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EHLERS AND MASTODON

THE NEW YORK STATE ARCHEOLOGICAL ASSOCIATION

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THE SUGAR LOAF MASTODON

Elizabeth Kraus Dumont Orange County Chapter
William F. Ehlers (maps and sketches) Orange County Chapter

Introduction

During the second week of May, 1972, Mr. Frank Pikul, an excavating contractor from Goshen, N.Y., was cutting a drainage ditch across a black dirt farm in Sugar Loaf, N.Y., when his machine stalled as the result of encountering what he assumed to be a large rock several feet below the surface. After considerable effort, the object was finally dislodged from the surrounding muck and brought to the surface, where it proved to be the skull of a large mastodon *(Mastodon americanus.)* The Orange County Chapter, NYSAA was notified of the discovery and the necessary permissions obtained from Nicotra Farms, the lessee of the property, to remove the remainder of the skeleton.

Mastodon finds are by no means a rarity in Orange County. In 1922, C. A. Hartnagel reported a total of 31 skeletons or portions of skeletons which had been discovered between the years 1780 and 1921 (Hartnagel, 1922:42-52). The earliest of these had been dug by the Colonists. One in particular, found near the Wallkill River on the Annan Farm, 3 mi. south of Ward's Bridge in the present town of Montgomery, was viewed by General George Washington during his encampment at Newburgh in 1782-3 (Hartnagel, 1922:43; *cf* also Drumm, 1963:16-18). Since the time of Hartnagel's inventory, six additional specimens have been excavated and three still remain in the ground (W. F. Ehlers, 1973: private correspondence) bringing the total to forty. The Sugar Loaf Mastodon raises that total to forty-one.

Geology of the Area

The "black dirt" of Orange County is a swamp lying at the 380 ft. contour level, with an overall area of 55 sq. mi. (See map, Figure 1). It represents the vestiges of a Late Pleistocene lake impounded during the retreat of the Wisconsin glacier (Connally, 1969:13). Nicotra Farms is located approximately eight miles due east of the main black dirt at the 520 ft. contour level and forms the northern portion of a swampy area extending for 1.5 mi. to the southwest and bracketing Wickham Lake. Unlike the muck in the main black dirt area, which reaches depths of over 40 ft., the lake bottom sediment at Nicotra is only 18 in. thick. (Figure 2) Under this is a 2.5 ft. stratum of peat, which itself is underlaid by 3 ft. of yellow, partially decomposed organic material with inclusions of grass, straw and what appears to be willow. Although samples from this latter stratum are still being processed, Donald Fisher, New York State Paleontologist, has tentatively identified the sediment as marl (Fisher, November 27, 1972: private correspondence). A layer of grey clay of undetermined depth lies at the base of this stratum. The mastodon was recovered near the marl-clay contact.

Excavation

In as much as the lessee intended to prepare the field for planting during the following week, it was essential that the remainder of the skeleton be located and removed as quickly as possible. Two Orange County Chapter members sank an exploratory shaft in the area and, by locating the rib cage and femur, were able to determine the approximate disposition of the bones. At the regular Chapter meeting, which fortunately was scheduled for Friday of the same week, the find was announced and a crew organized to excavate it over the weekend.

The next morning, despite the fact that a vicious Northeaster was pelting Orange County with 3 in. of rain, 30 Chapter members gathered at the site at 7 a.m. to begin work. Since the time factor was critical, it was decided to conduct a two-pronged approach on the skeleton. One portion of the crew expanded the original test shaft into a roughly 10' by 20' square and worked

COVER ILLUSTRATION: William Ehlers of the Orange County Chapter with scapula and a rib bone of the Sugar Loaf Mastodon.

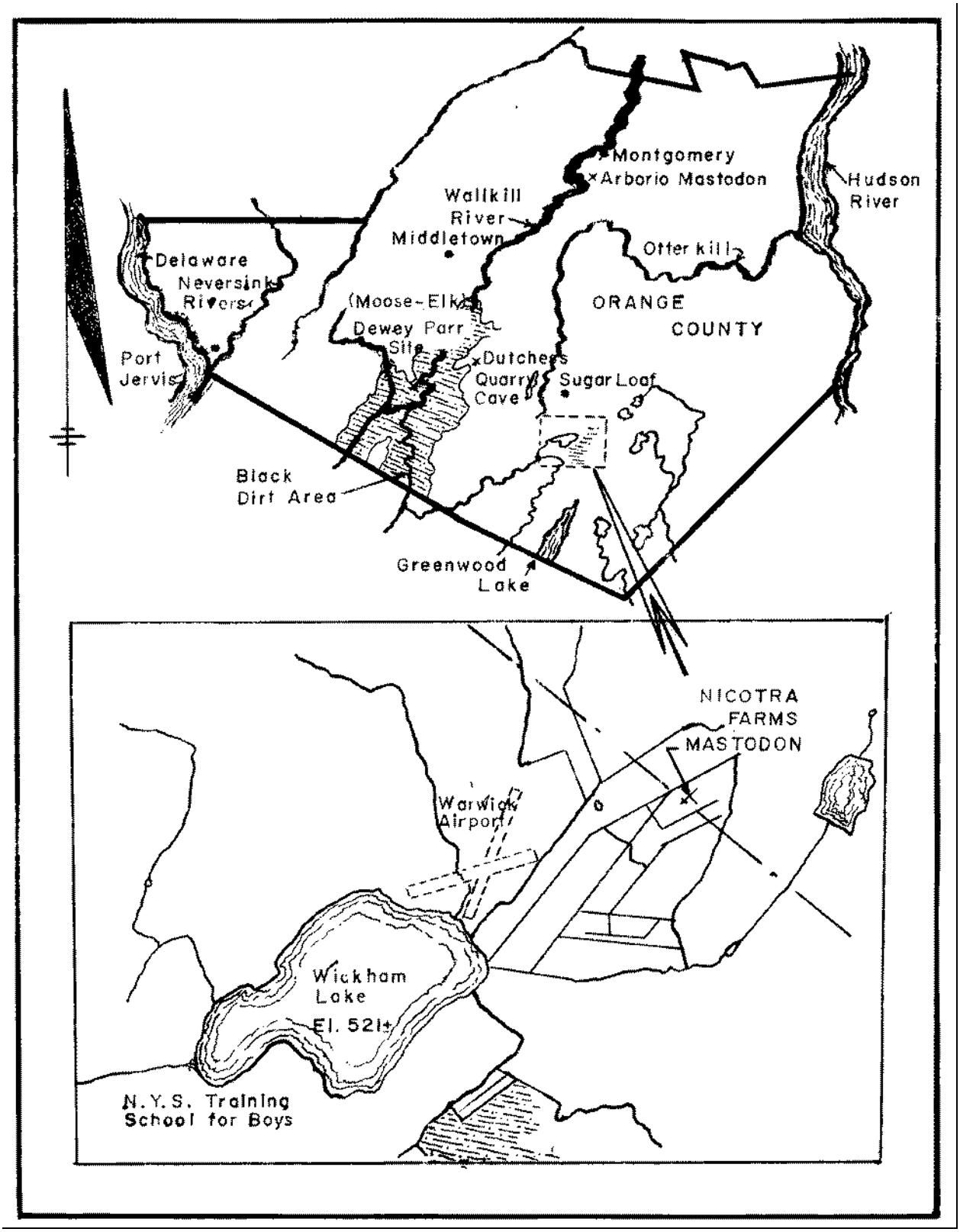

Fig. 1. Orange County and the Sugar Loaf Area.

downward through the muck and peat toward the animal. It was impossible to screen the excavated material because of its semi-liquid condition; however, it was carefully gone through by hand in the hope of finding some evidence of the Paleo-Indian. The results were negative. The remainder of the crew worked inward from the vertical face of the drainage ditch. Since the ditch was filled with water to a depth of 4 ft., the area to be excavated had to be bracketed with coffer dams and pumped out. It is impossible to describe the adverse conditions under which both crews worked. The muck, both in the ditch and on the surface, rivaled quicksand in its consistency, and in the ever-increasing rain the situation worsened steadily. Under ideal conditions good technique would have dictated exposing the entire skeleton and photographing it *in situ* before removing it. Under existing conditions such a method was impossible. Our procedure was to expose as large a portion of the animal as mud slides, cave-ins and collapsing coffer dams would allow, photograph it *in situ,* remove the bones, and move to the adjacent area, continuing as before.

By the end of the day, most of the mastodon had been recovered, with the exception of a few bones that had been located while probing the opposite side of the ditch. The crew returned the following day to complete the excavation, crib the ditch and backfill the area. It is a glowing testimony to the Orange County Chapter that its members put in 500 man-hours of labor in two days to recover the mastodon.

The Mastodon

As we uncovered the animal, it became evident that the skeleton was only partially articulated. The pelvic girdle and rear legs were located within 2 ft. of the tusks. The ribs and thoracic vertebrae were still articulated, but separated from the pelvic section. The forelegs and scapula were at opposite ends of the rib cage. (Figure 3) From the relative disposition of the bones, we hypothesize that the mastodon had stumbled head-first into the bog and turned a half-somersault in its attempt to free itself. After the carcass had rotted the bones either fell into these positions or were rafted by ice. A close examination of the bones showed no evidence of the animal having been butchered.

The skeleton itself is almost complete, missing only a scapula and a humerus, and is in an excellent state of preservation. The tusks and the mastoid portion of the skull had been damaged by the ditching machine, as had several of the ribs; but the rest of the bones were intact. As can be inferred from the following table of dimensions, the animal was a mature adult. There are four molars in each jaw, and all show signs of considerable wear.

femur (length)	3' 5-1/2"
humerus (length)	2' 10"
radius (length)	2' 71'
tibia (length)	2' 21'
lower jaw (from ascending ramus to base of lower tusk)	2' 8"
skull (approximate length)	4' 0"
skull (width at eye socket)	2' 3"
skull (height with lower jaw in place)	2' 7"
lower tusk (length)	12"

In as much as the tusks were badly broken, it is impossible to estimate their length. The skull, however, is of particular interest in that it contains one lower tusk. Both Hartnagel and Drumm indicate that lower tusks are seldom developed in the American mastodon. (Hartnagel, 1922:51; Drumm, 1963:11)

A rib portion was sent to Isotopes Inc. for radiocarbon dating. An assay of 9860 ± 225 radio-carbon years ago was returned. (I-6634) This date is closely in line with dates obtained on other post-glacial mammals in Orange County. The Arborio mastodon, excavated by the Orange County Chapter from a bog 1.7 mi. south of Montgomery in April, 1968, yielded a date of 10,000 ± 160 radio-carbon years (I-3785, Funk, Fisher and Reilly, 1970:181). A Pleistocene Moose-elk *(Cervalces scotti)* recovered at the Dewey-Parr site 5 mi. west of Florida, Orange County, in August of the same year was dated at 10,950 ± 150 radio-carbon years (I-4016, Funk,

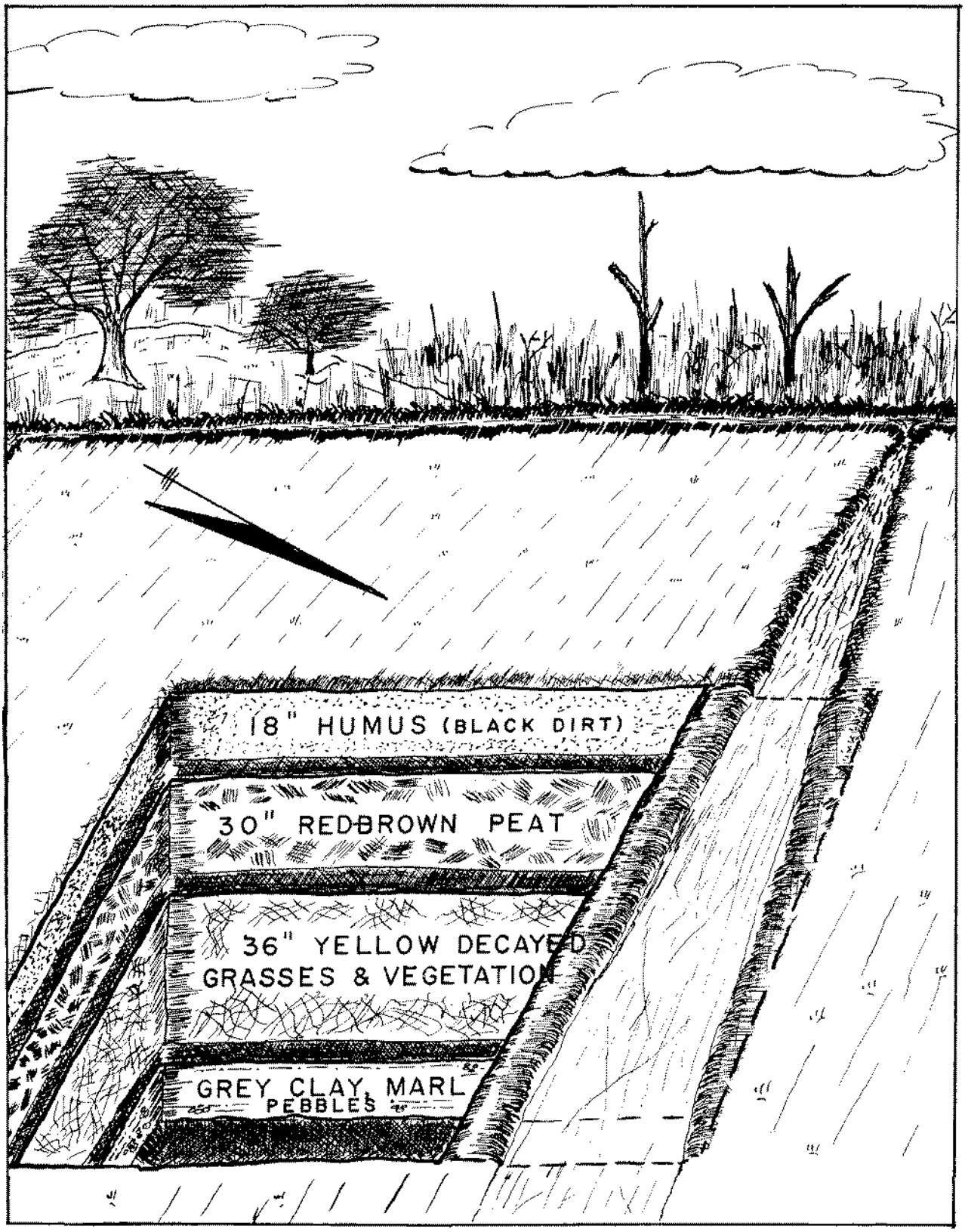

Fig. 2. Stratigraphy of the Sugar Loaf Site.

