well as all freight) from Buffalo to Cleveland had to make two transfers. The first was at State Line, where one transferred from the Buffalo and State Line (58 in) to the Erie and Northeast (72 in) and then again at Erie to the Cleveland and Erie (58 in). Travel from points east of Buffalo was further complicated by a difference in the rail gauge between there and New York City. The financial benefits of the proliferation of track gauges as well as the enforced stop were not lost on the citizens of Erie. Erie residents perceived their town as being an important hub in the transportation network, and consequently, a source of many jobs. Passengers, however, complained bitterly about the inconvenience and expensive time delays incurred during the transference of all baggage and freight (Spencer 1962:147).

The threat of the completion of the Pennsylvania Railroad from Philadelphia to Pittsburgh and then to Chicago spurred Erie and Northeast Railroad to change the gauge of their tracks to the "Ohio gauge" of 58 in. It was an extremely unpopular decision in Erie, leading to the infamous "Railroad War" of 1853 and national ridicule. Citizens of Erie and Harborcreek banded together against the railroads, repeatedly tearing-up the newly laid 58 in tracks and burning railroad bridges (see Harborcreek Township, below). After two months of turmoil, State authority was invoked and the "Ohio gauge" installed.

The publicity generated for Erie by the Railroad War was extremely negative and some historians have purported that it was one of Erie's greatest disgraces (Reed 1925:355). The debate went on for years and was a part of political campaigns until the Civil War reunited citizens to a common cause (Wellejus 1980:36).

Economic Development of Erie County

Supplying local needs, economic development in Erie County began with the establishment of saw and grist mills. In 1795, Captain Russell Bissel erected the first sawmill in Erie County at the mouth of Mill Creek, and in 1798, Thomas Forster built a grist mill at the mouth of Walnut Creek (Spencer 1962:229; Reed 1925:320). The settlers' need for lumber spurred the sawmill industry, and by 1820 sawmills were established on almost all of the streams in Erie County (Spencer 1962:229). Tanneries, brick kilns, woolen mills, dairy and cheese factories, and breweries soon followed. Farm animals (i.e., cattle, hogs, sheep, and turkeys) were driven to markets in Buffalo and Cleveland before slaughter houses were established in Erie. As was mentioned above, the transport of salt was a major industry in early Erie.

Even with the decline of salt as a commerce item, Erie remained primarily a port city, receiving other transportable goods such as grains, coal, and iron ore as well, as immigrants. Before the advent of railroads, the volume of transportation on the Great Lakes burgeoned. From one steamboat and 25 sailing vessels in 1820, Lake Erie's fleet grew to 138 steamships, 197 propeller ships, 58 barques, 90 brigs, and 974 schooners by 1860 (Spencer 1962:231). Lake trade continued to be Erie's main industry until the mid-1800s, when the larger ports of Buffalo and Cleveland overshadowed Erie (Wellejus 1980:45).

Although the Erie County economy continued to be based primarily on agriculture, the City of Erie became a manufacturing town between 1840 and 1880 (Spencer 1962;232). The city's first iron works was established in 1833. This enterprise, the Hinkley, Jarvis & Company, manufactured iron castings for plows, sawmill machinery, and stoves (Wellejus 1980:30). The Erie City Iron Works was established in 1840 as the Presque' Isle Foundry, located near an iron bog west of the city. Manufacturing railroad cars, The Erie City Iron Works flourished and supplied the growing railroad industry in 1859 with 200 freight cars for the Buffalo and Erie Railroad and 148 cars for the Philadelphia and Erie Railroad (Spencer 1962:231). By 1890, metal-working was the leading industry in Erie (Wellejus 1980:46).

As an index of Erie's industrial growth, in 1880 there were 31 manufacturers with a population of 28,000. By 1905 the population was 60,000 and there were 61 manufacturers (Wellejus 1980:50). Although the population continued to grow slowly during the first half of the twentieth century, the number of manufacturers remained fairly constant. The population of Erie continued to grow faster than that of the county as a whole until the 1960s. At that time, population growth shifted to the suburbs, and the City of Erie experienced an economic decline that many industrial-based cities have had to combat (Wellejus 1980:91).

Harborcreek Township

Harborcreek (initially spelled "Harbor Creek") was one of the original 16 townships allotted in the creation of Erie County in 1800. Although the date of Harborcreek's legal incorporation is unclear, but perhaps being as early as ca. 1805 (Child 1873:90), it was designated the seventh election district on 4 April 1809 (Stoffa-Wieczorek 1991:16). Harborcreek is bounded on the north by Lake Erie, on the west by Northeast and Greenfield townships, on the south by Greene Township, and on the west by Millcreek Township, the City of Erie, and Lawrence Park Township. At its inception, Harborcreek's western border was shared exclusively with Millcreek Township. The expansion of the City of Erie to Harborcreek's border and the incorporation of Lawrence park Township in 1926 was at Millcreek Township's expense.

Although Thomas Rees owned much of Harborcreek as part of "Rees Reserve," he lived in Erie (see Early Settlement of Erie County, above). The first Euro-American settlers in Harborcreek Township were William Saltsman, Amasa Prindle, and Andrew Elliott, all of whom arrived in 1797. Saltsman settled in the western portion of the township near Wesleyville and erected saw and grist mills on Fourmile Creek.

Elliott located in the center of the township and Prindle near Harborcreek village (Everts, Ensign, and Everts 1876:21; Miller 1909:486; Stoffa-Wieczorek 1991:12). Hugh McCann and Alexander Brewster settled south of Saltsman in 1800.

These early settlers were joined in 1801 by Thomas Moorhead, John Riblet and sons, the Ebersole family, and the Backus family. Ezikiel and Benjamin Chambers arrived in 1804. Thomas Moorhead's father and brothers joined him ca. 1802-1806, and they settled in the eastern portion of the township along Twelvemile Creek, establishing the small village of Moorheadville. The Moorheads became prominent citizens in the township, holding numerous positions within local and regional government. Isaac Moorhead was one of the first conductors on the Erie and Northeast Railroad and, because of his work, he became a participant in the "Railroad War" of 1853.

Another early settlement was started southeast of Wesleyville. Davis Rees freed three negro slaves according to law and provided them with farms. Eventually a relatively substantial African-American community grew in the Gospel Hill area. As of 1884, this community was purported to be the largest of its kind in the county (Miller 1909:487).

One portion of Harborcreek was excluded from some of the area's earliest settlers. A 2,000 acre (809.4 ha) parcel extending from the lakeshore along Sixmile Creek was owned by General Irvine, who was instrumental in establishing the harbor at Erie for Pennsylvania (see Early Settlement of Erie County, above). "Irvine's Reserve" was not put on the market until 1803, which "retarded the settlement of that portion of the township for a long time" (Everts, Ensign, and Everts 1876:21).

The early pioneers of Harborcreek Township would have utilized the Native American trail known as the Lake Shore Path (see Early Settlement of Erie County, above), which passes through the township. The township's major villages—Wesleyville, Harborcreek, and Moorheadville—are located along Lake Shore Path or as it is known presently, Buffalo Road (U.S. Route 20). This route appears to have been favored throughout prehistoric and historic times because, as it generally follows a Pleistocene beach strand, it is relatively well drained and hence less muddy than surrounding terrain. Buffalo Road, from Erie to Buffalo, was surveyed by James McMahon in 1805 and came into use by the end of that year (Reed 1925:328).

