THE ISRAEL RIVER COMPLEX: A PALEOINDIAN MANIFESTATION IN JEFFERSON, NEW HAMPSHIRE

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An opportunistic survey in November 1995 led to the discovery of a Paleoindian fluted point fragment in Jefferson, New Hampshire. Subsequent investigations in 1996 at this locality recovered an additional fluted point as well as abundant debitage. Further survey at two sites within a half kilometer of this site has resulted in recovery of additional Paleoindian materials in the form of a third fluted point fragment, channel flakes, scrapers, retouched flakes and a pièce esquillée. Biface fragments and exotic raw materials, suggestive of but not necessarily diagnostic to Paleoindian, were also recovered. These sites are identified as the Israel River Complex. Assessment of the lithic raw material based upon visual comparisons and limited X-ray diffraction analysis indicates that local as well as exotic sources were used. An evaluation of the chronological placement and site-specific environmental characteristics is presented, and research objectives for future field work are outlined.

INTRODUCTION

The New Hampshire Division of Historical Resources operates the State Conservation and Rescue Archaeology Program (SCRAP) which is dedicated to the dual goals of researching and protecting archaeological resources, on the one hand, and training and educating the public in matters archaeological, on the other. These objectives, while different and distinct, are nonetheless pursued simultaneously through a combination of field and laboratory operations where avocational volunteers are directly involved in the functions of the program. These include formal structured field schools, routine laboratory analysis, report preparation and topic-specific workshops. One of the results is the establishment of a relatively large and diverse cadre of SCRAP volunteers who are not only capable, but anxious, to assist the Division of Historical Resources in archaeological research and conservation. It is within this context that two individuals, Paul Bock and Edward Bouras initially encountered the archaeological sites in question and brought them to the attention of the Division. They carried out the initial survey in 1995. Subsequent investigations in 1996 by the DHR also relied upon SCRAP certified volunteers, and over a dozen volunteers have participated in the investigations, nearly all of whom have substantial experience as contract archaeologists working on various cultural resource assessment projects. This combined effort, while characterized as preliminary or initial, represents over a thousand hours of field and laboratory time.

The first of the sites (27-CO-29), was discovered in June 1995 when an informal walkover survey of a cleared field in Jefferson resulted in the recovery of non-diagnostic debitage. While encouraging, the find was not considered to be remarkable and subsequent surface collections augmented the initial find. Attention was diverted from this site in the autumn after a series of especially violent wind storms damaged stands of conifers located nearby. Bock, intent upon inspecting the upturned root balls, first collected debitage and then basal portion of an unmistakable fluted point. The location of the find (Site 27-CO-28) was precisely marked and a map of the locality was made. The Division of Historical Resources was immediately notified and a volunteer party was gathered to more thoroughly map the site. Encouraged by this success, Bock proceeded to systematically inspect the root balls of other trees in the general area, discovering a third site (27-CO-30) and recording additional materials on the site first encountered in June. Subsequently, more

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27-CO-28/1			
Length	29.9 mm	Distal Channel Thickness	4.1 mm
Width	26.0 mm	Proximal Channel Thickness	3.2 mm
Max Thickness	4.7 mm	Flute Length (1)	28.2 mm
Weight	4.8 g	Flute width (1)	14.1 mm
Material	chert	Flute length (2)	21.6 mm
		Flute width (2)	15.2 mm
27-CO-28/2			
Length	26.5 mm	Distal Channel Thickness	5.0 mm
Width	24.4 mm	Proximal Channel Thickness	3.2 mm
Max Thickness	6.2 mm	Flute length (1)	19.5 mm
Weight	4.6 g	Flute width (1)	10.5 mm
Material	rhyolite	Flute length (2)	22.8.mm
		Flute width (2)	10.9 mm
		Depth of basal concavity	4.1 mm
27-CO-29			
Length	20.3 mm	Distal Channel Thickness	4.5 mm
Width	17.0 mm	Proximal Channel Thickness	3.2 mm
Max Thickness	6.0 mm	Flute length (1)	12.1 mm
Weight	2.1 g	Flute width (1)	7.0 mm
Material	rhyolite	Flute length (2)	11.8 mm
		Flute width (2)	8.5 mm
		Depth of basal concavity	7.0 mm

Table 1. Metric attributes of Israel River Complex fluted points. All length measurements are on broken dimensions, as are all width measurements on the 27-CO-29 specimen.