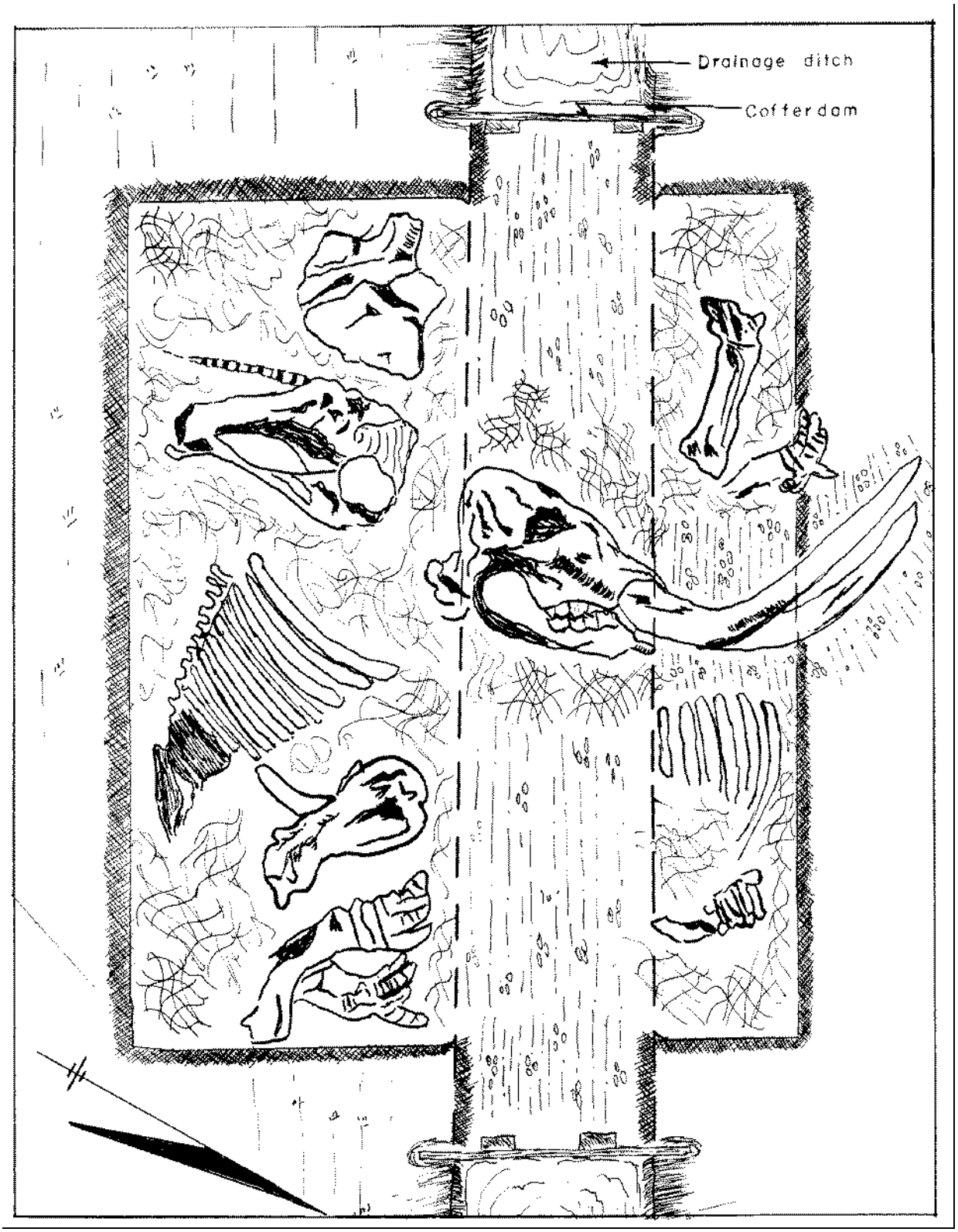

Fig. 3. Approximate Disposition of the Skeleton.

Fisher and Reilly, *ibid.)*. It is also interesting to compare these dates with the date of 12,530 ± 370 radiocarbon years obtained on caribou bones *(Rangifer tarandus)* found by the Orange County Chapter with a fluted point at Dutchess Quarry Cave, 2.1 mi. north-north west of Florida (I-4137, Funk, Walters and Ehlers, 1969:20). Although man and mastodon have not been found in association in the County, the earliest Paleo-Indian evidence antedates the mastodons and the moose-elk by more than two thousand years.

The skeleton has been donated to the Orange County Chapter by the Sorbello family, owners of the Nicotra property. The Chapter plans to have it iron-mounted and put on permanent display in the Bio-Medical Arts building of Orange County Community College.

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THE FRANK SITE

A PRELIMINARY REPORT ON A LATE ARCHAIC-EARLY WOODLAND SITE GENESEE COUNTY

Norman J. Wicks Morgan Chapter

Location

The Frank Site (Att 1-2) is located in the Town of Batavia, Genesee County, approximately 3 mi. west of the City of Batavia, and is situated on a terrace about 400 ft. southwest of a northward bend in the Tonawanda Creek. To the south is a marshy area which at one time extended around the eastern perimeter of the site prior to drainage and placement of a north-south Wortendyke Road. To the north lies a gradual rise of 10-15 ft. towards NYS Route 5. Westward of the site, the terrace continues on at the same level.

The site covers an area of nearly one acre with the entire area soil being composed of Palmyra sandy loam. This is a fine sandy loam containing little or no stone or gravel and is ideal for digging or surface collecting. The top soil, including the plow zone, is brown or dark brown in color while the subsoil is a yellowish brown. This soil type is derived from water transported materials which had been deposited as terraces along old stream courses near the close of the last glacial period. Palmyra sandy loam is not extensive in Genesee County and occurs principally along the Tonawanda Creek west of Batavia. (USDA 1927-1632)

Discovery

The site was first discovered by the writer in the summer of 1967 while surface hunting for artifacts and sites. The first two or three times over the site failed to produce any indication of what might be in store. It was not until a crop of snap beans was taken off the site and the field fall plowed in early September, 1967, that the first indication of substantial material was noted. Until that point, only six or eight scattered artifacts had been picked up in two or three visits. The site was extensively surface-hunted by the writer during the fall of 1967, and seasonally during 1968 and 1969. Since then, unfortunately, it has not been under cultivation. At the present time there are locust and poplar saplings growing on the site approaching 10-12 feet in height.

During the three years that the site was actively surface-hunted, there began to emerge a pattern of material concentrations. For example, one area to date has produced the few non-flint stone artifacts of the site, while another concentration has produced nearly all of the drills found thus far. Still another small concentration consisted of projectile points of a single type. By late 1969, age and cultural affiliations through artifact identification (Ritchie, 1961) had pretty well placed the site in a Late Archaic-Early Woodland period, with a predominance of Meadowood type artifacts. However, the discovery of a single Iroquoian potsherd very late in 1969 added another possibility. Determined to find a solution to the question, the writer, during July, 1970, excavated a 5 x 5 ft. square at the point where the lone potsherd had been discovered. The test yielded a large number of flakes, three worked flint artifacts, and lastly, at the bottom of the square at a depth of 14 in., the site's second potsherd, a thin .5 in. rectangular sherd.

During the winter of 1970-1971, permission to excavate the site was generously given by the owner, Louis Frank of LeRoy, New York. In July, 1971, Mr. Carl L. Lewis, an instructor at Genesee Community College at Batavia (and a Morgan Chapter member) together with the writer and a group of Mr. Lewis' students who were participating in a short summer course in archaeology and field methods, laid out, partially excavated, and most importantly, mapped the site. The dig, which proved to be somewhat disappointing in materials recovered, was successful from an educational standpoint in that it provided a basic experience in field methodology. Despite the brevity of the dig, (three hours per afternoon for six days) a total of twelve 5 x 5 ft. squares were dug, in two selected areas. The areas chosen were picked because of the concentrations of artifacts and chips which had been earlier collected from the surface. The smaller of the two areas (4 squares) proved to be the highpoint of the dig in that it produced a pair of postmolds, one on either side of a pit. The larger of the two areas excavated (8 squares) produced no postmolds or features but fourteen artifacts of various types were recovered from three of the eight squares.

Feature

Having literally chanced upon the lone feature (to date) of the site it is difficult to believe that a single pit would be the only feature, in view of the great extent of the area which remains unexcavated. The pit was encountered below the plow zone, at a depth of 14 in. below the surface, and showed up as a dark, almost black area in a yellowish-brown sandy soil. Numerous chips were discovered down through the plow zone but the largest concentration of chips was at 14 to 26 in. in the square. A Meadowood base was found at 13 in. below ground level. Two postmolds, 3.5 and 3 in., respectively, were found at a 14.5 in. level located at one end and on either side of a pit. These postmolds dwindled in diameter and stopped at a depth of 26 in. The pit itself measured 37 x 40 in. at the top, 24 in. at the bottom and was 18 in. deep, bottoming out some 32 in. below ground level. The pit was filled with a dark, seemingly organic material which showed some indication of fire. Mixed throughout were a number of flakes and chips of local flint. At a depth of 21.5 in. below ground level, in the pit, a drill point fragment was noted. A second drill fragment was found at 25.5 in. in the pit and at 27 in., the third and final artifact, a flake scraper, occurred. Charcoal was observed in minute quantities throughout. Nowhere in the pit did bone or fire-cracked stone appear. The complete lack of anything in the pit other than what appeared to be burned material except for chips and three artifacts, coupled with the postmolds, led to the speculation that the pit had been used exclusively as a fire pit for drying.

Artifacts

The great majority of artifacts from the Frank Site have been surface finds with but a handful located from excavation. With the exception of three small potsherds, all material to date has been of stone. It is impossible to know what types and quantity of material remain to be located or, for that matter, to ever know how much material has been carried off during the many years prior to the site's discovery by the writer.

By far the largest amount of material is lithic debris, mainly chips or flakes. Almost without exception, all material and artifacts are of Western New York Onondaga flint. These flint artifacts include projectile points, knives, point or knife fragments, drills, scrapers, blanks, cores and other worked flint objects defined here as utilized flakes.

Projectile points from the Frank Site indicate a mixed occupation over a considerable period of time. Forty-five projectile points have been classified. Of these, forty-one are of side notched varieties. One half or 23 of those identified are of the Meadowood type. (Additionally, another 8 Meadowood types have been adapted for use as knives and scrapers). Nine points have been classified as Brewerton side-notched forms. Six points from a single area within the site exhibit the mixed characteristics of the Lamoka-Normanskill type found at the Cole Gravel Pit (Hayes & Bergs, 1969). Other points by number include 1 Madison; 3 Adena; 1 Brewerton corner-notched; and 2 Lamoka. Another 54 point fragments, mostly broken tips, are unclassified due to the lack of identifying features, although a number of them imply the thin flatness of characteristic Meadowood types.

Knives or knife fragments number 72 and are in several forms, from well-chipped, bifacially worked blades, showing two well-used cutting edges, to modified projectile points and larger adapted flakes. Shapes range from ovate to trianguloid to irregular and are varied in size.