A weekly mail route between Erie and Buffalo was implemented in 1806. By 1820, a weekly stage route was established, and by 1825 the schedule was expanded to provide one daily trip. As the main artery between Buffalo and Erie, Buffalo Road provided Harborcreek's farmers and industries with direct access to livestock and produce markets. Additionally, taverns, hostels, stores, and other related businesses arose along the route to cater to travelers' needs.

Histories offer conflicting opinions for the construction date of Harborcreek's second primary road, Lake Road (today, a part of State Route 5). According to Reed (1925:329), Lake Road was surveyed in 1806, and the road extended the entire length of Erie County. Spencer (1962:134), on the other hand, only mentions West Lake Road as being opened in 1806, providing connection between Erie and Cleveland. A map produced in 1818 shows Lake Road entering Harborcreek Township from the east and terminating at Twelvemile Creek (Figure 5). It is possible that Lake Road was built in sections and Harborcreek's portion was the last to be constructed. The study area is located directly north of Lake Road.

The third important road in Harborcreek, connecting Wesleyville with Colt Station in Greenfield Township, was constructed in 1813 (Spencer 1962:135). Minor roads developed over the following years, connecting the major arteries with small hamlets and farms.

The first railroad in Erie County, the Erie and Northeast Railroad, began operation in 1852, passing through Harborcreek Township to connect Erie with the New York railroad at State Line. Harborcreek earned a dubious place in history as an active participant in the infamous "Railroad War" of 1853. The Railroad War, as described above, was a bitter contest over the changing of railroad track gauge in Erie County to coincide with neighboring states Ohio and New York. When the railroad companies began to replace the tracks, Harborcreek citizens tore up the new tracks and burned the railroad bridges on several

Figure 5. Location of the Study Area within Harborcreek Township, Erie County, 1818 (from Dougal 1818).

occasions (Reed 1925:354; Spencer 1962:148). When railroad men arrived to relay the tracks, they were met by an angry mob soon supported by Erie's Mayor King, "General" Kilpatrick, and a militia company. The situation deteriorated, with shots being fired and the railroad retreating to the New York line. A U.S. Marshal was sent from Pittsburgh to stop the "rippers." Upon being served, Kilpatrick took the injunction, threw it on the ground, and stepped on it declaring, "Now it has the seal of Harborcreek" (Reed 1925:35). During the ensuing two months, railroad passengers had to be transported, by conductors such as Isaac Moorhead, from State Line to Erie in wagons and sleighs. One of these passengers, Horace Greely of the New York Tribune wrote a scathing article about "this inhospitable northern neck of Pennsylvania" (Spencer 1962:149).

Early industry utilized Harborcreek's numerous streams. In 1800 James Foulk erected the first mill in Harborcreek near the mouth of Sixmile Creek. He then built a larger mill with Captain Daniel Dobbins "at or near the mouth of Twelvemile Creek" in 1803 (Miller 1909:487). John Riblet built a sawmill on Fourmile Creek south of Wesleyville in 1802 and William Saltsman erected a sawmill near Riblet's in 1815 and another in Wesleyville in 1826. The nearest sawmill to the study area was located at the mouth of Elliotts Run and existed ca. 1865 through 1876.

John Shattuck, who is credited for platting Wesleyville, built a flour mill on Fourmile Creek in 1823 and a sawmill in 1825 (Everts, Ensign, and Everts 1876:21; Miller 1909:488). In 1810 a carding and woolen mill was built on a stream south of the town of Harborcreek near a tannery. The first cannery in Erie County was constructed in Wesleyville in the 1870s by W. P. Trimble. Also in 1870, the Dodge Steam Mill near Harborcreek was established utilizing gas from a nearby well for fuel. Gas wells were drilled throughout Harborcreek and became a popular means of providing fuel (Miller 1909:488; Child 1873:91).

Fruit and vegetable agriculture was the major industry in Harborcreek until the mid-twentieth century. Soils, topography, and the climatic moderating effect of Lake Erie make the area conducive to growing fruits prone to frost damage. Grape growing, in particular, has been very successful in Harborcreek and neighboring North East Township (Miller 1909:489). Cultivation of grapes along the lakeshore was early but did not actually flourish until 1857 when William Griffith of North East planted three acres in grapes, shipping the product by crates and as wine to outside markets. Although German methods of grape growing were used at first, it was soon discovered that French methods were better suited to this region (Miller 1909:413).

Oral tradition maintains that religious organization in Harborcreek began in 1822 with a Baptist denomination for which no records survive. The Baptists did not formally establish a church until 1871 (Miller 1909:488). The first actual church was organized in 1828 by the Methodist Episcopal at a meeting house built by John Shattuck in Wesleyville. In 1832 the Presbyterian church of North East helped to establish the first Presbyterian church at Harborcreek, and in 1856 a United Brethren church was organized (Miller 1909:488).

The first school in Harborcreek was constructed in 1802 in the Moorhead district. Prior to that time, school was held in Hurst's barn, also near Moorheadville. Schools at the villages of Harborcreek and Wesleyville soon followed until there were small schools in all quarters of Harborcreek Township (Miller 1909:489; Reed 1925:456). Prior to 1834, schools were supported by private subscription ("pay schools"), and it was not until after 1849 that "free schools" were supported by public funding (Warner, Beers and Co. 1884:452-453). At the intersection of Lake Road (U.S. Route 5) and Bartlett Road (ca. 500 m [1,604 ft] south of the study area), Shaw school was present as early as 1855 (Figure 6) and continued in use until at least 1876 (Figures 7 and 8). The structure, which is described as the only school in Harborcreek Township constructed of stone (Warner, Beers and Co. 1884:723), is still standing, albeit altered by additions (see Land-use History of the Study Area, below).

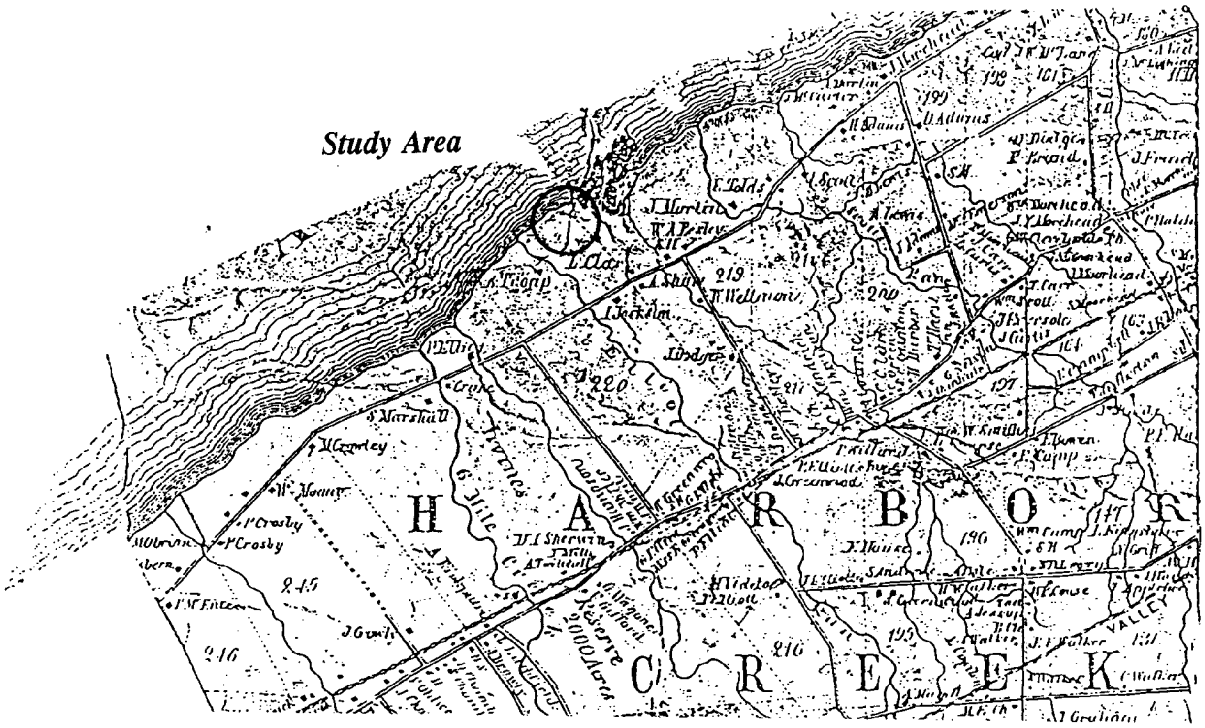

Figure 6. Location of the Study Area within Harborcreek Township, Erie County, 1855 (from Chase 1855).