thorough reconnaissance was conducted through SCRAP, including shovel test pit surveys on all three sites. In April 1996, the most intensive effort was focused on the site which produced the fluted point. Here six test pits, each a meter square, yielded abundant debitage, a few retouched tools and a second fluted point from secure, excavated context. Finally, in the spring of 1997, an additional fluted point basal fragment was found on the surface of the first recorded site. Laboratory analysis of the materials recovered confirmed the presence of Paleoindian artifacts at all three sites. The context, proximity and artifact inventory have led us to identify these sites as the Israel River Complex. The fundamental nature of the sites in the complex is summarized as follows.

SITE DESCRIPTIONS

Jefferson I (27-Co-28)

This site is perched on the leading edge of a terrace. Poorly sorted gravely sand, pebbles and cobbles are plainly evident on the surface and in the disturbed earth of the tree throws. A remnant of a stone wall divides the site in two, and there are several stone piles on the site which resulted from field clearing, some of which were made within living memory. The soils are spodic with a well defined albic horizon overlying a strong reddish orange horizon. Vegetation on the site consisted of large, mature conifers, many of which had been uprooted by the November, 1995 storms. The understory was thin, having been deprived previously of light by the forest canopy. The site area had been a cow pasture in the 1940s however there was no evidence of plowing either in the soil profile or in the memory of the long-term landowner. A small permanent stream passes just below the terrace edge and drains to the Israel River below.

This site was the location of the first find of a fluted point (Figure 1, Table 1). It was found lying on the forest duff, immediately below the broken stubs of roots from an overturned tree. The exact location of the point 10 meters back from the terrace edge was marked as soon as it was recovered, and additional debitage was recovered from the same root ball. Waste flakes were also found in several nearby root balls, indicating that the site was not an isolated find. A week long survey and testing effort was mounted in the spring of 1996. The soil from seven root balls which contained lithic artifacts were screened through 1/8" mesh. This work was carried out because the landowner planned to salvage all of the felled timber. Shovel test pits were

excavated along the margin of the terrace and for 30 meters along an axis perpendicular to it. Cultural materials were found in an area of at least 600 square meters, with the fluted point occurring at the center. Two test pits, each a meter square, were excavated adjacent to root balls which contained the highest concentration of debitage. Also, a small block of four test pits were placed at the location of the fluted point find. This resulted in the recovery of the second fluted point at a depth of 31 cm below the surface.

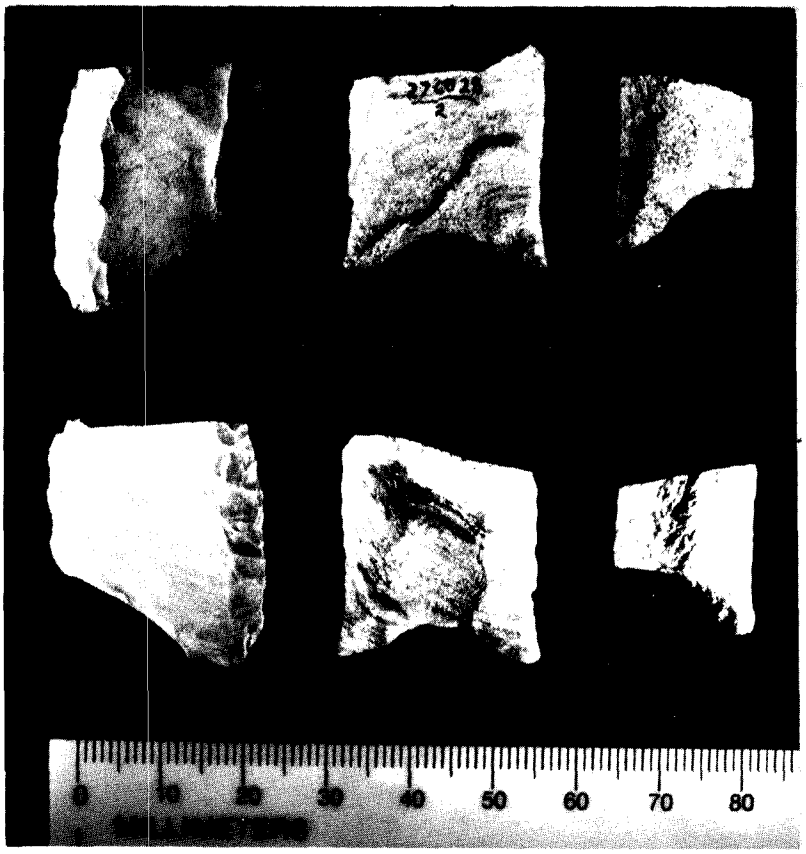

Figure 1. Fluted points of the Israel River complex, obverse and reverse.