Eighteen drills or drill fragments have been found to date. Notably, most of the 18 came from the same general area within the site. Bases, where present, are for the most part, expanded or flared. One drill was obviously reworked from a Brewerton side notched projectile point. All but one are of Western New York Onondaga flint. Two drills significantly stand out. The first is a two-thirds complete basal fragment, biconvex in cross section, with a slightly flared and ground base made from rich brown Pennsylvania jasper. The second, a tip-to-base fractured fragment, is a near perfect one-half duplicate of a cruciform Perkiomen drill as described by Kraft in the Miller Field Site. (Kraft-1970, Plate 9, Fig. d)

Only six pieces of non-flint stone material have been collected from the site. One is a single fragmentary artifact of dark gray shale. It is elongated (2 7/8 in. x 1 in.), ovate in cross section, rounded at the one remaining end and about one-half of the original whole. It is ground smooth and polished long the "back" edge. Four fragmentary sandstone mullers or handstones are listed to date. All four are ovate in cross section and are quite flattened. The last artifact of stone is a center section of a four-sided whetstone.

A total of 132 scrapers make up a large portion of identified artifacts. These scrapers, for the most part, are unifacially worked along a single edge and are generally made from the larger flakes found on the site. Side scrapers (89) make up the largest category followed by end scrapers (37) and combination scrapers (6). Also in the same general range as scrapers are 45 worked flint artifacts which are best defined as utilized flakes.

Blanks by definition as preforms are few in number. Only 27 are catalogued. Most of these are roughly shaped ovate forms showing large chipping scars without retouch. The finished product in most cases could have been a projectile point or knife blade. One example, a broken sharply pointed blank, has been retouched on a point for possible use as a flint awl.

Cores or raw material which exhibit some evidence of flake removal appear generally of fair size, perhaps averaging 1.25-1.5 in. Most are irregular in shape but nearly all show multiple flake removal with large flake scars along two or more surfaces. A total of 65 cores are included for this report. Some obvious cores have been adapted for use as scrapers.

Three potsherds have been found to date, two of these in the excavation. All three are irregular shaped body sherds and represent three separate vessels. None of the three are large; the largest being 1.25 x 1 in. while the smallest is a .5 rectangular sherd only 1/8th in. thick.

The two smallest are plain, while the largest, a surface find, has two parallel incised lines across it. With so few samples at hand, it is quite difficult to make a specific identification other than the three sherds appear to be and probably are Iroquoian.

No bone material, beads or other artifacts have been noted to date. The only other items of significant interest are a good number of non-Indian historic types, mainly ceramic and crockery sherds. These have all been located along the eastern perimeter of the site and probably mark the location of a lower middle to mid-nineteenth century farmstead dump.

Conclusions

The first conclusion which can be drawn of the Frank Site is that it is without question, a site of mixed occupation. This has been determined from artifact analysis and identification, and in particular, by projectile point types. These range from the Middle Archaic Brewerton side-notched points, through the Late Archaic-Early Woodland varieties (Meadowood); to the Late Woodland Madison Point and Iroquoian pottery.

The single area concentration of a small number of Lamoka-Normanskill type points tends to extend the theory of the Lamoka phase regional variations in Western New York (Hayes and Bergs, 1969).

A good number of drills and drill fragments (18), even though from a mixed cultural site, are, for the size of the site, relatively restricted to one area of it. Most sites of this size do not produce the number of drills in ratio to other artifacts that the Frank Site has, which tends to stimulate optimism regarding what remains unknown of the site.

At this time, the site does not seem to have experienced an extended occupation by any one single period culture but was probably, from a geographic standpoint, an ideal seasonal camping location or a favored stopping point situated near the Tonawanda Creek, possibly near a fording place in the creek. It could have been used by families going to or coming from the well-known and long-used flint quarry near Diver's Lake about twelve miles to the northwest. It is suggested here that many of the people having used the Frank Site *were coming from* the flint quarries of Western New York, especially the Diver's Lake quarry and were well supplied with flint material. This conclusion is made in light of a seeming lack of conservation of materials used at the site. Cores are numerous and fairly large. Some cores which could have been further worked down have been discarded or utilized as scrapers. Large flakes are used as scrapers or abandoned entirely. Generally, flakes smaller than 1.25 in. are simply ignored. In other words, in the absence of immediate area raw material, there appears to be some extravagance without the appearance of extended occupation.

There seems to be a hint of contact with more eastern cultural phases in the appearance of two Eastern Pennsylvania-New Jersey drills. Without further evidence this possibility is mere speculation. Certainly these drills could indicate trade goods, but the writer prefers to interpret them as having been brought here by their owners from long distance in their search for tool making material. It is well known that Western New York Onondaga flint is not uncommon in many areas of Pennsylvania. Hopefully, further excavation at the Frank Site may shed more light on the matter. At the same time and on the same general subject, this quest for material may have had some significant influence in the appearance of the variant Lamoka-Normanskill types in Western New York, and may in some small way, help to explain the Late Archaic changes which were apparently taking place in modes of everyday existence and which eventually brought Western New York info the Woodland period.

The writer is familiar with several significant, but small, Archaic sites in the vicinity of the Frank Site. The aggregate amount of material from these sites is fairly substantial. The area also tends to lie within the range traveled by moundbuilders as evidenced by surface find artifacts (C.F. Wray, personal examination).

At any rate, the Frank Site is far from complete explanation. Much material remains to be excavated and it is believed that a wealth of information is to be had. It is anticipated that this write-up with it's analysis and conclusions will be subject to adjustment as additional material or knowledge is evidenced or defined or as present interpretations are revised or corrected by the writer and others.

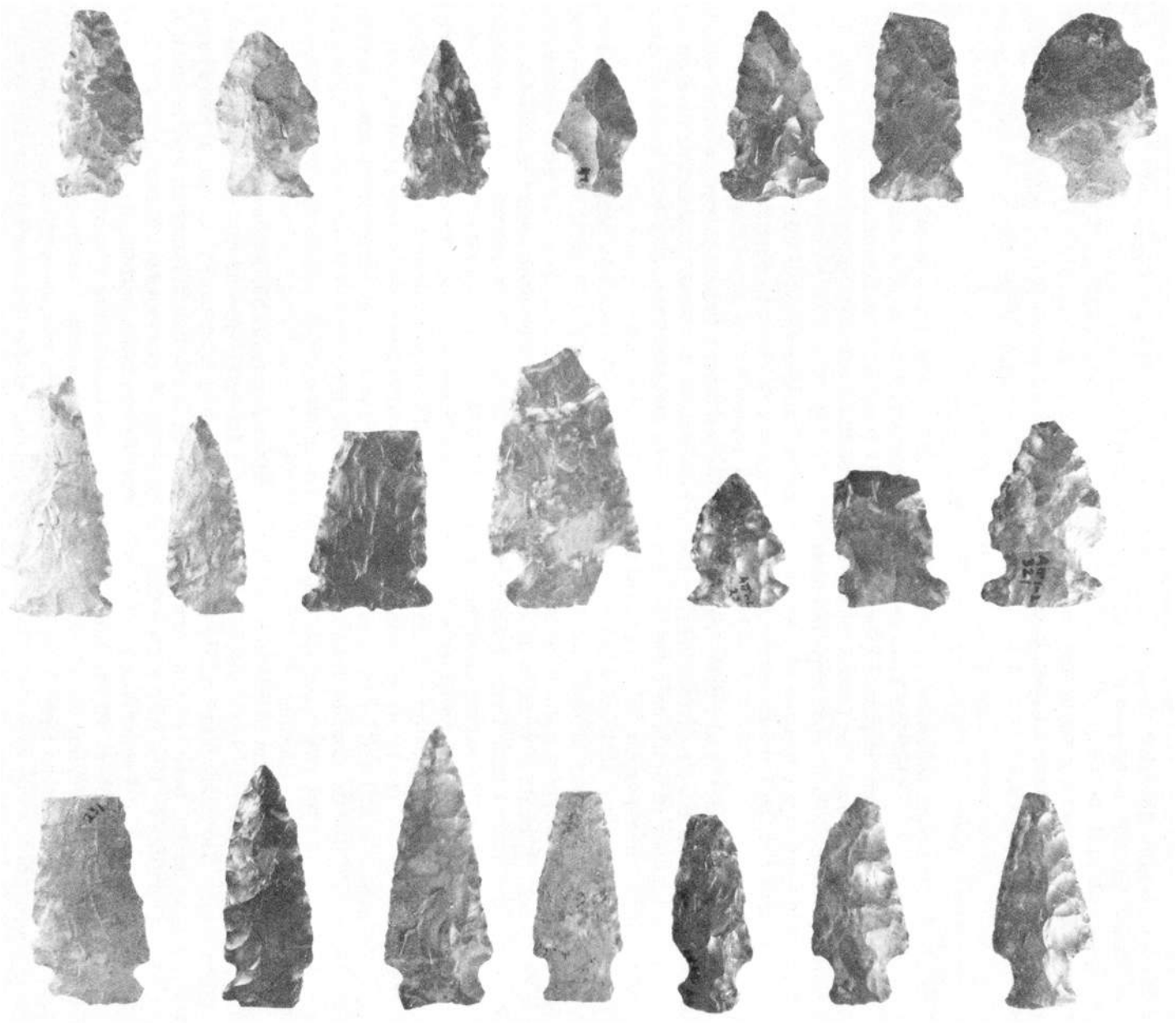

Plate 1. Artifacts from the Frank Site.

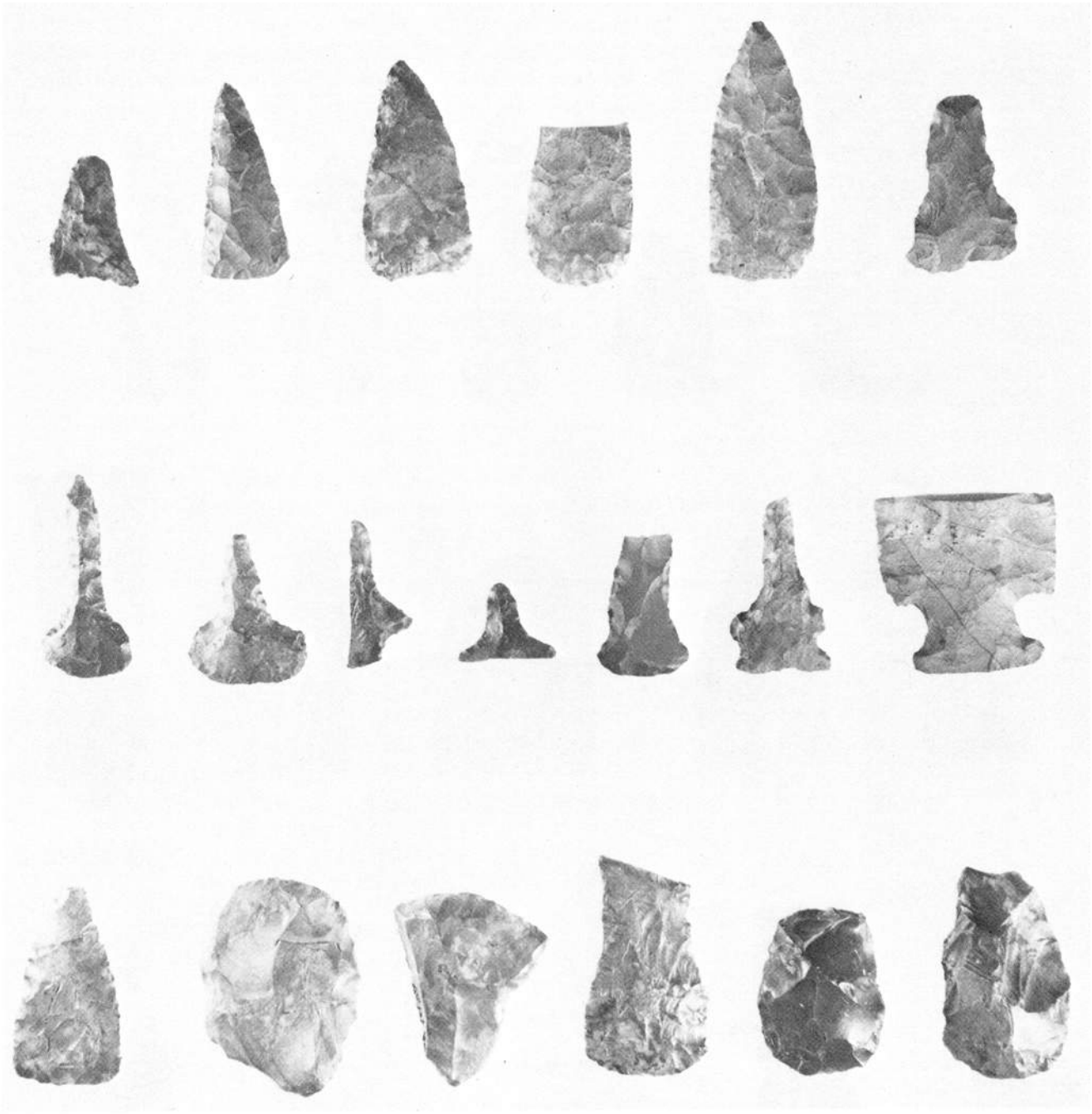

PLATE 2. Artifacts from the Frank Site.