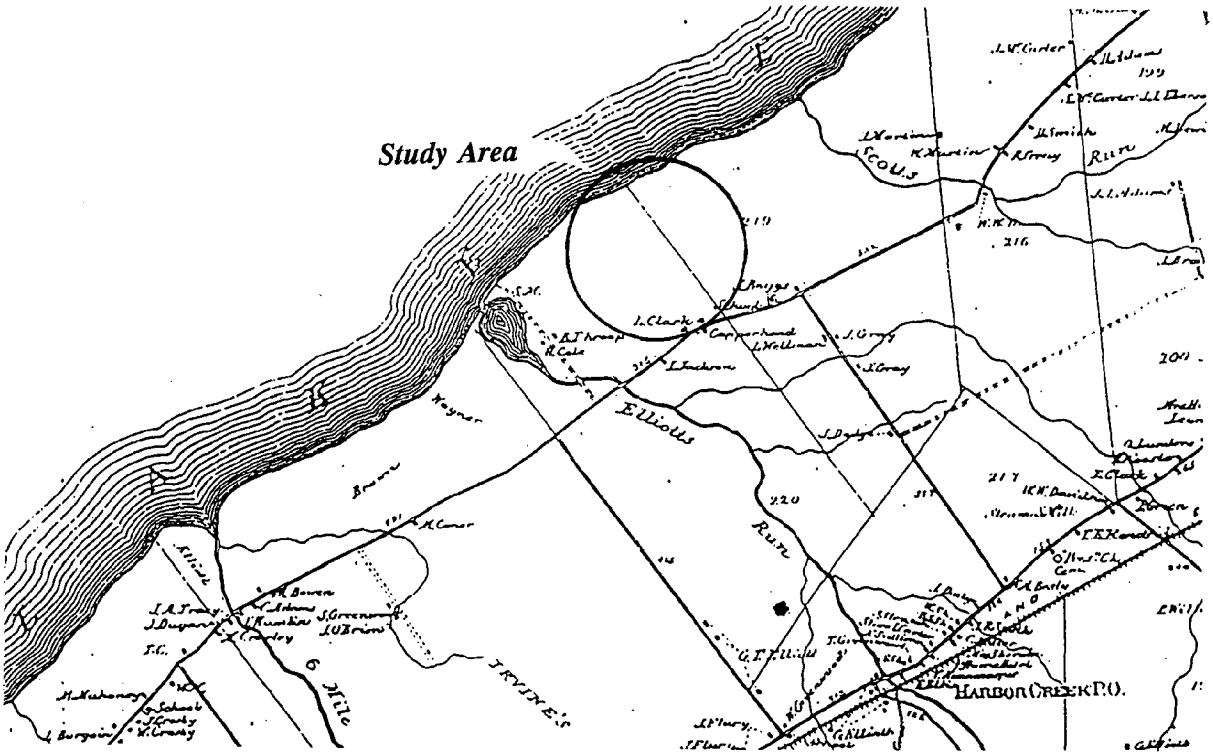

Figure 7. Location of the Study Area in Harborcreek Township, Erie County, 1865 (from Beers, Ellis and Soule 1865).

Figure 8. Location of the Study Area within Harborcreek Township, Erie County, 1876 (from Everts, Ensign, and Everts 1876:66).

Harborcreek continued to be an agricultural community until the expansion of the City of Erie and its suburbs, relegating Harborcreek to a bedroom community of Erie. Although there continues to be some light industry and produce-farming (particularly grape-growing), the community is predominantly residential, interspersed with retail stores and strip plazas.

Land-Use History of the Study Area

Although Historic period impact on the greater study area began with the arrival of the early settlers in Harborcreek Township in 1797 (see Harborcreek Township, above), ownership of the study area proper is indeterminable until 1855, when Chase's (1855) map of Erie County shows that it was owned by William A. Besley (see Figure 6). According to census records (Jackson 1976, 1978), Besley came to Harborcreek Township from outside of Pennsylvania between 1840 and 1850. Between 1860 and 1865, Besley sold the land to J. Briggs (see Figure 7), and by 1876, the property was owned by L. H. Maus (see Figure 8). No information concerning Briggs and Maus is currently available.

A single residence is shown on the Besley-Maus property, north of the intersection of East Lake and Bartlett roads (and beyond the study area boundaries), on both Chase's (1855) map and the 1923 U.S.G.S. Northeast, Pennsylvania, 15' topographic quadrangle. A structure also is shown at or near this same location on the 1979 U.S.G.S. Harborcreek, Pennsylvania 7.5' topographic quadrangle. Local informants indicate that a structure at or near this location was razed within the last year. It is presently unknown whether this location was occupied by a single, original building or sequent dwellings during that time frame. A second structure in the vicinity of the study area is the Shaw school (see Harborcreek Township, above), which was situated ca. 50-100 m (164-328 ft) west of the house throughout the above-stated years. This small stone structure has been enlarged with several additions, and is presently used as a home.

Although not specifically indicated in the historic literature, it is probable that the land directly within and surrounding the study area was initially used for agriculture, as was the majority of land in Harborcreek Township. Inferences for this assumption can be drawn from the size of the property and the farming of a neighboring property of like size. An 1884 reference to Maus's western neighbor, L. H. Carter, describes him as "an enterprising young farmer, living on a farm owned by his father [J. H. Carter], located on the shore of Lake Erie" (Whitman and Russell 1884:2:82).

In the early 1940s, Earl L. Shade, a resident of Erie, bought the parcel containing the study area. Taking advantage of the natural beach on Lake Erie's shore, Shade built a road (Shades Beach Road) connecting East Lake Road to a boat livery that he built on what is presently called Shades Beach. Local informant Ray Shade (personal communication 1994), who is the son of Earl L. Shade, told investigators that cases of beer were found buried near the beach during construction of the road. This beer was thought to be a relic of the prohibition-era lake crossings that purportedly were made from Canada to Harborcreek in the 1920s.

Earl Shade never lived on the property but, instead, operated it as a recreational business. In addition to running a boat livery, he erected cottages, picnic grounds, and a dance pavilion which were rented to fisherman and vacationers. To protect the boathouse, Shade constructed a breakwall utilizing old cars as its base.

In 1954, Shade sold the boat livery to Floyd McLallen, who opened a lunch counter within and built two apartments over the boathouse. Other portions of land were sold at that time to Jack Rinehart and Domenick DeMarco. The Township of Harborcreek was deeded the property in 1983, and has since operated it as the Shades Beach Township Park. Currently the park has two sheltered pavilion areas, restroom facilities, and a recreation field. The boathouse was demolished in 1993, and the boat launching rail system is no longer functional.