An additional area was shovel tested 45 meters northeast of the site area. This was located on a small rise, approximately 2 meters higher than the core site area. A single transect of 6 shovel test pits were excavated, half of which contain debitage. One of these included a striking platform segment of a channel flake, made from Munsungun or Munsungun-like chert. Clearly, additional work is needed at this locus in order to determine its relationship with the other locus. It does, however, expand and confirm the Paleoindian component at the Jefferson I site.

Jefferson II (27-Co-29)

This site is also situated along the margin of a terrace overlooking the Israel River. It is approximately 600 meters from the Jefferson I site and approximately 20 meters lower in elevation. Surface survey, root ball examination and seven shovel test pits have identified debitage and implements along a 200 meter front. The deposits are glacial till, with sizable pockets of sand. The origins of these sands have not yet been determined, and they could be alluvial, lacustrine or aeolian. Like the Jefferson I site, the soils are spodic with very bright distinctions between the albic and orange-red horizons. Much of the site is in an open pasture setting and portions of it have been used within the last three years as a log yard. Disturbance by skidders and other timber processing equipment appears to be slight, although it has exposed some small areas to erosion and artifacts have been recovered as a result. Large conifers surround the site, and a few were blown down in the autumn 1995 storms.

One of the root balls has yielded over 850 lithic specimens, some of which are well defined flakes, while others are barely modified blocky fragments. All of this material is from a rhyolite which is naturally available in the till, and this spot is interpreted as a probable lithic procurement area. Nearly all of the cultural material from this site is this same lithic type (Bouras and Bock, n.d.). Chipped stone tool manufacture is evident at the site, with the best evidence being a broken bifacial preform recovered from the

base of a shovel test pit 30 cm below the surface. It is made from a flow banded spherulitic rhyolite which resembles both the locally available rhyolites in the till and some varieties from the Mt. Jasper lithic source in Berlin, New Hampshire, which is approximately 30 km east of the site. Also made from apparently local rhyolite are two conjoinable fragments of a pièce esquillée. Originally recovered from the same locus on the site, they were recognized as fragments of the same tool only upon later analysis. The fracture pattern indicates that the original tool was broken while in use. Conceivably, this specimen could have been made, used and broken at the Jefferson II site. Pièces esquillées are rare artifact forms, and are usually, but not exclusively, associated with Paleoindian components. Clearly affiliated with Paleoindian, however, is the channel flake midsection recovered from the surface. It is made from an opaque, very dark, almost black, banded chert. A fragment of a fluted point was recovered in April 1997 from a farm road which crosses the site. It consists of one "ear" and exhibits a longitude break which split the deeply indented base. A Paleoindian component is evident at the Jefferson II site. Only further investigations can determine if other time periods may be represented.

Jefferson III (27-Co-30)

This site occupies the highest elevation in the group, situated approximately 45 meters higher than the Jefferson I site and approximately a kilometer away. It occupies a knoll or remnant terrace, which now occurs as an isolated low rise approximately 60 meters long and 30 meters wide, rising 2.5 meters from the surrounding field. It is composed of very stony till, similar in composition to the Jefferson I site. Very few trees remain on the site, most having been toppled in 1995. Like Jefferson I it had been used as a pasture in the early 20th century, and there was no observable evidence or oral history that would indicate it had been plowed.

The site was identified by Bock through inspection of a root ball which produced a biface fragment, a channel flake and debitage. The biface fragment is a midsection of a parallel-sided biface, broken in manufacture. One surface exhibits well controlled, fine scaled, parallel flaking and a convex cross-section while the other surface has broader, deeper flake scars and a crested cross-section with a distinct peaked midline. The biface appears to have been broken while being thinned. The size and proportions of the specimen suggest either a small fluted point preform, or a lanceolate late Paleoindian unfluted Plano style projectile point. It is made of a banded, spherulitic rhyolite which appears macroscopically indistinguishable from naturally occurring pieces in the till on the site. From the same root ball Bock also collected a Munsungun chert channel flake midsection.