PLATE 3. Artifacts from the Frank Site.

A final note on the Frank Site is that a short time after the summer dig of 1971, the owner of the land on which the site is located, requested permission from the local Town Board to expand his present commercial business-a trailer park. Sadly, there is but one direction that the mobile home park can be expanded . . . right across the site! Permission was not granted for the expansion at that time pending some corrections or modifications that the owner needs to make in his operation before approval is given. It is probably only a matter of time before this site is destroyed.

NOTE: The writer gratefully extends his appreciation to Charles Hayes III and Lilita Bergs whose write-up on the Cole Gravel Pit was used as a model and who provided inspiration during this, the writer's first attempt at an archaeological paper. The writer would also like to express his thanks to Charles F. Wray and Stanley Vanderlaan, who knowingly or unknowingly, provided opinions and assisted in the identification of specific artifacts. Thanks also are extended to Carl L. Lewis and his 1971 summer session students for the assistance provided in mapping the site as well as their participation in the site's only excavation to date.

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MINUTES OF THE 57TH ANNUAL MEETING NEW YORK STATE ARCHEOLOGICAL ASSOCIATION HOLIDAY INN NEWBURGH, NEW YORK, APRIL 6, 7, 8, 1973

Executive Committee Meeting

The meeting of the Executive Committee was held on Friday, April 6, 1973. President Charles S. Pierce called the meeting to order at 8:26 p.m. The following members, including State Officers, Chapter Presidents and Trustees, were present:

Charles S. Pierce (F. M. Houghton Chapter)
William F. Ehlers (Orange County Chapter)
Francia G. McCashion (Van Epps-Hartley Chapter)
Volkert K. Veeder (Van Epps-Hartley Chapter)
Carolyn Weatherwax (Auringer-Seeyle Chapter)
*Gloria Miller (Auringer-Seeyle Chapter)
Dr. Richard E. Hosbach, MD (Chenango Chapter)
Henry Wemple (Chenango Chapter)
Stanford J. Gibson (Chenango Chapter)

*Dolores Lalock (F. M. Houghton Chapter)
Edwin Phillips (F. M. Houghton Chapter)
Earl Sidler (F. M. Houghton Chapter)
W. Harrison Case (Inc. Long Island Chapter)
Alfred E. Dart (Inc. Long Island Chapter)
*Lawrence Waitz (Inc. Long Island Chapter)
Father Edward Bader (Lewis Henry Morgan Chapter)
*Louis A. Brennan (Metropolitan Chapter)
Alvin Wanzer (Mid-Hudson Chapter)
Kenneth Robinson (Mid-Hudson Chapter)
Dr. Elizabeth Dumont (Orange County Chapter)
George R. Walters (Orange County Chapter)
Dr. Philip Colella (Triple Cities Chapter)
Dolores Elliott (Triple Cities Chapter)
*Marilyn Stewart (Triple Cities Chapter)
*Verna Hayes (Triple Cities Chapter)
Calvin Behnke (Upper Susquehanna Chapter)
Franklin J. Hesse (Upper Susquehanna Chapter)
Clark Rogers (Upper Susquehanna Chapter)
Paul R. Huey (Van Epps-Hartley Chapter)
*John H. McCashion (Van Epps-Hartley Chapter)
Charles Gillette (Van Epps-Hartley Chapter)

*Alternate

Committee Chairmen Present:

Theodore Whitney-Awards and Fellowships Committee
Carolyn Weatherwax-Membership Committee
Kingston Larner, MD-Nominating Committee
Dolores Elliott-Publications Committee
Dr. Elizabeth Dumont-Program Chairman Committee
Louis A. Brennan-Editor of the *Bulletin*
Alfred E. Dart-Fiscal Committee
Charles S. Pierce-New York Indian Committee
Dolores Lalock-Finance Committee
Henry Wemple-New Chapter Affiliation

1. Roll call was taken.

2. A motion was made by Dr. Elizabeth Dumont and seconded by George Walters to suspend the reading of the minutes and accept them as printed. Motion was carried.

3. President Charles S. Pierce reported in his opening remarks that the life of the organization relies upon a better system of communication and he announced plans to see that this is done through local newspaper and other media coverage. He commended Harold Jonas of the Orange County Chapter for proper coverage of the Annual Meeting. He urged delegates to report in *detail* to their respective Chapters. President Pierce also recommended that Secretaries be included in the Executive Committee in order to get detailed reports back to the Chapters.

The President reminded the Chapters of the reserve of material quartered in Rochester for Chapter use. A catalogue is available on request and the only charge is return postage.

A special thank you was given to Bill Ehlers for his outstanding job with the *Newsletter.*

4. The Vice President reported on his work throughout the year, with special emphasis on communications problems.

5. The Treasurers report was submitted by Volkert Veeder:

Checking Accounts:			
Central National Bank	506.08		
Banker's Trust Co.	2219.47		2725.55
Savings Accounts:			
Marine Midland Trust	1092.10		
Community Savings Bank	1121.08*		2213.18
		Total	4938 73

Publication Fund	4926.61		
General Fund	12.12		
	4938.73		
*Calculated; interest not posted.			
April l, 1973			
Checking Accounts:			
Central National Bank	2128.90		
Banker's Trust Co.	2219.47		
			4348.37
Savings Accounts:			
Marine Midland Trust	1114.17*		2235.25
	1121.08*	Total	6583.62
Publication Fund	6314.29		
General Fund	269.33		
	8583.62		

*Calculated; interest not posted.

Henry Wemple moved to accept the treasurer's report. Kingston Larner seconded the motion. The motion was carried.

Old Business

6. *Awards and Fellowship Committee:* This report was given by Theodore Whitney who stated that the committee had met and the awards would be given at the banquet as is customary.
1973 Awards:
Fellow: Herbert C. Kraft
Certificate of Merit: Stanford J. Gibson
Certificate of Meritorious Service: William H. Rice, Fred DiBello, Lawrence Rockelein

7. *Membership Committee:* Carolyn Weatherwax reported a statewide membership increase of 188 with one particular Chapter having 46 new members. (Orange County Chapter received the membership award at the banquet.) Because of membership material still being available, the total expenses were thirty-six dollars. Chairman Weatherwax urged the continuance of the committee in 1972-3.

8. *Legislative Committee:* The Secretary read the report in the absence of Legislative Chairman Charles Merritt. The new *Antiquities Bill* has been introduced in the Assembly by Assemblywoman Cook and in the Senate by Senator Pisani. The Assembly Bill is NO. A3907. It has been amended and includes a provision that a Native American be a member of the Board of Antiquities. Dr. Marian White added that Bill No. A5997 (Regulation on Indian Burial Sites) is now in Committee.

9. *Publication Committee:* Chairman Dolores Elliott reported that no issues of *Researches and Transactions* or *Occasional Papers* were published nor were any manuscripts submitted for them. Three issues, Numbers 54, 55, 56, of *The Bulletin* were again edited by Louis Brennan and issued. In 1972, a contract was signed with the Kraus Reprint Division of Kraus-Thomson Organization Limited for exclusive rights to reprint NYSAA Publications. Back publications of NYSAA have been sold at the annual meetings of NYSAA and ESAF and are also available at the Rochester Museum and Science Service. Mrs. Elliott commended Charles Hayes and Linda Rawleigh of the Rochester Museum for their work in filling back orders and distributing bulletins.

10. *Program Committee:* Dr. Elizabeth Dumont, committee chairman, reported that the slide and tape show, "A Seminar in Field Techniques" is presently on call at the Rochester Museum.

The program for the annual conference has been brought to fruition through the able assistance of the members of the Orange County Chapter. Mrs. Dumont also mentioned that there was a lack of response in the call for papers and only nine were received. The remainder came by specific requests to friends.

11. *Louis Brennan* reported that material for the *Bulletin is* close to three issues ahead. Longer papers have been submitted and this will help keep the high quality of the Bulletin. He suggested the possibility of a monograph being published in *Bulletin* format. He also requested that Rochester inform him of the number of issues sold outside the membership each year.

12. *New York Indian Committee:* Chairman Charles Pierce reported that the only legislation relative to the New York Indian that is active now is Bill No. A5997 on Indian Burial Sites.

13. *Finance Committee:* Richard McCarthy has requested that he be dropped from the committee. Dolores Lalock, the new chairman, reported that the committee members are in agreement with the treasurer's report. She also reported that there is no Internal Revenue Service problem at this time.

14. *Henry Wenaple* reported on the Adirondack Archeological Assoc. Plattsburgh, formed in April, 1972. It is not ready at this time to affiliate with NYSAA, although three of the members are members-at-large in NYSAA.

15. *New York Archaeological Council:* Dr. Marian White reported on the improved status of NYAC thus leading to research funding which gives NYSAA more of an impact on the Legislature. There is now a list of 50 site areas to be purchased under the Conservation Bond Issue. For the first time there are Federal funds for summer highway salvage on I-88 and the Genesee Expressway running North and South through the Genesee Valley. One hundred thousand dollars will be available. The report on the Native American resolution looks uncertain and there may be unrest for many seasons. The Moss-Bennett Bill looks favorable but all excavations by professionals is out except under salvage conditions. The situation rests with the fact that Indian remains should not be disturbed.

New Business

16. Louis Brennan reported that the total printing bill for 1972 was 1750.69.

$530.65	Braun-Brumfield	
526.80	" "	
693.24	Village Printing	Total: $1750.69

He suggested a ceiling of $1900 for 1973. Another suggestion was made that postage be included in the publication budget. 73-1 RESOLVED that the Publication Committee be authorized to spend up to $3,000 to put out a publication with all dispatch. Motion: made by Earl Sidler, seconded by P. Collela and carried.

17. A letter from Arthur Einhorn, Lewis County Historian, requesting the reinstatement of the Franklin B. Hough Chapter was read. 73-2 RESOLVED that NYSAA reinstate the Franklin B. Hough Chapter as soon as they meet our qualifications and that they be so notified. Moved by Phil Colella, seconded by Henry Wemple, carried.

18. 73-3 RESOLVED that a constitution committee be appointed to take whatever action is necessary for revision. Moved by Mrs. Elliott seconded by Dr. Colella, defeated for lack of plurality, six to five with seven abstentions. Moved to clarify by Dr. Dumont that the man date of the committee be to produce a new edition of the constitution which would include a listing of all amendments added since 1967. This motion was withdrawn and the whole constitutional matter was taken under presidential advisement.

19. 73-4 RESOLVED that the secretaries of each chapter be included as non-voting members of this body. Moved by Dr. Dumont, seconded by Dr. Larner, passed.

20. A letter from Daniel Barber, President of the Lewis H. Morgan Chapter, offered Rochester as the next city for the 1974 NYSAA Annual Meeting.

73-5 RESOLVED that the NYSAA accept the offer of the Lewis H. Morgan Chapter to host the 1974 Annual Meeting. Kingston Larner moved, Elizabeth Dumont seconded; passed.

21. *Budget:* Alfred Dart of the Fiscal Committee proposed the following budget for 1973-4.

General Operating Budget: *Income:* Dues $675.00 – est 900 members at .75 each
Sale of Publications: $800
Total: $1475.00

Expenses:	Association Administration	$150.00
	Chapter and Membership	25.00
	Public Relations	25.00
	Newsletter and Handbook (to Pub.)	110.00
	Annual Meeting	25.00
	Fellowships and Awards	25.00
	Mailings and Minutes (Secretarial)	125.00
	New York Indian	0.00
	Archives and Libraries	0.00
	Legislation	0.00
	Less Newsletter and Handbook	$110.00
	Total Expenses	$375.00

Amount left for publications: $1100.

It was moved by Elizabeth Dumont that the General Operating Budget be accepted as proposed by Mr. Dart. Seconded by Dr. Colella, and carried.
The meeting was adjourned at 12:30 a.m.

Annual Business Meeting

1. The meeting was opened at 8:20 a.m. EST on April 7, 1973. A quorum was present at this time.

2. The minutes of the Albany meeting were previously distributed. John McCashion moved to suspend the reading of the minutes. Seconded by Henry Wemple. Motion: carried.

3. Reports were read by President Pierce including the Fiscal Committee's General Operating Budget, on the library and archives availability and on the proposed legislation in the form of the Antiquities Bill, Assembly 3907 and the Burial Sites Bill, Assembly 5997.