RESEARCH METHODOLOGY

The Phase I archaeological investigation of the Shades Beach Park study area involved three principal tasks: (1) background documentary research on the environment, historic land-use, and culture history of the study area; (2) pedestrian reconnaissance and shovel probe testing of the study area; and (3) curation of recovered artifacts.

Background archival research and documentation for the Shades Beach study area was conducted during April, May, and June 1994 by A. G. Quinn, J. E. Thomas, and Dr. M. R. Buyce. Files and maps housed at the Bureau for Historic Preservation, William Penn Memorial Museum, Harrisburg, were examined to identify recorded archaeological sites in the immediate vicinity of the study area. Primary and secondary documents housed at the Erie County Historical Society and the Hammermill Library, Mercyhurst College, were consulted. These documents-which included atlases, township and county histories, biographies, and newspaper articles-provided the information necessary to reconstruct the local, regional, and extra-regional historic background. Geological atlases, aerial photographs, and soil surveys were consulted in order to explicate the geomorphology, lithology, and pedology of Shades Beach Park.

The pedestrian reconnaissance and shovel probe testing program was conducted by A. G. Quinn (supervisor), R. Davis, A. Linder, and C. Schaney from 11 April 1994 to 28 April 1994. After an initial pedestrian reconnaissance of the entire study area, 49 shovel test probes measuring ca. 60 cm (23.4 in) in diameter were emplaced within the Shades Beach Park study area at 15 m (49.5 ft) intervals along transects oriented to true north (Figure 9). Shovel test probes were *not* emplaced in those potions of the park which: (1) will not be impacted by proposed development plans; (2) were under water, concrete, or the footprints of existing buildings; (3) had steep slopes; (4) were otherwise clearly and severely disturbed.

The location of each shovel probe was recorded in terms of its distance in meters east of (or right of) and north of an arbitrary datum. Thus for example, Probe 30R30 was located 30 m east of and 30 m north of the 0R0 arbitrary datum; Probe 45R30 was located 45 m east of and 30 m north of the 0R0 datum; and so forth. Transects were laid out with a Brunton compass and 30 m (99 ft) tape measure.

Shovel test probes were excavated in arbitrary 10 cm (3.9 in) levels within natural strata of sufficient thickness until water or sterile subsoil was encountered. Strata were defined on the basis of soil texture, structure, apparent composition, compaction, friability, and color. All sediment was processed through 0.25 in (0.6 cm) hardware cloth to maximize the potential for artifact recovery. All shovel probes were mapped in profile and representative probes were recorded in 35 mm color slide and black-and-white print film formats. Following photo-documentation, all shovel probes were backfilled.

PROJECT RESULTS

Archival Investigations

The archival research conducted for the Shades Beach Park Phase I reconnaissance identified no previously registered archaeological sites within the study area (see Research Methodology, above). A total of seven prehistoric archaeological sites are recorded on the U.S.G.S. Harborcreek, Pennsylvania, 7.5' quadrangle, but none are situated within 1.6 km (1 mi) of the study area (see Prehistoric Culture History, above). The components at these seven localities are reported to range from the Late Archaic (i.e., 36ER180) through Late Woodland (36ER63 and 152) periods. The locality closest to the study area is Terminal Archaic site 36ER165, which lies ca. 4 km (2.5 mi) to the northeast.

Historic period cultural resources identified in the vicinity of Shades Beach Park include a single residence shown on the Besley-Maus property, north of the intersection of East Lake and Bartlett roads (and beyond the study area boundaries), on both Chase's (1855) map and the 1923 U.S.G.S. Northeast, Pennsylvania, 15' topographic quadrangle. A second structure in the vicinity of the study area (but not

within it) is the Shaw school, which has been enlarged with several additions, and is presently used as a home. The deed history for the study area proper could be traced only back to the Besley occupation ca. 1855. Although not specifically indicated in the historic literature, it is probable that the land directly within and surrounding the study area was initially used for agriculture, as was the majority of land in Harborcreek Township (see Land-Use History of the Study Area, above).

Archaeological Reconnaissance

Stratigraphy

Eight natural strata were identified during the shovel probe testing program conducted in the Shades Beach Park study area. These strata and their associated cultural remains are described below. Representative stratigraphic profiles are provided in Figures 10 and 11.

Stratum I (Field Designation F11)

Stratum I is a silt loam that was identified in shovel test probe 60R45. The stratum is strong brown (7.5YR5/6) in color. Stratum I attains a depth of 40 cm (15.7 in) and is 7 cm (2.8 in) thick. Stratum I is the basal excavated stratum in shovel test probe 60R45.

No cultural materials were recovered from Stratum I.

Stratum II (Field Designation F9)

Stratum II is a silt loam that was identified in shovel test probes 60R45, 60R60, 60R75, 75R45, and 75R75. The stratum varies in color from yellowish brown (10YR5/8) to light olive brown (2.5Y5/6). Stratum II attains a depth of 33-50 cm (13-19.7 in) below present ground surface with an average thickness of 29 cm (11.4 in). Stratum II is underlain by Stratum I (Field Designation F11). The interface between Stratum II and underlying Stratum I is clear and distinct.

Cultural materials recovered from Stratum II include one fragment of clear plastic from the 30-40 cm (11.8-15.7 in) level of shovel test probe 60R60 and three fragments of clear plastic from the 10-20 cm (3.9-7.9 in) level of 60R60.

Stratum III (Field Designation F8)

Stratum III is a silt loam that was identified in shovel test probes 60R45, 60R60, 60R75, 75R45, 75R75, and 81.5R60. The stratum varies in color from dark brown (10YR3/3) to dark yellowish brown (10YR4/6). Stratum III attains a depth of 8-21 cm (3.2-8.3 in) below present ground surface with an average thickness of 6 cm (2.4 in). Stratum III is underlain by Stratum II (Field Designation F9). The interface between Stratum III and underlying Stratum II is clear and distinct.

Cultural materials recovered from Stratum III include 15 fragments of clear plastic from the 0-10 cm (0-3.9 in) level of shovel test probe 81.5R60.

Stratum IV (Field Designation F20)

Stratum IV was identified in shovel test probes 75R105, 90R150, 105R180, 150R165, and 150R180. The Stratum is a clay loam that varies in color from gray (2.5YRN5/) to olive gray (5Y5/2). Stratum IV attains a depth of 40-50 cm (15.7-19.7 in) below present ground surface with an average thickness of 24.2 cm (9.5 in). Stratum IV is the basal excavated stratum in the shovel probes where it was encountered.

No cultural materials were recovered from Stratum IV.