On the basis of these finds, a four day reconnaissance effort was mounted in the autumn of 1996. The site was topographically mapped and the soil from the principal root ball was screened. Four transects, each 4 meters apart with shovel test pits on a four meter spacing were excavated. Twenty-two STPs were excavated, only six of which failed to produce cultural materials. Tentative site boundaries were established at one end of the low rise and the site appears to encompass at least 600 square meters. The survey strategy employed at the site underestimated the site size and time necessary to excavate the STPs in the very stony soil, and although the STP interval was widened on the last day to 8 meters, the full length of the site was not established.

The reconnaissance recovered debitage, principally of the locally available rhyolite, but including a small but significant percentage of Munsungun chert, a well made uniface (side scraper), a systematically and delicately retouched Munsungun flake and an additional channel flake. This specimen was recovered from excavated context 30 to 40 cm below the surface. It is made from a very finely banded chert, similar macroscopically to a variety of material from Norway Bluff at the Munsungun source (Nathan Hamilton, personal communication). The channel flake was recognized as such when it was recovered and it was accompanied by a relatively large number of flakes (17) in the same level. In order to capture any other micro-flakes that may have been in association, all of the material which would not pass through 1/8" mesh

we retained and water screened through 1/12" mesh screen. Thirty-eight more flakes were recovered, including five of the same material as the channel flake. In next lowest level the initial 12 flakes recovered were enhanced by 62 additional flakes recovered by the same strategy.

On the basis of the nature of the materials recovered, their density and distribution, it appears that the Jefferson III site is a Paleoindian site with spatially segregated loci of occupation. Fluted points are inferred from the presence of channel flakes. The parallel-sided biface may represent an unfinished fluted point or an unfluted, and therefore presumably later, Paleoindian point. Comparison of debitage by raw material types is left tentative at this stage as a consequence of the two to five fold increase in flake count using a more rigorous recovery strategy.

Israel River Complex

Each of these three sites represents a perspective on the Paleoindian period in northern New Hampshire. Individually they are significant and in the aggregate they are even more so. Even with limited and uneven data, they share important similarities such that they should be viewed as parts of a larger whole, one that is as yet incompletely identified. The common aspects of the sites are: 1) they all contain evidence for the use or manufacture of fluted projectile points; 2) they all reflect very similar patterns of raw material utilization, both in terms of local and non-local material selection; and 3) they share similar site settings on terraces overlooking the Israel River. On this basis, we have chosen to pursue research on these sites viewing them as a closely related group, with probable interrelationships among them. *Israel River Complex* is the term chosen to describe this group, and we fully anticipate that additional sites may be added to the group.

RESEARCH IMPLICATIONS

Information on the Paleoindian period in northern New Hampshire is almost non-existent, and sparse in the interior Northeast. Well excavated and published sites are few. The Whipple (Curran 1984,1994), Vail (Gramly 1982) and Adkins sites (Gramly 1988) still stand as the principal referents, supplemented by limited data from sites such as Weirs Beach (Bolian 1977) and the Reagen site (Ritchie 1953). Closer to the coast (although not nearly as close as at the time of their occupation) sites such as Debert (MacDonald 1968), Bull Brook I (Jordan 1960), Bull Brook II (Grimes et al. 1984), Neponset (Carty and Spiess 1992), and Michaud (Spiess and Wilson 1987) offer a somewhat broader basis for comparisons. To the north, Quebec has yet to yield a fluted point (Chapdelaine 1994:271), and to date the earliest documented manifestations are Late Paleoindian Plano sites such as Rimouski where unfluted, parallel-flaked lanceolate points have been recovered (Chapdelaine 1994). Current research is underway, especially in Maine on sites such as Windy City at Munsungun Lake and Spiller Farm in York, and this will undoubtedly add to our knowledge. Yet the overall database is limited. Attempts at syntheses have been offered, most notably by Dincauze (1996), but await further research before they can be adequately evaluated.