4. President Pierce named Dolores Lalock and Jack Littell tellers to count the election ballots.

5. Reports were read by Vice President Ehlers and Treasurer Volkert Veeder.

6. Nominating Committee report was read by Dr. Larner, Chairman. He thanked the Chapter secretaries for their effort in securing a complete slate and stated that some of the remedial steps had been taken in sharing the work load in some of the offices. The following were the nominations:

President: Charles Pierce
Vice President: Elizabeth Dumont, Louis Follett
Secretary: William Ehlers
Treasurer: J. Thompson Fuller, James Walsh
ESAF Delegate: Louis A. Brennan

Also presented on the slate was the motion: That the NYSAA establish a new category of membership to be called institutional at the rate of seven dollars and that the present sustaining membership dues be increased to a minimum of twenty dollars.

New Business

7. Dr. Marian White reported in detail on the Antiquities Bill No. A3907.
73-6 RESOLVED that NYSAA go on record as supporting Antiquities Bill No. A3907. Moved by Elizabeth Dumont, seconded by Robert Bredmore, and carried.

8. In regard to a question brought up at the fall executive meeting at Binghamton, Earl Casler reported that the association is incorporated under the educational laws of New York State and this does extend to the chapters. This discussion concerning legal rights of chapters in case of law suits was tabled due to a lack of a complete report. Moved by Charles Gillette, seconded by Henry Wemple, and carried.

9. 73-7 RESOLVED that the election of officers be changed to biannually with the necessary changes made in the constitution and by-laws. So moved by Charles Gillette, seconded by Kingston Larner, and carried.

10. *Report of the Tellers:* Dolores Lalock and Jack Littell reported as follows:
President: Charles S. Pierce
Vice President: Elizabeth Dumont
Secretary: William Ehlers
Treasurer: J. Thomson Fuller
ESAF Rep: Louis A. Brennan

YES - 166 In support of the new category of institutional membership with the higher dues
NO - 48 for sustaining membership.

Mr. Dart urged active support of the sustaining category by all chapters.

11. RESOLUTION 73-1: Resolved, that the New York State Archeological Association express its sincere appreciation to Dr. Elizabeth Dumont and her Program Committee, and to J. Thomson Fuller and his local arrangements committee of the Orange County Chapter for their meritorious service in preparing for and executing all of the fine details necessary for the successful 57th Annual Meeting of the Association.
12. 73-8 RESOLVED that Article VI of the Constitution be changed to read "The Executive Committee shall consist of the four constitutional officers of the Association and a board of trustees who shall be elected or designated, and for such terms of office as the By-laws provide, consisting of one member for each chapter. The number of trustees shall be automatically increased by one whenever a new chapter is formed. In the event a chapter becomes inactive, the number of trustees shall become one less at the time of the next annual meeting but shall never be less than six nor more than twenty four." Motion made by Michael Ripton, seconded by Dr. Colella. Henry Wemple moved to table the motion with information being sent to chapters for discussion before the 1974 Annual Meeting. Seconded by Mr. Dart.

13. Rochester was announced as host of the 1974 annual meeting.

14. Motion was made to adjourn and seconded. Meeting was adjourned at 9:29 a.m. EST.

Respectfully submitted,
Francia G. McCashion Secretary, NYSAA

A PREHISTORIC IROQUOIS SITE ON THE FARRELL FARM

Charles F. Hayes III Morgan Chapter Betty Prisch

During 1969 the eight week field season of the Anthropology Section of the Rochester Museum and Science Center centered upon the salvage excavation of an early prehistoric Iroquois site on the Farrell Farm (Hne 16-1) Caledonia Township, Livingston County, New York.

Salvage work on the Farrell site (recently called the Cole Gravel Pit) has been conducted by the Rochester Museum since 1966, when an Archaic component was discovered (Hayes 1966) (Hayes and Bergs 1969). Previous to 1890, however, the site had been known for extensive surface finds as well as a prehistoric Iroquois component. In 1890, when the Pennsylvania Railroad cut was made along the eastern edge (Wray 1965), a significant part of the Iroquois component was destroyed, including a cemetery area. The Museum's field season lasted from late June to the middle of August and was under the direction of the senior author with Lilita Bergs, associate curator of Anthropology, as assistant. The junior author acted as a volunteer during the excavation and undertook the cataloguing and artifact analysis during the winter months of 1970 and 1971.

The site lies almost on the dividing line between the Great Lakes lowlands and the Appalachian uplands about twenty miles south of Rochester, New York. To the north the Genesee River flows through Rochester to Lake Ontario, after having passed through Avon to the south. The Genesee River at this point exhibits large meander patterns and not too far away on the flood plain are several oxbows around which are found several sites and other scattered evidence of aboriginal occupation. To the east and west the lowlands continue, occasionally interspersed with such glacial features as drumlins, kames and moraines. The Farrell farm is located on a terrace about one mile west of a bend in the Genesee River at an elevation of 50 ft. above its floodplain. The area is composed of assorted gravels and sand of glacial origin. The few remaining large hardwood trees indicate what the terrain looked like before being cleared by the early settlers. There is a spring on the southeastern edge of the site.

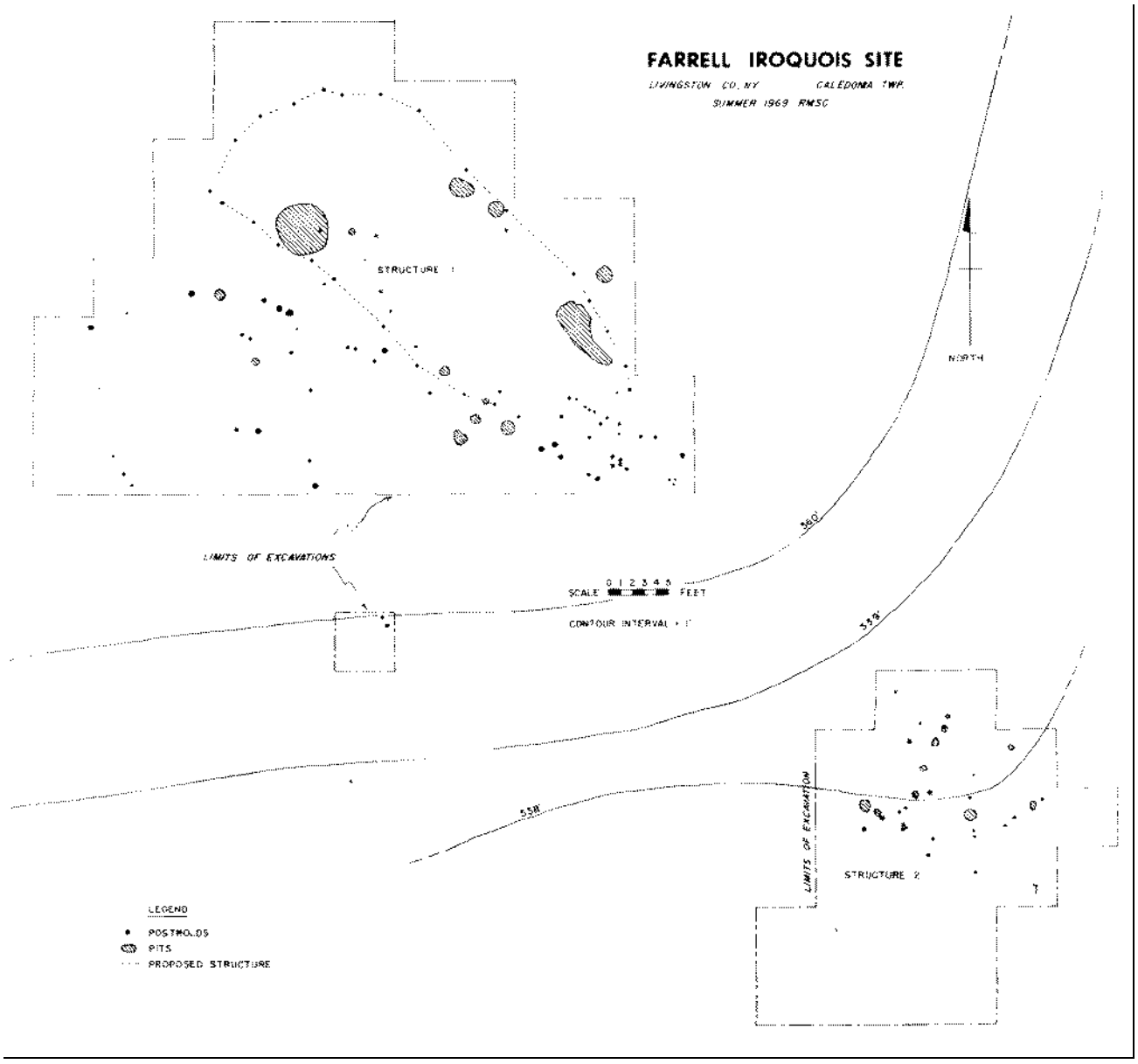
The portion of the site remaining in 1969 lay in a pasture north of the former Farrell Farm barns. This area had never been plowed and, consequently, the refuse was relatively undisturbed, except for constant cattle activity. This refuse was found to be scattered in concentrations of varying sizes over an area 150 x 150 ft. Of this area 2,325 sq. ft. were excavated. Peripheral to the excavated area were large scraped areas resulting from machinery activity. Only occasional pits and post molds were found there. Topsoil over the entire area ranged from 5-11 in. with an average of 8 in., and consisted primarily of a brown loam. Subsoil was a yellow sand with scattered lenses of gravel.

Test holes every 10 ft. on the north, east and south sides of the area of refuse and post mold concentration, and a 100 x 1 ft. test trench on the western edge indicated that the major portion of the site had been delineated. It is doubtful that any additional parts of the site remain untested. Plans for gravel pit operations indicate that soon the entire area will be destroyed.

The settlement pattern derived from the season's excavations gave evidence of a possible small food preparation and/or storage structure 46 ft. long and 15 ft. wide, with one end rounded and the other terminating in a complex of post molds believed to have been part of an attached above-ground storage unit. In addition another above-ground storage structure may have been encountered to the southeast of the larger one. Unfortunately at this point the site terminated because of the railroad cut.

Structure 1

The overall length of this post mold complex was 46 ft. with a maximum width of 15 ft. It could be described as an irregular oval oriented NW-SE. Exterior post molds were spaced at an average of 44 in. apart, with an apparent entrance 7 ft. 10 in. wide on the northeast side. The 25 exterior post molds had an average diameter of 3.2 in. and an average depth of 5.9 in. The majority were V-shaped in cross-section with the remainder being either U or V-shaped, with truncated bottoms. All appeared to have been twisted or driven vertically into the ground. A



scattering of post molds along the interior may have served for support. They had an average diameter of 3.4 in. an average depth of 5.5 in., were V-shaped and also appeared to have been twisted or driven vertically into the ground. One post mold was found in the bottom of a pit.

The above ground storage structure at the southeastern end of the complex consisted of 28 post molds, some of which appeared to have been grouped into clusters of three or five molds, suggesting multiple support instead of one post bearing all the weight. All had been twisted or driven vertically into the ground. One was U-shaped in cross-section, one rectangular and the remainder V-shaped.

Structure 1 had four pits on the interior southwest edge and three more on the northeast edge. Immediately exterior to the structure were three pits on the southwest edge and one on the northeast. All contained miscellaneous refuse described elsewhere in this report.

Structure 2

Indications are that this was another above-ground storage structure. It consisted of 20

FIGURE 1
PITS Hne 16-1

	Pit No.	Diameter	Depth	Top Shape	Cross Section	Angle	Bottom
Structure 1	4	53" x 54"	5"	circular	basin	vertical	round
Interior Pits	7	10"	7.5"	circular	basin	vertical	round
SW Edge	9	6"	14"	circular	basin	vertical	round
	3	6"	7"	circular	square	vertical	flat
Structure 1	5	76" x 15"	2"-5"	irregular	irregular	irregular	irregular
Interior Pits	2	17"	10.5"	circular	V	angled	pointed
NE Edge	1	17"	7"	oval	V	vertical	disturbed
Structure 1	11	13"	6"	oval	basin	vertical	round
Exterior Pits	10	10"	12"	circular	square	vertical	flat at angle
SW Edge	12	12" x 14"	6"	oval	square	vertical	flat
Structure 1 Exterior Pit NE Edge	23	18"	4"	circular	square	vertical	flat
Structure 2	17	7"	5"	circular	square	vertical	flat
Pits	18	6"	8"	circular	basin	vertical	round
	13	6"	6.5"	circular	square	vertical	flat
	15	11" x 12.5"	6.5"	oval	basin	vertical	round
	16	11.5" x 6"	5"	oval	square	vertical	flat
	20	11"	2"	circular	basin	vertical	round
	21	8"	4"	circular	square	vertical	flat irregular
	22	6" x 5"	8"	oval	basin	vertical	round
	19	7" x 4.5"	7"	oval	basin	vertical	round
	24	8" x 13"	5"	oval	basin	vertical	rounded
	14	9"	?	circular	square	vertical	flat
	25	25 " x 18"	6.5"	oval	basin	vertical	rounded
Misc. Pits	6	11"	16"	oval	irregular	vertical	round
	8	8"	4"	circular	basin	vertical	round

post molds having a diameter average of 3.1 in. and a depth average of 8 in. All were V-shaped in cross-section except one, which was V-shaped with a truncated bottom. Two post molds were paired and there was one group of three. The overall diameter of the structure was 12 ft. 4 in. by 5 ft. 8 in. Twelve pits were distributed among the post molds (see Fig. 1). All contained miscellaneous refuse described elsewhere in this report.