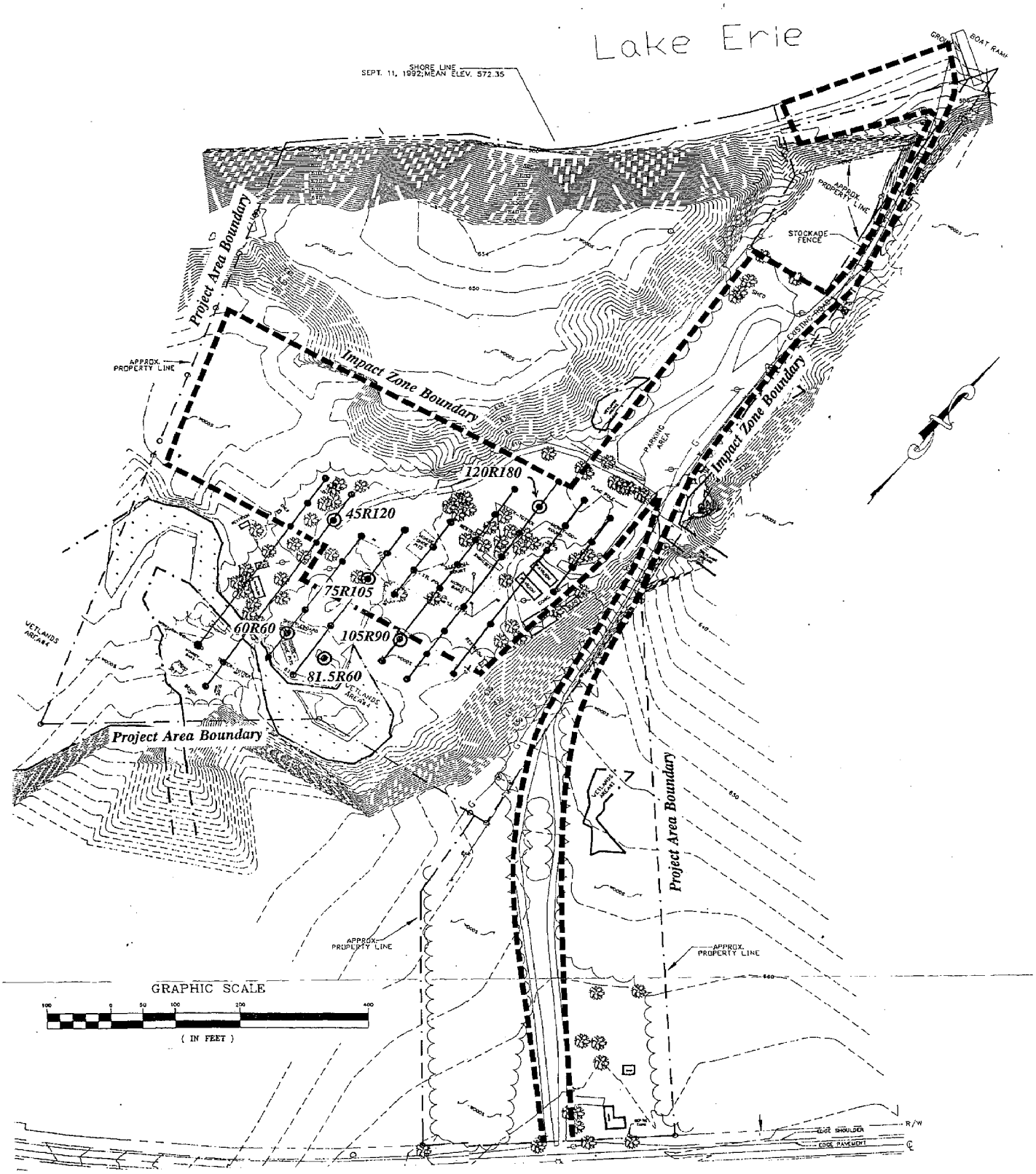

Figure 9. Plan of the Shades Beach Park study area showing the park boundary, the impact zone, and the locations of shovel test probes. Positive probes (see Table 1) are shown within circles and labelled according to the grid system established for the study area (see Research Methodology).

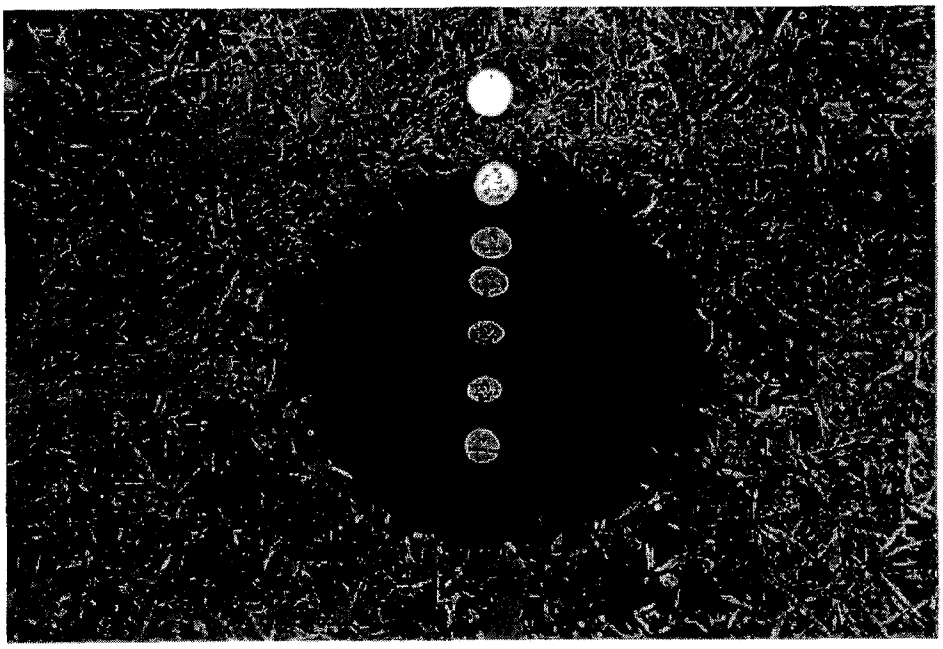

Figure 10. Profile of shovel test probe 45R30, excavated within the Shades Beach Park study area.

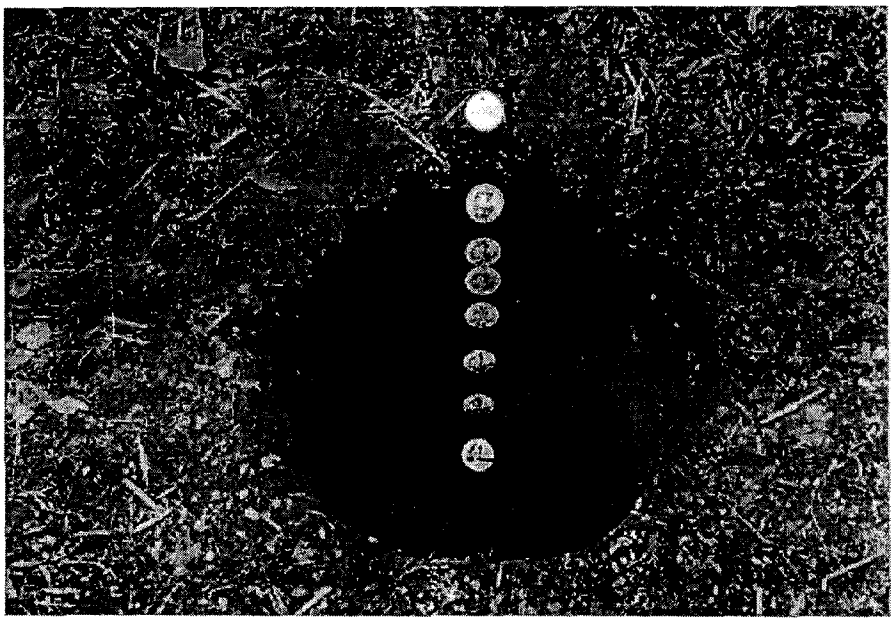

Figure 11. Profile of shovel test probe 60R60, excavated within the Shades Beach Park study area.