Within this context, the Israel River Complex has the clear potential to provide valuable new information, if for no other reason than because baseline data are so lacking. Consequently, the research questions to be posed are fundamental. They include: from where were these people derived, geographically and in terms of cultural tradition? What larger settlement and subsistence pattern subsumes the sites found in this study area? Conversely, what was the particular contribution of these to the larger pattern, or more simply put: what were they doing in the Israel River valley and what led to the selection of these specific site settings? Fundamental though they might be, these questions are by no means simple. Contemporaneous occupation of the three sites is implied, but not substantiated. Site function(s) is speculative given the available data and resolution of that issue is key to any meaningful interpretation. Even the very basics of lithic analysis, the

identification of raw materials, are uncertain. The broad potential of the research is both heightened and hampered by the scant database. The data collected, while limited, are sufficient to develop some specific directions for research.

Settlement and Subsistence

One focus of research concerns the apparent decisions behind the selection of the site locations. Examination of the Israel River valley during initial site visits provoked an interesting observation. Throughout the valley floor, cobbles and boulders are extremely rare on the surface. (Stone walls are absent, as are field stone foundations for houses and barns.) This led to the speculation that the valley may once have been a glacial lake. Such a lake was hypothesized by Richard Lougee (1930) in the early 1930s; his work was rediscovered by Woodrow Thompson as part of his studies of the glaciation of the region (Thompson et al. 1996). Thompson has verified the presence of the lake which had two phases, an earlier higher elevation termed the Bowman Stage, which drained eastward over the drainage divide with the Androscoggin River, and a later lower elevation termed the Baileys Stage, which drained southwest into the Connecticut River. The Bowman Stage would have totally inundated the site complex, however, when it drained it may have sculpted the terraces upon which the sites are positioned, leaving them above the Baileys Stage of glacial Lake Israel. Each of these terraces would have had a commanding view of the valley and could conceivably have been occupied while the lake was present at its lower stage. Such a placement, either over a lake or subsequent river valley and wetlands, would have provided hunters with a strategic vantage point.

A second aspect of the site location selection may have been the composition of the terraces themselves. From the onset of investigations it was noted that unlike nearly all other Paleoindian components identified in New England, these sites were incorporated into gravelly, pebbly and cobbly tills, rather than sandy deposits. The entirety of the Jefferson I and Jefferson III are in till, as is most of the Jefferson II site. While it is unclear why the majority of the other northeastern Paleoindian sites are on sands, the deviation from the pattern is evident. Close inspection of the composition of the deposits during the test excavations revealed that small (walnut sized) blocky fragments of relatively high quality rhyolite were abundant, and that larger (orange and grapefruit or larger sized) pieces were not uncommon. This was especially evident at the Jefferson II site, where one of the root balls displaced enough workable material and debitage that it has been identified as a lithic procurement area. Bouras and Bock (n.d.) have noted this distribution, and they tentatively identify two varieties of rhyolite from the natural deposits which, macroscopically, are identical to debitage and unfinished tools found at the sites. The presence of rhyolite in the glacial deposits at the sites may have been specifically attractive to the Paleoindian people, leading them to position their encampments on these areas. If so, then early stage manufacturing debris and knapping stations, if not full blown workshops, would be expected at the sites.

Caution is required when identifying these materials as being local, as this material is virtually identical to some varieties of Mt. Jasper rhyolite. Prior to the spring 1996 excavations at the Jefferson I site, six samples of debitage were selected for X-ray diffraction analysis by Steven Pollack. He has been engaged in research to examine the petrology and geological nature of the prehistoric quarry at Mt. Jasper in Berlin, New Hampshire (Boisvert 1992) and artifacts derived from that quarry. Pollack's methodology incorporates macroscopic and microtexture examination, X-ray diffraction, whole rock chemical analysis and electron microprobe analysis (Pollock 1996). The samples were selected because they macroscopically most closely resembled the Mt. Jasper samples. The X-ray diffraction analysis indicated that the Jefferson Site I sample was very similar, but not identical to, Mt. Jasper rhyolite. The distinction lay in the singular presence of anorthoclase not found in Mt. Jasper rhyolite. Pollack (personal communication 1996) indicates that the anorthoclase would form if the Jefferson rhyolite had a cooling history slightly longer than the Mt. Jasper source. In all other respects (geochemically) the rhyolites are the same. This suggests that the Jefferson and Mr. Jasper materials share a common source material within the earth's mantle and that they were extruded

into different dikes with slightly different cooling rates. Subsequently, glacial action plucked the Jefferson materials from exposed bedrock formations and deposited them in the nearby tills.