There were 26 post molds and two pits (see Fig. 1) scattered outside of Structures 1 and 2. They did not appear to have any significance other than perhaps as the remains of former drying racks or isolated poles. Their average diameter was 4.2 in. and average depth 7.7 in. The majority were V-shaped in cross-section except for four with U-shapes. All except 5 had been either twisted or driven vertically into the ground. The 5 molds were placed at a slight angle to the west, east and south. Occasional post molds seemed paired.

Artifacts

Few artifacts were recovered from the pits (Figure 1) on the site. Pits on the SW edge of the interior of Structure 1 contained potsherds, a flint core fragment and detritus such as shell, seeds, charcoal and flint chips. Pit 2 on the NE edge of the interior of Structure 1 yielded a

projectile point tip, a mortar fragment and a muller fragment in addition to sherds. The other two (Pits 5 and 1) held potsherds, a miniature clay pot fragment and the same refuse as noted above.

Pits exterior to Structure 1 on the SW edge contained an awl and a pipe fragment as well as sherds and charcoal, bone and flint debris. Pit 23 exterior to Structure 1 on the NE edge contained sherds, charcoal and some fire cracked rock. Most of the pits associated with Structure 2 contained a single potsherd, or none at all, and small amounts of shell, charcoal and flint chips.

Structure 1, although only approximately twice the size of Structure 2, contained five times as many flint and stone tools as the latter. On the other hand, Structure 2 contained twice the number of decorative artifacts as Structure 1 and almost as many clay pipe fragments and fragments of miniature clay pots as the much larger Structure 1.

The area SE of Structure 1, believed to be an above-ground storage structure, yielded approximately the same number of flint and stone tools as did Structure 2 but very few pipe fragments and no miniature pots or decorative objects.

The area west of Structure 1 is bounded by an irregular arc of post molds. Ten square feet in the center of this approximately 20 sq. ft. area had previously been disturbed and almost completely stripped of artifactual material. Despite this, the area contained twice the flint tools of Structure 2 and a representative sampling of the bone and stone tools, the pipe and miniature pot fragments and decorative items found in both Structure 1 and Structure 2.

Total sherd count for Structure 1 is 5,197; for Structure 2 - 2,044. The area SE of Structure 1 held 869 sherds and the area west of Structure 1 a total of 1,926 sherds despite the stripped central area.

Flint tools are the most numerous in the artifact inventory and include points, scrapers, knives, drills, blanks, core fragments and assorted examples of worked flint. Of the 59 projectile points, whole or fragmentary, the majority are triangular and approach the Madison type. A minority, however, of stemmed, corner or side notched points may be intrusive from the adjoining Archaic site (Hayes and Bergs, 1969). Of these possible Archaic points, 1 resembles a Brewerton corner notched, 1 is Lamoka-like, 3 are straight stemmed, 3 have expanded stems, 2 are side notched, of the Normanskill type, and 1 is corner-notched. (Ritchie, 1961).

Among the triangular points, five most nearly resemble the Madison type (size range 2.8 x 1.6 cm to 4.0 x 1.9 cm., average 3.3 x 1.8 cm.); two others have deeply concave bases and bulbous cross sections (same range and average). Twelve examples approach equilateral triangles, with bases straight to slightly concave and edges straight or slightly excurvate (size range 2.3 x 1.6 cm. to 3.2 x 2.5 cm., average 2.6 x 2.0 cm.). Six triangular examples, more crudely made, have edges excurvate to irregular and bases straight to slightly concave. They are bulbous in cross section (size range 2.7 x 1.5 cm. to 3.5 x 2.3 cm., average 3.1 x 1.7 cm.). One triangular point has rounded edges and tips and appears ground on the concave basal edge (3.0 x 2.3 cm.). Four examples, triangular with blunted bases, appear unfinished. There are 18 unidentifiable tip and base fragments. In addition, two larger examples, which may be spear points, resemble the Brewerton corner-notched in plan.

A second major category of flint tools is scrapers, with 15 examples. Eight are end scrapers with bifacial work; four are end scrapers with unifacial work. Two are combination end and side scrapers. One other end and side scraper shows heavy use but is not flaked.

There are 14 examples of flint tool blanks including three backed knives, 4 pointed ovals, 5 blunted ovals, 1 base fragment and 1 tip fragment. Of 22 flint core fragments, all showing multiple flake removal, 9 have a minimum of two adjacent platforms. Two tabular cores have parallel platforms. Two are flake cores with a single platform. Four are nodules with one or more blunted faces. Three stemmed, spatulate cores have rectangular stems showing retouch or batter; the spatulate end is sometimes retouched. Two reworked cores are irregularly triangular with bifacial or unifacial work on one or more long edges.

Of eight flint drill fragments, one is eared with an irregular excurvate base and is concave-convex in cross section. A second is double eared with an almost straight base, biconvex in section and thinned. One drill tip fragment is triangular in cross section; the others are biconvex.

There are two flint knives, triangular with excurvate basal edge. They are unifacial worked

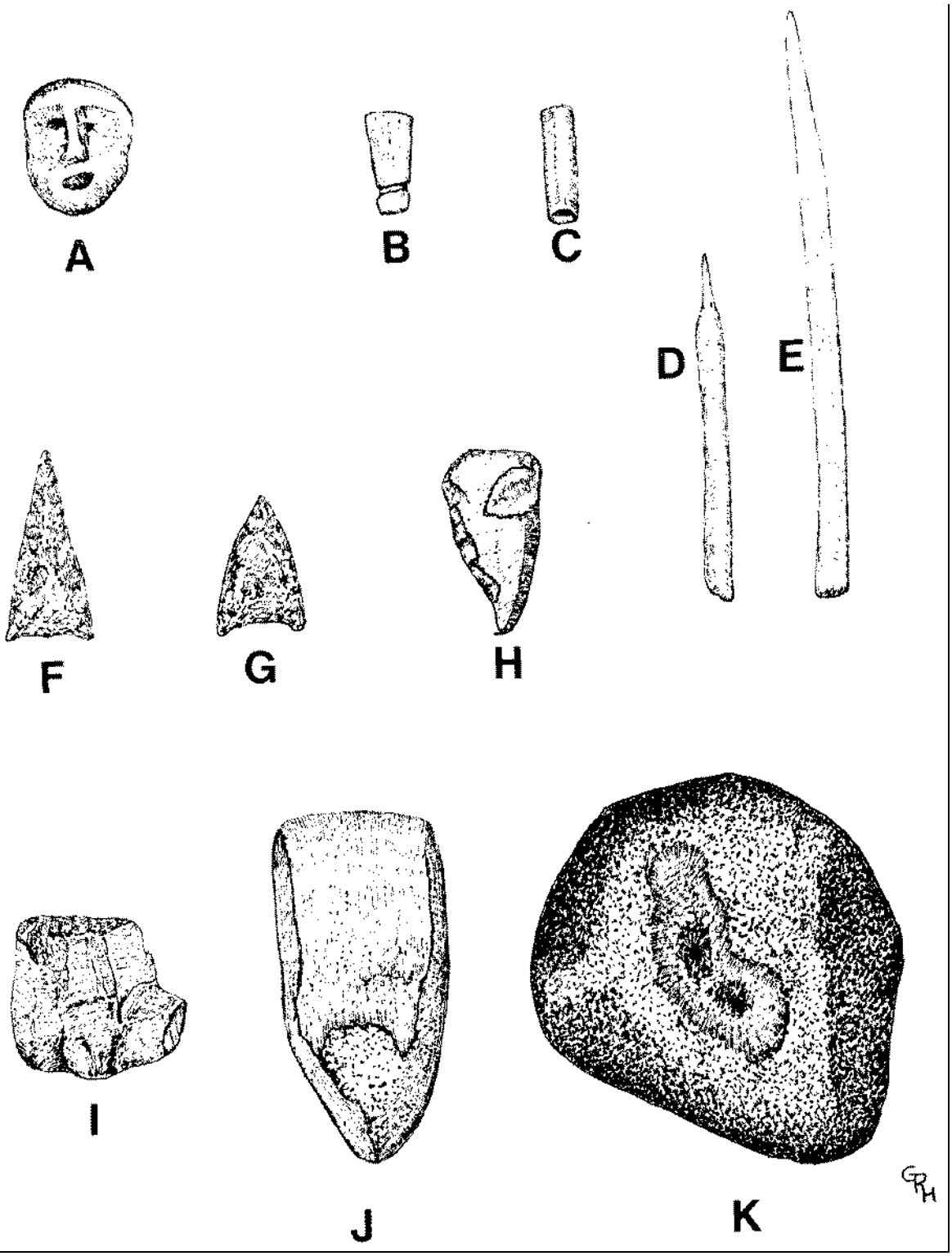


PLATE 1. Farrell Site Artifacts. A, Miniature Clay Face Mask; B. Conch Shell Pendant; C. Cut Bone Bead; D. Bone Awl, needle nosed; E. Bone Awl; F. Projectile Point, flint; G. Projectile Point, flint; H. Strike-a-light and/or Backed Knife-graver, flint; I. Flint End Scraper; J. Stone Adze; K. Bipitted Stone.

on the long edges and partially bifacially worked on the base. One knife-graver is triangular, backed, with an excurvate edge unifacially worked and the hooked graver tip bifacially worked. There are four point or knife fragments, rectangular in plan. Three have three bifacially worked edges and one has two bifacially worked edges.

The miscellaneous worked flint inventory includes 12 examples with unifacial work, 9 with bifacial, 3 with unifacial work plus batter. Additionally, one crescentic, backed example of worked flint is a possible spokeshave.

A total of 97 bone tools and worked bone fragments were recovered. Awls are in the majority with 41 examples. One is a double pointed splinter awl (length 7.5 cm.). Six are tubular awls, (size range 7.1 to 4.2 cm., average 6.0 cm. length) three fragments and three approximately entire. Of the 34 other splinter awls, one complete example is needed-nosed (6.6 x .6 cm.). Five others are complete (size range 6.2 x 1.1 cm. to 11.5 x 1.0 cm., average 8.8 x 1.0 cm.). Three tip fragments with rounded tips are much weather worn.

There are six perforated bone tool fragments, possibly needles or weaving tools. One is perforated only 2.6 cm. from its pointed end.

There are five antler flaker tip fragments. One is cut off at a length of 4.6 cm.

There are 24 presumably decorative items in the bone inventory. Fifteen of these are bone beads. Four perforated canine teeth, 1 perforated deer phalange, 1 perforated, cut and polished bird leg bone, i conical deer bone (bell-bangle?), 1 cut and partially perforated deer long bone fragment, and 1 styliform bone fragment complete the inventory of decorative items.

Of the ten examples of cut bone, 4 are cut and ground on one end, 1 has a diagonal groove at midsection, 1 is cut and worn into a right angle at one end and 4 others simply show cut marks. There are two used bone splinters, one with a notched, polished end and the other with an asymmetrical polished tip.

Miscellaneous worked bone includes two with one end rounded and polished. Two splinters resembling gouge blanks show some polish but no further modification. Finally, there are five miscellaneous fragments of polished bone.

Shell artifacts are represented by two items. One is a conch shell pendant in the form of a styliform bone (1.9 x .9 x .4 cm.). The other is a fragment of perforated fresh water clam shell.

Most of the 79 ground stone tools are made of sandstone. The 17 categories include mullers, mortars, net sinkers, rubbing stones, whetstones, adzes, a sinew stone and various combinations of ground, pitted hammerstones. There is one fragment of perforated slate (shale ?) and four examples of roughly chipped stone tools.

Of the 15 mullers, (including three possibles), 5 are spherical or flattened spheres and 7 are tabular, of bedded sandstone. The 9 mortar fragments include 1 small mortar, approximately entire. The others appear to be fragments of large mortars. Five of them closely approach an average of 2.5 cm, in thickness, with a range of 2.2 to 2.7 cm., while three average 1.2 cm. in thickness with a range of .9 to 1.3 cm.

Five small rubbing stones (1 of which is a fragment of a disc) are represented. Two are cylindrical, 1 oval and 1 irregular, with a scalloped edge. In addition, there are 2 questionable rubbing stones. Five whetstones include one entire which is a long flattened oval in plan. The other 4 are fragmentary but approach the same outline. One sinew stone, a flattened irregular oval, is of red sandstone. It has one continuous, encircling groove.