Stratum V (Field Designation F5)

Stratum V was identified in 16 of the 49 excavated shovel test probes. The stratum is a silt loam that varies in color from dark brown/brown (7.5YR4/4) to yellowish brown (10YR5/8). Stratum V attains a depth of 30-62 cm (11.8-24.4 in) below present ground surface with an average thickness of 22.6 cm (8.9 in). Stratum V is the basal excavated stratum in the 16 shovel probes where it was encountered.

Although no artifacts were recovered from Stratum V, a ca. 8 cm x 8 cm x 35 cm (3.2 in x 3.2 in x 13.8 in) fragment of sawn lumber and attached concrete was identified in the 0-10 cm (0-3.9 in) level of the stratum in shovel test probe 90R120. These materials appear to be the remains of a small structure, and, according to a local informant, may belong to a park outhouse formerly located in the immediate vicinity of probe 90R120.

Stratum VI (Field Designation F4)

Stratum VI was identified in 33 of the 49 excavated shovel test probes. The stratum is a silt loam with occasional clay mottles. Stratum VI varies in color from olive brown (2.5Y4/4) to light olive brown (2.5Y5/4). The stratum attains a depth of 10-55.0 cm (3.9-21.7 in) below present ground surface with an average thickness of 18.5 cm (7.3 in). Stratum VI is underlain by Stratum V (Field Designation F5) in shovel test probes 75R120, 75R135, 90R105, 90R120, 90R135, 105R120, 105R165, 120R75, 120R90, 120R105, 120R165, 120R180, 135R90, 135R180, and 135R195, and by Stratum IV (field designation F20) in shovel test probes 105R180 and 150R180. Stratum VI is underlain by a turbated clay and gravel disturbance in shovel test probes 60R120, 75R105, 120R120, 135R165, and 150R165. Stratum VI was the basal excavated stratum in shovel test probes 30R105, 30R120, 30R135, 45R15, 45R30, 45R120, 45R135, 105R135, 105R150, 120R150, and 150R195.

Cultural materials recovered from Stratum VI consist of seven fragments of clay pigeon from the 10-20 cm (3.9-7.9 in) level of shovel test probe 120R180.

STRATUM VII (Field Designation F7)

Stratum VII was identified in 10 of the 49 excavated shovel test probes, and was the uppermost or most recent stratum in each of these probes. The stratum occurs in relatively flat, wooded areas of the study area, and is a highly organic humus containing numerous roots, twigs, leaves, and other decayed vegetable material. Stratum VII is black (10YR2/1) in color. The stratum attains a depth of 3-18 cm (1.2-7.1 in) with an average thickness of 10.7 cm (4.2 in). Stratum VII is underlain by Stratum VI (Field Designation F4) in shovel test probes 30R105, 30R120, 30R135, 45R120, and 45R135, and by Stratum III (Field Designation F8) in shovel test probes 60R45, 60R60, 60R75, 75R45, and 75R75. The interface between Stratum VII and these underlying strata is clear and distinct.

Cultural materials recovered from Stratum VII were of recent derivation, and consist of seven bottle glass sherds from the 0-10 cm (0-3.9 in) level of shovel test probe 45R120.

STRATUM VIII (Field Designation F3)

Stratum VIII was identified in 31 of the 49 excavated shovel test probes, and was the uppermost or most recent stratum in each of these probes. Stratum VIII is a silt loam which varies in color from dark grayish brown (2.5Y4/2), to strong brown (7.5YR4/6), to dark brown (10YR3/3). The stratum attains a depth of 3-26.0 cm (1.2-10.2 in) with an average thickness of 11 cm (4.3 in). Stratum VIII is underlain by Stratum VI (field designation F4), and the interface between these strata is clear and distinct.

Cultural materials recovered from Stratum VIII were of recent derivation, and consist of one ball point pen from the 0-10 cm (0-3.9 in) level of shovel test probe 75R105, and three bottle glass sherds from the 0-10 cm (0-3.9 in) level of shovel test probe 105R90.

Recovered Artifacts

In total, 37 Historic period artifacts were recovered during the Phase I investigation of the study area. The distribution of these artifacts is reported in Table 1 by probe, stratum, and level. Seven fragments from a single clay pigeon were recovered from the 10-20 cm (3.9-7.9 in) level of Stratum VI in shovel test probe 120R180. The fragments cross-mend, and are composed of a black paste with a yellow slip. The word "WHITE" is discernable on the interior surface of the pigeon and "western" on the exterior surface.

Ten sherds of glass were recovered during Phase I investigations, including nine sherds clear bottle glass and one sherd of Coca-Cola bottle glass.

One ball-point pen was recovered from the 0-10 cm (0-3.9 in) level of Stratum VIII in shovel test probe 75R105. The pen is green in color and the following advertisement is painted in silver on its barrel: "Sontag & Son Groff's Potato Chips 759 East 12th Street Ph (814) 455 4238."

Finally, 19 fragments of unidentifiable clear plastic were recovered from the Shades Beach Park study area.

TABLE 1

Distribution of Artifacts Recovered from Phase I Archaeological Reconnaissance of Shades Beach Park, Harborcreek Township, Erie County, Pennsylvania, by Probe, Stratum, and Level

Probe	Stratum	Level (cm)	Clay Pigeon	Clear Bottle Glass	Coca-Cola Glass	Ball-Point Pen	Plastic	Total
60R60	II	30-40	-	-	-	-	1	1
		10-20	-	-	-	-	3	3
81.5R60	III	0-10	-	-	-	-	15	15
120R180	VI	10-20	7	-	-	-	-	7
45R120	VII	0-10	-	7	-	-	-	7
75R105	VIII	0-10	-	-	-	1	-	1
105R90	-	-	-	2	1	-	-	3
Total			7	9	1	1	19	37

SUMMARY AND RECOMMENDATIONS

The Phase I archaeological investigation of the Shades Beach Park study area conducted by MAI identified no significant cultural resources within the area to be impacted by the township's proposed development plans.

Thirty-seven Historic period artifacts were recovered during the Phase I shovel probe testing program. This Historic period assemblage is dominated recent by twentieth-century bottle glass and plastic fragments, and the distribution of this assemblage over 49 shovel test probes is considered diffuse. The

identification of a single fragment of lumber and concrete in shovel test probe 90R120 indicates the former presence of a structure in the vicinity of the probe. Local informant interviews suggest the structure was a small outhouse associated with the park

Considered as a whole, the materials recovered during the Phase I investigations of the study area are not of sufficient number, concentration, association, or context to indicate the presence of potentially significant prehistoric or Historic period cultural resources. No additional cultural resource management work is recommended for the study area.

REFERENCES CITED

Adlum, John, D. S.
1789 *Reserve Tract at Presque Isle.* Map on file, Erie County Historical Society, Erie, Pennsylvania.

Adovasio, J. M.
1993 The Ones that Will Not Go Away: A Biased View of Pre-Clovis Populations in the New World. In *From Kostenki to Clovis: Upper Paleolithic-Paleo-Indian Adaptations,* edited by O. Soffer and N. D. Praslov, pp. 199-218. Plenum Press, New York.

Adovasio, J. M., A. T. Boldurian, and R. C. Carlisle
1988 Who Are Those Guys?: Some Biased Thoughts on the Peopling of the New World. In *Americans Before Columbus: Ice-Age Origins,* compiled and edited by R. C. Carlisle, pp. 45-61. Ethnology Monographs Number 12, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Beers, F. W., A. D. Ellis, and G. G. Soule
1865 *Atlas of Erie County Pennsylvania.* New York.