The Israel River Complex site locations may have been influenced by desire to strategically place encampments on elevated rises overlooking the valley where game, quite possibly caribou, could be observed and hunted. Additionally, the sites were positioned in areas where good quality chippable material could be acquired by simple harvesting from the surface deposits. Preliminary support is found in the recovery of projectile points evidently broken in the haft and in the manufacture of replacement points. Raw material is clearly available and debitage which appears to be from this same stone is abundant in all sites. Much more supporting data is needed to assess this hypothesis and to evaluate alternatives.

Regional Interaction

The Israel River Complex did not exist in isolation from other Paleoindian expressions in the Northeast. All models of Paleoindian lifestyle recognize a far-ranging pattern of transhumance and interregional contacts. This is based principally upon the recognition of the continental wide practice of fluting projectile points and the common occurrence of exotic raw materials from which theses points were made. The Jefferson sites conform to this pattern and have the potential to expand our knowledge of these patterns.

The two fluted points from Jefferson Site I appear to be stylistically different as well as being made from distinctly different raw materials. One point is made from a very high quality material, presumably a chert, which is well patinated. A source cannot be inferred, however it is presumed to be exotic because materials of this type have not been found to occur in the immediate region. The other is a banded rhyolite which, prior to Pollock's analyses, would have been attributed to Mt. Jasper. A more local source must now be considered. Typologically, neither was deeply indented at the base, a characteristic suggested as a trait early in the Northeast Paleoindian tradition. This suggests that the site may not fall into that period. The Jefferson II site, however, does contain a fragment of a deeply indented base and appears to be made from one of the locally available rhyolites. This raises the possibility that his site may be a local expression of this broader Paleoindian stylistic tradition.

The channel flake raw material types offer another perspective on external comparisons. Admitting that macroscopic raw material identifications may be unreliable, it would appear that at least two and possible all of the specimens are from Munsungun formations near Munsungun Lake, Maine. This source is well known and studied (see Pollack 1982; Pollack and Hamilton 1995; Pollack et al. 1984, 1987a, 1987b, 1994) and the estimation of the material type was made by Hamilton who is familiar with the source. If the identification is correct, then this would argue for a connection to the Northeast.

Munsungun was a source for other Paleoindian sites in Maine, supported from material recovered from the Michaud, Lamoreau, and Spiller Farm sites, as well as from the source area (Bonnichsen et al. 1980). Munsungun chert is absent from the Vail and Adkins sites, according to the excavator, but current research by Pollock and Hamilton indicates that it was present at those sites (Hamilton, personal communication 1997). That and the early radiocarbon dates from Vail lead Gramly to propose that the Magalloway complex represents an early expansion into the region by Paleoindians. Expansion of the data set from the Israel River, along with a re-examination of the Magalloway Complex could test this hypothesis and potentially refine, or redefine, our understanding of the place of the Munsungun source for the Paleoindian sites of the Northeast. Identification of contacts to the west and south are much harder to achieve. The channel flake fragment from Jefferson II could have been derived from chert sources in western Vermont or New York and the quartzite microblade core fragment resembles Vermont sources. Given the Vermont affiliation for materials at the Whipple site suggested by Curran (1994:36), such a connection is not unprecedented, however it must be considered tentative. In order to pursue these and related questions, we need to significantly expand our quantitative database on the sources, such as now underway by the Northeast Lithic Database (NELD), and to develop reliable, nondestructive, and affordable techniques for lithic identification.

SUMMARY

The three newly discovered Paleoindian sites in northern New Hampshire represent an important addition to our small but rapidly growing database of the earliest occupations in the Northeast. The investigations to date have provided a great deal of new data which, when scrutinized in any detail, must also be considered very preliminary. The sites cluster together with sufficient similarity of content and context that they can be considered as parts of an integrated larger whole, hence the choice of the term Israel River Complex. Enough data have been collected to allow pursuit of some basic research questions, focusing on issues of settlement, subsistence and external contacts. However, this will require massing of considerable data even to begin to properly address these broad themes. There is a clear need to incorporate research on the geomorphological and paleoenviromental issues into the larger research design. Prominent among such issues is the resolution of the history of glacial Lake Israel, including when did it form (then drain), was it a direct factor in the subsistence and settlement patterns as we suspect or was it only indirectly related? There also is a need to reconstruct the climate and environment during the period of occupation. We are seeking support for a detailed paleobotanical analysis of a proposed coring of a pond that is the last remnant of the glacial lake. Presumably, it can reflect the environmental history of the valley and, in concert with similar data from other locations in and near the valley, shed valuable light on the paleoenvironment.