Of 4 adze fragments, 1 is only roughly chipped into shape and slightly ground. It is made of quartzite. A second adze is of fine textured silt stone. A third is of red sandstone and is small. The fourth is of black granitic rock.

Seven netsinkers (including one questionable) are roughly notched on two opposite edges but otherwise unmodified.

One fragment of perforated slate or shale represents the only apparently decorative ground stone item.

Four tools show miscellaneous chipping. Two are irregular, 1 ovate and 1 a pointed oval, possibly the beginning of a backed knife.

Three tools are simply bipitted stones and do not show further modification. One other bipitted stone has ground depressions rather than pecked.

Twenty two combination tools are represented: 9 show grinding and single pits; 3 show

grinding and bipitting; 4 are bipitted hammerstones; 4 are pitted hammerstones and also show grinding. One ground stone also shows use as a hammerstone, and 1 ground stone is diffusely pecked on one surface.

Assorted historical artifacts salvaged from the site include a 1901 U.S. five cent coin, a 1967 U. S. penny, 40 creamware sherds, one-blue-on-white sherd, four red ware sherds, three clear glass fragments, nine nails, two fence staples and a small amount of rusted metal. One mineralized sandstone coral fossil was also found.

Ceramics

The total sample of rimsherds numbered 396. Of these, 44 were otherwise unidentifiable and were not included in subsequent analysis. Decorative techniques on the exterior face included:

53.5% incising
17.3% linear stamped
12.5% cord wrapped stick impressed
6.5% dentate
6.0% plain
4.2% punctate
100.0%

The majority of rim interiors were plain (90%). Other techniques used included incising 6.4%, linear stamp 1.9%, cordwrapped stick 1.3%, punctate and dentate .2% each. Motifs included 6.7% oblique lines, 2.5% notched, .6% punctate and .2% vertical lines.

Rim tops were plain in 37.6% of the sample. Other techniques were: incising 19.97_0; punctation 15.3%; linear stamp 9.9%; cordwrapped stick 7.1%; castellated 6.2%; dentate 4.0%. Rim top motifs, in addition to 39.4% plain, were 22.7% circumferential linear, 22.2% punctates, 10.5% transverse lines and 5.2% notched.

Only sherds large enough to reveal a substantially complete profile were used in the analysis of exterior face attributes. This reduced the sample size to 108 or 30% of the original rimsherd sample. Of this sample, 35% were collared, 18% had thickened lips and 47% were plain, i.e., various degrees of concave-convexity or straight or everted or inverted but not collared nor thickened. This sample cannot be considered random. It probably is skewed, as 2/3 of the rims were too small to determine whether they represented a collared or a plain profile and therefore were excluded from the analysis.

Techniques used on the 38 collared sherds included 47% incising, 24% dentate, 18% cordwrapped stick, 5% plain, 3% linear stamp and 3% a combination of incising and punctation. Motifs were varied: 21% horizontal lines, 18% oblique lines, 16% horizontal over oblique, 16% opposed lines, 10% oblique over horizontal over oblique, 5% plain, 5% oblique over horizontal over oblique over punctate and 3% each (each representing one sherd) of oblique over horizontal over punctate over horizontal over punctate and a complex of a diamond plat surrounding a castellated, stylized, punctate human face effigy.

The thickened lip rims totaled 20; 70% were incised, 25% plain, and 5% cordwrapped stick impressed. Motifs included 45% horizontal lines, 25% plain, 15 % horizontal over oblique, 10%; oblique lines and one (5%) with deep oval notches on rim edge with horizontal lines below.

Fifty rims were classified as plain (i.e., neither collared nor thickened). 52% of these were incised, 20% were linear stamped, 14% cordwrapped stick impressed, 8% dentate and 6% punctate. Again, the wide variety of motifs included 34% horizontal lines, 18% opposed lines, 12% each of horizontal lines over oblique and oblique over horizontal, 8% oblique lines, 5% vertical lines, 4% oblique over horizontal over oblique lines and 2% each (each representing one sherd) of an overall cordwrapped stick impressed, a notched over horizontal over oblique and a punctate over horizontal over punctate.

Average collar height was 18.8 mm.

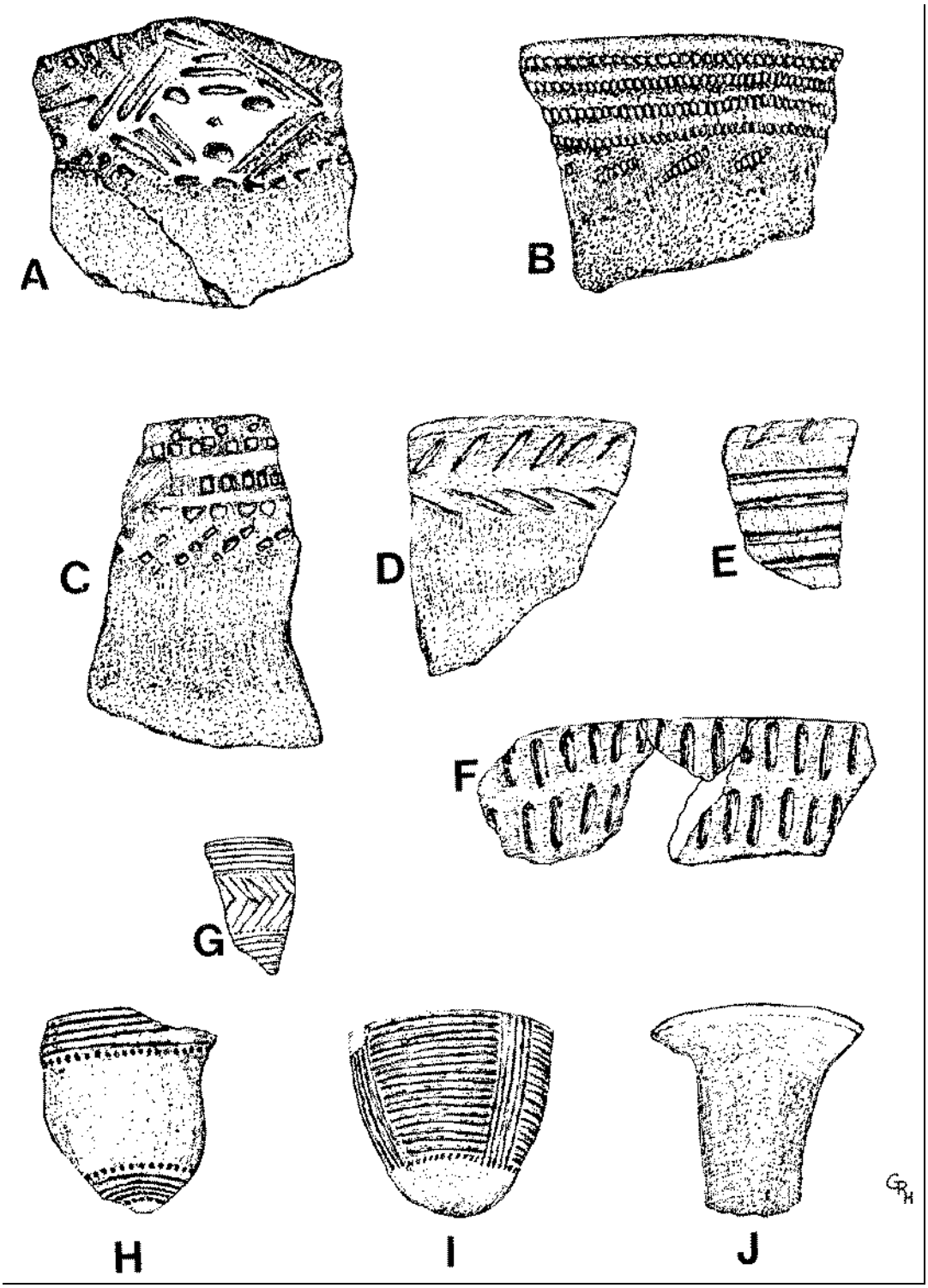


PLATE 2. Farrell Site Ceramics. A. Collared Rimsherd with Castellation, Incised Lines and Effigy; B. Cordwrapped Stick Decorated Collared Rimsherd; C. Slightly Collared Rimsherd with Dentate Impressions; D. Slightly Collared Rimsherd with Oblique Incised Lines; E. Collared Rimsherd with Incised Lines; F. Collarless Rimsherd with Vertical Incised Lines; G-I. Incised and Punctated Pipe Bowl Fragments; J. Trumpet Pipe Fragment.

Bodysherds totaled 12,558. More than 50% of these were too fragmentary to be identifiable. The 5,900 analyzable bodysherds were:

56.6% plain
17.9% cordwrapped stick impressed
11.2% checkstamped
14.3% other, as incising, punctate, etc.
100.0%

All of the recovered pipes are fragmentary (excepting one complete miniature). There are 41 rim bowl fragments, 13 mid-bowl fragments and 46 stem fragments. Recognizable types include barrel shaped, conical, proto-trumpet and plain flared trumpet. Twelve rims average 10 cm. in thickness (range .8 to 1.2 cm.), with inner rim flattened and sloping downward toward the interior. Five of these are conical in shape, with finely incised horizontal and vertical parallel lines bordered with fine pointille work. Two others have similar decoration but are barrel shaped. Five are undecorated. Two rims, also decorated with fine incising and pointille, and also having the flattened and sloped interior rim, measure only .6 cm. in thickness. One is almost straight sided and the other slightly barrel shaped.

There are three bowl rim fragments, somewhat irregular in finish, with casually incised lines. One rim fragment, with slight outward flare and incipient castellation, is decorated with short parallel vertical incised strokes from the exterior rim edge. One trumpet flared rim fragment has square exterior lip and vertical parallel incised lines interrupted by one set of short horizontal incisions.

There is one questionable rim fragment (the interior curvature indicating a possible stem fragment) which is decorated with chevron incising. Exterior is coarse. One rim fragment has an irregularly lipped rim and a sloping row of fine pinprick incisions below. Two slightly flared bowl fragments are punctate on the flattened rim top. One straight sided rim fragment has slightly inwardly sloping rim showing faint notching on exterior edge. There are seven plain straight sided fragments. Ten bowl rim fragments are trumpet shaped with well defined squared lips.

Other than rim bowl fragments, there are 13 mid-bowl fragments, 1 decorated in fine cord-wrapped stick technique, 3 with incised lines and pointille. Nine mid-bowl fragments are plain. There are 13 stems with at least partially intact butt end, ranging from 1.5 to .7 cm. in exterior diameter at the butt end. Two are .6 cm. bore diameter, the others are .3 to .4 cm. bore diameter. There are 33 other stem fragments.

One miniature pipe is of the elbow variety, straight sided. The bowl is incompletely hollowed with the stem bored to a depth of 2.3 cm. It has no decoration. 3.1 cm. length x 2.1 cm. height.
One lug, triangular in cross section with rows of punctates is 2.6 x 1.3 x 1.1 cm. A second lug has broad, stamped linear impressions; it measures 3.6 x 2.9 x 1.4 cm. A third lug with oval punctates is 3.4 x 2.4 x 1.1 cm.

One stylized masquette with three punctates in stylized face outline and with concave back is 1.1 x 1.0 x .5 cm. One portrait masquette, eyes incised, cheeks hollow, mouth irregular, nose shaped three dimensionally with the back irregularly concave, is 2.5 x 2.0 x 1.2 cm.

There are 60 miniature clay pot fragments and 43 clay lumps.

All ceramics except for a few pipe fragments with possible shell temper had grit temper.

Conclusions

At this point in the analysis of the archeology of the Genesee region, it is believed by the authors that the Farrell site component represents a time period of relatively undifferentiated early prehistoric Iroquois. Although no radiocarbon dates were possible, 1250-1300 A.D. would be an estimate of the site's date. The artifact analysis of the Rochester Museum's sample reinforces that accomplished by Wray (1965). If MacNeish's (1952) and Ridley's (1961) ceramic typologies are used, such types as Neutral Incised, Neutral Punctate Lip, Ontario Horizontal and Ontario Oblique can be described. Such designations, according to Wray, relate the site

FIGURE 2
ARTIFACTS Hne 16-1
Distribution of Major Categories

	Structure	Structure	SE of	W of	Total in	Scattered	Total for
Flint tools	11	56	11	25	103	47	150
Bone tools	13	29	7	3	52	16	68
Stone tools	5	24	7	5	41	34	75
Pipe fragments	33	43	3	3	82	19	101
Miniature Pot or Clay fragments	29	39	-	4	72	31	103
Flaker fragments	4	1	-	-	5	-	5
Decorative Bone	11	6	-	2	19	5	24
Adzes	-	3	-	-	3	1	4
Shell	-	-	-	-	-	2	2
Sherds	2044	5197	869	1926	10036	2923	12959
Totals	2150	5398	897	1968	10413	3078	13491

primarily to the Neutral to the west and demonstrate only a few ceramic traits common to prehistoric and early historic Iroquois in the Genesee region. The authors of the present article, however, found it difficult to type specifically all the Museum's samples, and preferred to describe the ceramics in terms of attribute percentages recently utilized in the study of the Onondaga Iroquois (Tuck 1971). If analyzed in this manner the major decorative and technical categories point towards some additional recognizable ceramic continuities within the region from late Owasco through early historic Iroquois. Further regional comparative analysis is planned with the attribute approach.