Boldurian, A. T.
1985 Variability in Flintworking Technology at the Krajacic Site: Possible Relationships to the Pre-Clovis Paleoindian Occupation of the Cross Creek Drainage in Southwestern Pennsylvania. Ph.D. dissertation, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Boldurian, A. T., and J. M. Adovasio
1986 Who Are Those Guys? An Examination of the Pre-Clovis Flintworking Complex from Meadowcroft Rockshelter and the Cross Creek Drainage. Paper Presented at the 51st Annual Meeting of the Society for American Archaeology, New Orleans, April 24-27, 1986.

Brose, D. A.
1976 Conneaut Fort, A Prehistoric Whittlesey Focus Village in Ashtabula County, Ohio. *Pennsylvania Archaeologist* 46(4): 29-77.

1978 Late Prehistory of the Upper Great Lakes Area. In *Northeast,* edited B. G. Trigger, pp. 569-582. Handbook of North American Indians, vol. 15, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Broyles, B. J.
1971 *Second Preliminary Report: The St. Albans Site, Kanawha County, West Virginia, 1964-1968.* West Virginia Geological and Economic Survey Report of Archeological Investigations 3. Morgantown.

Bush, D. R.
1984 The Erie Indians and the Whittlesey Focus: Late Aboriginal Life in Northeastern Ohio. *Lake County Historical Quarterly* 26(4): 17-25.

Bush, D. R., and C. Callender
1984 Anybody but the Erie. *Ohio Archaeologist* 34(1): 31-35.

Byers, D. S.
1955 Additional Information on the Bull Brook Site, Massachusetts. *American Antiquity* 29(3): 274-276.

Chase, J., Jr.
1855 *Map of Erie county, Pennsylvania.* On display, Erie County Historical Society, Erie. O. McLeran and Isaac W. Moore Publishers. Troy, New York.

Cheney, Richard
n.d. *Erie County Genealogy,* vol N. On file, Erie County Historical Society, Erie, Pennsylvania.

Child, Hamilton
1873 *Gazetteer and Business Directory of Erie County, Pennsylvania for 1873-1874.* Hamilton Child, Syracuse, New York.

Claridge, John
1982 *Cultural Resource Management Study for Bayfront-Port Access Road Project.* Ms. on file, Erie County Historical Society, Erie, Pennsylvania.

Cleland, C. E.
1965 Barren Ground Caribou (*Rangifer arcticus*) from an Early Man Site in Southeastern Michigan. *American Antiquity* 30(3):350-351.

Coe, J. L.
1964 The Formative Cultures of the Carolina Piedmont. *Proceedings of the American Philosophical Society* 54(5). Philadelphia.

Crozier, Thomas, and Erie County Technical Students
1976 *History of Lawrence Park.* Vickey Printing. Erie, Pennsylvania. On file Erie County Library, Lawrence Park Branch.

Dent, R. J., and B. E. Kauffman
1985 Aboriginal Subsistence and Site Ecology as Interpreted from Microfloral and Faunal Remains. In *Shawnee-Minisink A Stratified Paleoindian-Archaic Site in the Upper Delaware Valley in Pennsylvania,* edited by C. W. McNett Jr., pp. 55-79. Academic Press, Inc., New York.

Dirkmaat D. C., D. R. Pedler, J. M. Adovasio, C. L. Pedler, D. C. Hyland, J. T. Herbstritt, R. Buyce, and J. Thomas
1993 Archaeological and Bioanthropological Investigations at the Orton Quarry Site (36ER243), North East Township, Pennsylvania. Paper Presented at the 58th Annual Meeting of the Society for American Archaeology, St. Louis, Missouri, April 14-18, 1993.

Dougal, David
1818 *Erie and Crawford Counties.* Photocopy on file, Erie County Historical Society, Erie, Pennsylvania. Department of Internal Affairs of Pennsylvania.

Dreimanis, A.
1977 Late Wisconsin Glacial Retreat in the Great Lakes Region, North America. In *Amerinds and Their Paleo-Environments in Northeastern North America,* edited by W. S. Newman and B. Salwen, pp. 70-89. Annals of the New York Academy of Sciences 288. New York.

Everts, Ensign, and Everts
1876 *Combination Atlas Map of Erie County, Pennsylvania.* Everts, Ensign, and Everts. Philadelphia.

Fagan, B. F.
1987 *The Great Journey: The Peopling of Ancient America.* Thames and Hudson, New York.

Fitting, S. J.
1966 The Holcombe Site. In *The Paleo-Indian Occupation of the Holcombe Beach,* by J. E. Fitting, J. DeVisscher, and E. J. Wahla, pp. 1-81. Museum of Anthropology, University of Michigan, Anthropological Papers 27. Ann Arbor, Michigan.

Funk, R. E.
1978 Post-Pleistocene Adaptations. In *Northeast,* edited by B. G. Trigger, pp. 16-27. Handbook of North American Indians, vol. 15, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Funk, R. E., G. R. Walters, and W. F. Ehlers, Jr.
1969 A Radiocarbon Date for Early Man from the Dutchess Quarry Cave. *New York State Archaeological Association Bulletin* 46(July): 19-21.

Grayson, D. K.
1988 Americans Before Columbus: Perspectives on the Archaeology of the First Americans. In *Americans Before Columbus: Ice-Age Origins,* compiled and edited by R. C. Carlisle, pp. 107-123. Ethnology Monographs Number 12, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Guilday, J. E.
1969 Faunal Remains from Dutchess Quarry Cave No. 1. In The Archaeology of Dutchess Quarry Cave, Orange County, New York, by R. E. Funk, G. R. Walters, and W. F. Ehlers, Jr., pp. 17-19. *Pennsylvania Archaeologist* 39(1-4): 17-28.

Hoffman, B. G.
1964 Observations on Certain Ancient Tribes of the Northern Appalachian Province. *Anthropological Papers 70, Bureau of American Ethnology Bulletin* 191: 191-245. Washington.

Hough, J. L.
1958 *Geology of the Great Lakes.* University of Illinois Press, Urbana, Illinois.

Hyland, D. C., and J. M. Adovasio
1992 *Phase I Archaeological Reconnaissance of the Front Street Site (South of Niagara Pier), Erie, Erie County, Pennsylvania.* Report prepared by Baron Archaeological Institute. Oil City, Pennsylvania.

Irvine, William, and Andrew Ellicott
1795 *A Plan of the Town of Erie with the Out Lots.* Map on file, Erie County Historical Society, Erie, Pennsylvania.

Jackson, Ronald Vern, Gary Ronald Teeples, and David Schaefermeyer
1976 *Pennsylvania 1810 Census Index.* Accelerated Indexing Systems, Inc., Bountiful, Utah.

Jackson, Ronald Vern, and Gary Ronald Teeples
1978 *Pennsylvania 1820 Census Index.* Accelerated Indexing Systems, Inc., Bountiful, Utah.

Johnson, W. C., J. B. Richardson, III, and A. S. Bohnert
1979 *Archaeological Site Survey in Northwest Pennsylvania, Region IV.* Report prepared by The Section of Man, Carnegie Museum of Natural History, Pittsburgh, Pennsylvania, for the Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.

Johnson, W. C., and E. J. Siemon, III
1991 Prehistoric Culture History. In *Phase II Testing at the Chickies Creek Site (36LA993) Lancaster County, Pennsylvania,* pp. 2.1-2.15. Report Prepared by the Center for Cultural Resources Research, University of Pittsburgh, for Texas Eastern Gas Pipeline Company, Houston, Texas, under the terms of Contract No. E.C. 1874. Pittsburgh, Pennsylvania.