The core of the archaeological database in the Israel River Complex is the lithic assemblage. Here, three areas stand out as demanding serious consideration. Lithic sourcing is recognized as a critical research area if we are to assess the degree of reliance on local resources as well as chart the contacts, direct and indirect, with other areas of the Northeast. Lithic technology is the second area, offering potential insights into manufacturing processes and the possible articulations to other technological and subsistence subsystems. Thirdly, variability in stylistic attributes of lithic implements, especially the fluted points, is a high priority topic as it remains the principal mechanism through which temporal and sociocultural comparisons are made. These three research domains are interrelated and they need to be considered in an integrated manner.

In addition to these questions, there is the underlying need to resolve two even more fundamental and overarching questions. The first is to adequately define the extent of the complex in spatial terms. There are at least two additional sites within the currently defined limits of the complex. Each has produced debitage (including exotic raw materials) but no temporally diagnostic artifacts. These sites deserve further investigation, as does a systematic survey of the locality in general. The second is to adequately date the complex, both in absolute terms and in relation to other Paleoindian manifestations. Resolution of these questions will require an enormous investment of research effort and resources.

The Israel River Complex is a significant addition to the corpus of Paleoindian data in the Northeast and a long term research program is planned to explore its potential.

POSTSCRIPT

The preceding article is an extended version of a paper presented at the 1996 annual meeting of the Northeastern Anthropological Association (Boisvert 1996) and was submitted just prior to the resumption of field work in the 1997 season. During the spring and summer further work was invested in the Jefferson II and Jefferson III sites. A small-scale testing operation was executed in an eroding area within 70 meters of Jefferson III (27-CO-30). Here a small concentration of local rhyolite debitage was accompanied by several waste flakes of Munsungun chert, two spurred end scrapers, a proximal portion of a probable triangular end scraper, and a large side scraper. This locus is interpreted as an extension of Jefferson III and to be Paleoindian on the basis of the end scrapers. The Jefferson II site (27-CO-29) was the focus of a six week field school, directed by the author in the summer of 1997. Fragments of five additional fluted

projectile points were recovered, along with bifaces broken in manufacture, unifacial cutting and scraping tools and abundant debitage. Local Jefferson rhyolite heavily dominated the raw materials, although small but significant amounts of Munsungun chert as well as other, unidentified high quality cherts. These excavations confirmed the presence of a sizable and significant Paleoindian component at Jefferson II. Interestingly, an examination of the assemblage as it was recovered identified no specimens attributable to later prehistoric eras and the presence of historic period materials was confined exclusively to a well defined plowzone which overlaid at least 40 to 60 centimeters of cultural deposits.

REFERENCES

Boisvert, Richard A.
1992 The Mount Jasper Lithic Source, Berlin, New Hampshire: National Register of Historic Places Nomination and Commentary. *Archaeology of Eastern North America* 20:151-166.
1996 Three Paleoindian Sites in Northern New Hampshire. Paper presented at the 37th Annual Meeting of the Northeastern Anthropological Association, Montebello, Quebec.

Bolian, Charles
1980 The Early and Middle Archaic of the Lakes Region, New Hampshire. In *Early and Middle Archaic Cultures in the Northeast*, edited by David R. Starbuck and Charles Bolian, pp. 115-134. Occasional Publications in Northeastern Anthropology 7.

Bonnichsen, Robson, V. Konrad, V. Clay, T. Gibson, and D. Schnurrenberger
1980 *Archaeological Research at Munsungun Lake: 1980 Preliminary Technical Report of Activities*. Institute of Quaternary Studies. University of Maine, Orono.

Bouras, Edward F. and Paul M. Bock
n.d. A Recent Paleoindian Discovery: The First People in the White Mountains of New Hampshire . Manuscript submitted for publication in *The New Hampshire Archeologist*. In press.

Carty, Frederick M. and Arthur E. Spiess
1992 The Neponset Paleoindian Site in Massachusetts. *Archaeology of Eastern North America*. 20:19-38.