The settlement pattern data, however, at the Farrell site has added a new dimension to the study of the development of the Seneca Iroquois. Structure 1, for example, bears a distinct resemblance to one outlined at the early historic Cornish site 15 mi. to the east (Hayes 1965). Settlement pattern studies in the last ten years in the Genesee region have demonstrated a definite continuity in post mold, pit and refuse distribution and placement on both prehistoric and historic Iroquois sites. Although some similar settlement pattern traits appear to be widely distributed on Iroquois sites both in New York State and Canada, distinct regional differences are becoming apparent as additional sites are excavated. Such traits are going to be difficult to obtain on an extensive basis because of the time-consuming nature of settlement archeology. Nevertheless unless such an approach is continued, as near a total understanding as possible of the Iroquois will not be available.

NOTE: The authors would like to thank Daniel M. Barber, Registrar, for the settlement pattern map, George R. Hamell, Research Associate, for his drawings of the artifacts and the Cole Sand and Gravel Co. for permission to excavate on their property before the site was nearly destroyed.

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EXPERIMENTAL ARCHAEOLOGY OF RADIOCARBON SAMPLES: TESTING CONTAMINATION DURING RECOVERY

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We have performed a modest experiment in archaeology to test the possible contamination by modern radiocarbon of carbon samples taken for radiometric dating by a commonly observed procedure. This procedure is typical at least of eastern U. S. prehistoric dirt archaeology and may be characterized as: the discovery of datable material such as hearth charcoal by troweling, and the removal of several grams of this material from the matrix with the point of the trowel which has been wiped "clean" with some handy modern fabric or nearby grass. The sample may be then air dried in the sun for an hour (or later in an oven) and the obvious larger roots and soils scraped away. The sample is packaged for storage and mailing either in a wad of aluminum foil or in a plastic bag or in a glass vial. Usually, labeling is done on a tag or scrap of paper which is affixed to the outside (although its insertion into the sample itself is not unknown).

In August, 1970, we buried samples of radiocarbon-depleted carbon and re-excavated them one year later, in August, 1971, by the above procedure (Rippeteau, 1971). This experimental site, R.O.-1, was located in a mixed deciduous and evergreen forest in northern New York State. The samples were placed 8 in. below the surface in a matrix (Stratum II) of well-drained, moderately acid, red sandy loam, which was derived from a granitic lithic environment. In addition, other perishable substances were emplaced (not immediately adjacent to the samples) and the stratigraphic context restored.

The samples consisted of several grams of wood chips and powdered carbon, from the University of Arizona Geosciences collection, which were so old as to have no easily measurable radiocarbon activity. That is, they "dated" greater than some 40,000 years ago. The wood chips were burned with a fossil fuel (no remaining radiocarbon) to simulate charred wood and the heating of the soil at the base of a hearth.

They were recovered by the above methods after one year's water cycle from an apparently fully restored pedological context, and processed in the University of Arizona Radiocarbon Dating Laboratory as if they were standard archaeological submissions. A-1264, the powdered charcoal,

Table 1. Results of sample dating

SAMPLE NUMBER (ARIZONA)	MATERIAL	PRETREATMENT (NaOH, HC1)	RADIOCARBON DATE IN YEARS B.P.
A-1264A	Powdered Charcoal	Yes	> 33,000
A-1264B	Powdered Charcoal	No	> 33,000
A-1263	Charred Wood	Yes	> 25,000

was divided into two units: A, which received the usual chemical pretreatment of NaOH and then HC1 to remove possible soil contaminants, and B, which did not. A-1263, the burned wood, was also pretreated. The samples, after combustion to C02, were counted by gas proportional anti-coincidence techniques now standard in many radiocarbon dating laboratories (Damon and Long, 1962). As usual, 95 percent of the activity of the N.B.S. oxalic acid standard was defined as the present activity, with the present set at A.D. 1950.

The results (Table 1) indicate that less than 1 percent contamination occurred as a result of the recovery procedure or subsequent handling before delivery to the laboratory. The possibility of enrichment of modern carbon by the downward migration of organic material due to the percolation of water (Brown and Gould, 1964) cannot be assessed. It is unlikely to have been significant here, given the short time in situ, but a long term study especially of riverine floodplain environments should be done.

There is a slight discrepancy between the sample ages before and after the experiment. This is an artifact of the small sample sizes we actually recovered from the original emplacement.

If, for the sake of illustration, we ascribe the entire change in activity (that the difference in greater-than dates can imply) to contamination, it is possible to set an upper limit on total contamination. The remaining activity of a radiocarbon sample older than about 40,000 years is about or less than .7% of modern radiocarbon using the conventional Libby half-life of 5570 years. That of a sample equal to or older than about 25,000 years (e.g., A-1263) is about or less than 5%.

If the true sample activity is 0.0%, a measured activity of 5% means it was contaminated 5% by weight with modern radiocarbon whose activity is by definition 100%. Between this extreme and the other, where the proportions of mixing modern samples has no meaning, the same by-weight contamination has progressively less effect upon the calculated age of the sample.

Excepting the as yet unproven Pre-Paleoindian tradition, the majority of American archaeologists are interested in cultural developments within the last fourteen thousand years. And, in fact, most deal with developments of the last six thousand years Before the Present or less. This is less than three half-lives of radiocarbon and for the majority of use, one or less.

A 5% by weight modern contamination of a sample one half-life old will only change the measured age by 400 years. An increase of 1% activity over the one half-life activity of 50 percent amounts to a decrease in apparent age of only about 160 years. This contrasts to the above case where a 5% by weight contamination represented a 5% increase in activity and the change from an infinitely old sample to an age of about 25,000 years.

Presumably the contamination in most cases would be of an old sample by more modern carbon. This would be systematic and potentially admit of a correction factor. However, attempts are not justified with the above experimental data and the lack of actual knowledge of contamination in particular cases. Here, our conservative interpretation is that there was less than 1% modern contamination by weight in our recovery.

The recent increase of background radiocarbon due to nuclear bomb use adds interestingly to this estimate of contamination. The relative enrichment, in reference to the Standard Activity, can give a "future" date for a modern sample. As modern carbon is the contamination source in our experiment, this increased activity slightly increases the sensitivity of measurement.

The implication, under these circumstances, is that the actual amount of contamination by weight was slightly less than the small amount we suggest.

In as much as American archaeologists have concentrated their dating to within the last several thousand years, and assuming the upper limit of contamination suggested for the sake of illustration by our data, it would appear that the commonly used archaeological recovery practice described above is not an important source of dating error.

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THE DEVIL'S HOLE ROCKSHELTER (Cox 36)

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In the valley of the miniscule Coxsackie County town of Limestreet, just off the Schoharie Turnpike and approximately 5 mi. due west of the Hudson River, we found a small rockshelter which yielded about as many aboriginal artifacts as there are citizens in the present community. Nevertheless, we did find enough material in stratified position to conform with a small portion of the established Middle and Late Woodland pottery style sequence. We were aided by our wives, Diana and Gladys.

The southward-facing overhang of Eastern Onondaga limestone occurs as an outcrop along a stream which runs from Hollister Lake-Reservoir. At present the stream is merely a springtime overflow from the Lake Reservoir which disappears down a small sinkhole fissure called Devil's Hole. Landfill on the property of the owners (Mr. and Mrs. Arthur Evans) prevents the stream from running its once normal course eastward.

The shelter sits about 20 ft. above the creek with a 5 to 8 ft. high overhang projecting out over a 3 to 5 ft. floor as measured from talus slope to rear wall. A few feet above and behind the shelter roof is the flat land of the surrounding countryside. Although the overhang is nearly 30 ft. long, only 14 ft. of the floor at the east end showed occupation. The northern end opened into a cave which expelled cool air and was cluttered with large boulders-both detrimental to human comfort. We encountered many large boulders and smaller slabs during our excavations in the occupied area and were in a state of constant trepidation that rocks would fall from the multi-fractured ceiling overhead. The rockfalls and fear of others probably prevented what might have been heavier occupations by Indians. In addition, at the base of the occupied stratum, we came upon another cold air cave which might have discouraged pre-Middle Woodland occupation.

The surface and upper few inches of the excavated a area were littered with modern trash and rock rubble. This graded into Stratum I, an 18-24 in. thick, dark brown midden soil which was heavily interspersed with fallen rock. This upper level showed aboriginal occupation from top to bottom arid overlay an artifactually sterile, yellow-tan gravelly sand 2-4 in. thick. Beneath this was a yellowish-red gravelly sand of untested thickness, but as sterile of artifacts as the superior level.

Since only a single projectile point and a few marked sherds were recovered, it is difficult to reconstruct a sequence with assurance. However the vertical depth relation of the materials is of some consequence, as noted earlier. At 3 inches below the surface, we found 8 (4 mm thick), interior blackened sherds which, because of their fine temper and thinness, are unmistakably like Iroquoian and Algonkian pottery of the Late Woodland Stage. What remained of the face of the single, marked sherd, showed parallel incised lines on a thin, slightly everted and flattened-lip rim with finely crushed shell as temper. Although impossible to type, it does appear to be of Late Woodland vintage. Associated were an ovate knife with an asymmetrical tip and several worked pieces, all of the Eastern Onondaga flint found interbedded within the shelter rock. Numerous flint chips, a few deer bones, and several fragments of sturgeon plates were also found at this upper level.

The second arbitrary level, set by artifact occurrence, was between 8 and 15 in. below the surface and produced evidence of a probable late Middle Woodland occupation as indicated by 4 rocker dentate marked sherds, typical of that period. The thickness of these and a single body sherd (9mm) as well as their medium coarse temper, support the attribution. The lithic material is also typical of Late Middle Woodland: a Levanna point found at 9 in.; a flat knife; ovate knife; point blank; a rude basalt celt; 2 quartzite hammerstones; a single-pitted stone with a roughly gouged-out pit; and another with a very smooth-surfaced pit (a probable functional difference). As often found on Late Middle Woodland sites (though a trait less frequent than at Devil's Hole) we uncovered 4 quartz crystals - use unknown. A surprising discovery, in that such implements are rare in backwoods rockshelters, was a 13x15x3 in. grinding slab of schist. On the smooth grinding surface were 5 pecked holes, possibly for holding nuts for cracking.

The artifacts in the third zone, between 15 and 22 in. below the surface, were mainly found in an elongated depression which stretched approximately 7 ft. along the rear wall from the small cave that first appeared at 12 in. below the surface. Because this contained a relatively large quantity of deer bones, pottery, and flint chips, as well as the few stone artifacts from this level, we at first thought it was a dug feature. After excavation, however, we think it was merely a depression worn into the postglacial subsoil by water discharged from the cave. Possibly the aboriginal occupants threw their debris into the depression to even out the floor as well as to block off the cool air from the cave.

Stone artifacts recovered were: 2 square-based knife fragments; a large schist whetstone; a side scraper; 3 flake knives; a large, double-edged quartzite chopper (possibly for cracking deer bones). Except for one flake knife and one of the square-based knives of Normanskill flint, all flint artifacts were of Eastern Onondaga type.

Since the stone artifacts are not diagnostic, we rely upon the remains of a single pot to assign this level to the early or Middle Woodland. The 8 rimsherds are of Point Peninsula Plain type, having a pinched, everted lip with short, diagonal lines stamped by a paddle edge on the interior lip. Associated were 66 smoothed-over body sherds 11 mm in thickness with coarse quartz temper.

Aside from the numerous deer bones, including deer teeth and the bases of a set of unusually large antlers, this midden yielded evidence of woodchuck, turkey, box turtle, and dog or wolf in the aboriginal diet.

As we suggested on the basis of excavations at other nearby rockshelters of comparable size (Moonshine, Weinman and Weinman, 1969, Hound Dog, Weinman and Weinman, 1969, and Hammerstone, Weinman and Weinman, n.d.), small overhangs were used primarily because of the Eastern Onondaga flint interbedded in the rock walls. Without this attribute the overhangs would probably have been passed by for other locations. Ample evidence of flint knapping is provided by the large quantity of flint debris on all these sites at many periods from Archaic through Woodland times.

Certainly the Devil's Hole shelter is no archeological monument, but it has produced a small ceramic sample in stratified sequence, and demonstrates that in precontact times individuals or very small groups did travel into the back country probably as part of a winter hunting cycle, taking advantage of opportunities to work flint under far from impressive overhangs.