Kent, B. C.
1980 *Discovering Pennsylvania's Archaeological Heritage.* Pennsylvania Historical and Museum Commission. Harrisburg, Pennsylvania.

Kolb, Charles C.
1981 The Erie Indians: Myth and Fact. *The Journal of Erie Studies* 10(2):12-65.

Kopper, J. S., R. E. Funk, and L. Dumont
1980 Additional Paleo-Indian and Archaic Materials from the Dutchess Quarry Cave Area, Orange County, New York. *Archaeology of Eastern North America* 8:125-137.

Lantz, S. W.
1982 *A Cultural Resource Survey of the Proposed Warren to Indianola, Pennsylvania Pipeline Right of Way Through Allegheny National Forest Lands in Warren and Forest Counties, Pennsylvania.* A Report Prepared by The Section of Man, Carnegie Museum of Natural History, Pittsburgh, Pennsylvania and Submitted to the Kiantone Pipeline Company, Warren, Pennsylvania.

1984 Distribution of Paleo-Indian Projectile Points and Tools from Western Pennsylvania: Implications for Regional Differences. *Archaeology of Eastern North America* 12: 210-230.

1989a *Age, Distribution and Cultural Affiliation of Raccoon Notched Point Varieties in Western Pennsylvania and Western New York.* Bulletin of the Carnegie Museum of Natural History 28. Pittsburgh, Pennsylvania.

1989b Late Woodland Occupations in Northwestern Pennsylvania. Paper presented at the 60th Annual Meeting of the Society for Pennsylvania Archaeology, Edinboro, Pennsylvania, 28-30 April 1989.

Lechner, Carl B.
1984 Elimination of Indian Claims to the Erie Triangle. *The Journal of Erie Studies* 13(2):1-29.

McAlester, Virginia, and Lee McAlester
1991 *A Field Guide to American Houses.* Alfred A. Knopf, Inc., New York.
[1984]

MacDonald, G. F.
1968 Debert: A Paleo-Indian Site in Central Nova Scotia. *National Museum of Canada Anthropology Paper* 16. Ottawa.

McNett, C. W., Jr.
1985 The Shawnee-Minisink Site: An Overview. In *Shawnee-Minisink A Stratified Paleoindian-Archaic Site in the Upper Delaware Valley in Pennsylvania,* edited by C. W. McNett Jr., pp. 321-325. Academic Press, Inc., New York.

Miller, John
1909 *A Twentieth Century History of Erie County, Pennsylvania.* vol. 1. Lewis Publishing Company, Chicago.

Morlan, R. E.
1988 Pre-Clovis People: Early Discoveries of America. In *Americans Before Columbus: Ice-Age Origins,* compiled and edited by R.C. Carlisle, pp. 31-44. Ethnology Monographs Number 12, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Muller, E. H.
1977 Late Glacial and Early Post-Glacial Environments in Western New York. In *Amerinds and Their Paleo-Environments in Northeastern North America,* edited by W. S. Newman and B. Salwen, pp. 218-222. Annals of the New York Academy of Sciences 288. New York.

Neusius, S. W., L. P. Sullivan, and P. D. Neusius
1993 Understanding Site Function at the Ripley Site. Paper Presented at the 58th Annual Meeting of the Society for American Archaeology, St. Louis, Missouri, April 14-18, 1993.

Parkman, Francis
1991 *The Conspiracy of Pontiac*. Reprinted, Originally published 1851. Library classics of the United States, Inc., New York.

Porter, S. C.
1988 Landscapes of the Last Ice Age in North America. In *Americans Before Columbus: Ice-Age Origins*, compiled and edited by R.C. Carlisle, pp. 1-24. Ethnology Monographs Number 12, Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.

Reed, John Elmer
1925 *History of Erie County Pennsylvania*, vol. 1. Historical Publishing Company, Topeka and Indianapolis.

Ricart, Edwin
1969 Selected works from collection on file with Myron and Phyllis Treter, North East Pennsylvania.

Ritchie, W. A.
1965 *The Archaeology of New York State*. Natural History Press, Garden City, New York.

Ritchie, W. A., and R. E. Funk
1973 *Aboriginal Settlement Patterns in the Northeast*. New York State Museum and Science Service Memoir 20. Albany, New York.

Schooler, E. E.
1974 *Pleistocene Beach Ridges of Northwestern Pennsylvania*. Pennsylvania Geologic Survey, Fourth Series, General Geology Report 64. Harrisburg, Pennsylvania.

Spencer, Herbert Reynolds
1962 *Erie...A History*. H. R. Spencer, publisher. The Erie Book Store, distributor. Erie, Pennsylvania.

Spiess, A. E., M. L. Curran, and J. R. Grimes
1984 Caribou (*Rangifer Tarandus L.*) Bones from New England Paleoindian Sites. *North American Archaeologist* 6(2): 145-159.

Spinks, Greg
1951 Erie County's "Ghost Towns". Centennial Edition of the *Erie Times*, August 11.

Stoffa-Wieczorek, Judith
1991 Harborcreek Township: Thomas Rees and Some Early Settlers. *The Journal of Erie Studies* 20(2):3-19.

Storck, P. L. and A. E. Spiess
1994 The Significance of New Faunal Identifications Attributed to an Early Paleoindian (Gainey Complex) Occupation at the Udora Site, Ontario. *American Antiquity* 59(1): 121-142.

Taylor, D. C.
1960 *Soil Survey of Erie County, Pennsylvania*. United States Department of Agriculture Soil Conservation Service. United States Government Printing Office, Washington, D.C.

Trigger, B. G.
1978 Early Iroquoian Contacts with Europeans. In *Northeast,* edited by B.G. Trigger, pp. 344-356. Handbook of North American Indians, vol. 15, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Vento, F. J., and P. Raber
1993 Culture History, Site Distribution, and Expectations for Site Discovery. In *Archaeological Investigations at the Medusa Mine Site, Edinburg Township, Lawrence County, Pennsylvania.* Ms. on file, Mercyhurst Archaeological Institute, Mercyhurst College, Erie, Pennsylvania.

Wallace, Paul A.
1971 *Indian Paths of Pennsylvania.* Pennsylvania Historical and Museum Commission, Harrisburg, Pennsylvania.

Wellejus, Edward
1980 *Erie, Chronicle of a Great Lakes City.* Windsor Publication, Inc., Woodland Hills, California.

White, G. W., S. M. Totten, and D. L. Gross
1969 *Pleistocene Stratigraphy of Northwestern Pennsylvania.* Pennsylvania Geological Survey, 4th Series, General Geology Report 55. Harrisburg, Pennsylvania.

White, M. E.
1978 Erie. In *Northeast,* edited B. G. Trigger, pp. 412-417. Handbook of North American Indians, vol. 15, W. C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.

Whitman, Benjamin
1896 *Nelson's Biographical Dictionary and Historical Reference Book of Erie County, Pennsylvania.* S. B. Nelson Publisher, Erie, Pennsylvania.

Whitman, Benjamin, and Nathaniel W. Russell
1884 *History of Erie County, Pennsylvania,* vol. 1. Warner, Beers, and Co., Chicago.

Witthoft, J.
1971 A Paleo-Indian Site in Eastern Pennsylvania. *In Foundations of Pennsylvania Prehistory,* Number 1, edited by B .C. Kent, I. F. Smith, III, and C. McCann.

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