Chapdelaine, Claude
1994 *La Place Cultural Des Paleoindiens de Rimouski dans le Nort-Est Americain. Il y a 8000 Ans a Rimouski: Paleoecologie et Archeologie d'un Site de la Culture Plano.* Recherches Amerindiennes au Quebec, Montreal.

Curran, Mary Lou
1984 The Whipple site and Paleoindian tool assemblage variation: a comparison of intrasite structuring. *Archaeology of Eastern North America* 12:5-40.
1994 New Hampshire Paleo-Indian Research and the Whipple Site. *The New Hampshire Archeologist* 33/34:29-52.

Dincauze, Dena F.
1996 Large Paleoindian Sites in the Northeast: Pioneers' Marshalling Camps? *Bulletin of the Massachusetts Archaeological Society* 57:3-17.

Gramly, Richard Michael
1982 *The Vail Site: A Paleo-Indian Encampment in Maine.* Bulletin of the Buffalo Society of Natural Sciences, Vol. 30.
1988 *The Adkins Site: A Palaeo-Indian Habitation and Associated Stone Structure.* Persimmon Press, Buffalo, New York.

Grimes, John R., W. Eldridge, B.G. Grimes, A. Vaccaro, F. Vaccaro, J. Vaccaro, N. Vaccaro, and A. Orsini.
1984 Bull Brook II. *Archaeology of Eastern North America* 12:159-183.

Jordan, Douglas F.
1960 The Bull Brook Site in Relation to 'Fluted Point' Manifestations in Eastern North America. Ph.D. dissertation, Harvard University, Cambridge Massachusetts.

Lougee, Richard J.
1930 The Origin and Occurance of Glacial Washed Deposits in the White Mountain Region. Unpublished manuscript, Dartmouth College Library.

MacDonald, George F.
1968 *Debert: A Paleo-Indian Site in Central Nova Scotia.* Anthropology Papers No. 16, National Museums of Canada, Ottawa.

Pollock, Steven G.
1982 Bedrock Geology: in *Archaeological Research at Munsungun Lake: 1981 Preliminary Technical Report of Activities,* Munsungun Lake Paper No. 7, edited by Robson Bonnichsen, pp5-11. Institute for Quaternary Studies and Center for the Study of Early Man, University of Maine, Orono.
1996 The Petrology and Geology of Archaeologically Significant materials at the "Mount Jasper Lithic Source". Berlin New Hampshire. Unpublished manuscript.

Pollock, Steven G. and Nathan Hamilton
1995 The Munsungun Lake Formation as a Source for Artifacts Recovered from Archaeological Sites in Southwestern Maine. *Geological Society of America Programs with Abstracts* 27(1):74.

Pollock, Steven G., Nathan Hamilton and Richard A. Doyle
1984 Evaluation of Criteria for Use in the Analysis of Chert Artifacts from the Munsungun Lake Formation, Maine. Programs and Abstracts, Society for American Archaeology, 49th Annual Meeting, Portland, Or., p.89.
1987a Chert formation in an Ordovician volcanic arc. *Journal of Sedimentary Petrology* 57:75-87.
1987b Comparative thin section analysis of artifacts from the Michaud site. In *The Michaud Site: A Paleoindian Site in the New England - Maritimes Region,* by Arthur E. Spiess and Deborah Brush Wilson. Occasional Publications in Maine Archaeology 6. Maine Historic Preservation Commission and the Maine Archaeological Society, Augusta.
1994 Geology and Archaeology of Chert in the Munsungun Lake Formation. Guidebook to Field Trips in North-central Maine, pp. 159-181. New England Intercollegiate Geological Conference.

Ritchie, William A.
1953 A Probable Paleo-Indian Site in Vermont. *American Antiquity* 18:249-258.

Spiess, Arthur E. and Deborah Brush Wilson
1987 *Michaud: A Paleoindian Site in the New England-Maritimes Region.* Occasional Publications in Maine Archaeology 6. Maine Historic Preservation Commission and the Maine Archaeological Society, Augusta.

Thompson, Woodrow B., Brian K. Fowler, Sarah M. Flanagan and Christopher C. Dorian
1996 Recession of the Late Wisconsinan Ice Sheet from the Northwestern White Mountains, New Hampshire. Guidebook in Field Trips in Northern New Hampshire and Adjacent Regions of Maine and Vermont, pp. 203-234. New England Intercollegiate Geological Conference.