ANALYSIS OF AN OBSIDIAN BIFACE REPORTEDLY FOUND IN THE CONNECTICUT RIVER VALLEY OF VERMONT

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An obsidian biface reportedly found in the Connecticut River Valley of Vermont, is the only currently locatable obsidian artifact purported to have been found in Northern New England. As such, it may be evidence for prehistoric long-distance exchange, a product of modern- or historic-period trade among artifact collectors, or it may be a modern replica. Four criteria are outlined to assess the artifact's authenticity as a product of prehistoric trade: provenience, cultural affiliation, age, and geological source. Archaeological provenience of the biface is vague and not testable. Geochemical assays demonstrate that the point is made from obsidian originating in the Great Basin. Measurement of an obsidian-hydration rim indicates that the point was made prehistorically. Typological analysis is ambiguous: The point may be assigned to types defined in northern New England or the Great Basin. The biface therefore cannot be considered authentic evidence for prehistoric long-distance exchange, and future claims of extremely long-distance trade must consider alternative explanations for the presence of obsidian artifacts in New England.

INTRODUCTION

Many archaeologists are keenly interested in identifying evidence of prehistoric long-distance trade and exchange. Stone is one material that has received particular attention from archaeologists because it can be directly associated with specific geological outcrops of known geographical distribution. In most regions, archaeologists have a general knowledge of the types and sources of stone that were used, as well as the general macroscopic attributes by which they are identified. The term "exotic" is often used to describe stone that is different from what archaeologists expect to find within their region of interest.

In Vermont, occurrences of exotic-stone artifacts have been reported from sites dating from the early Holocene to European contact. For example, a biface made of quartzite from Labrador (Ramah Bay Chert) was found in northern Vermont (Loring 2002), and small piles of microflakes of chert believed to be from the Midwest (perhaps Burlington Chert from the Mississippi River valley) were found at East Creek (VT-AD-1) (Loring 1985; Olsen 1936). The reasons for and the methods of exchange are subjects best reserved for another publication. What is important here is that stone from distant sources has been recovered from well-documented archaeological contexts in Vermont.

An obsidian biface in the artifact collection of Gerald B. Coane, curated at the Putney (Vermont) Historical Society (PHS) is one occurrence of a so-called exotic lithic material reportedly found well away from its potential source; however, the distance between New England and any known obsidian source is substantially greater than that between chert sources in the Midwest or Labrador. Here, we use multiple analytical methods to provide quantitative information concerning the geological source and relative age of this artifact. We believe that the factors of source and age can be used to independently assess the authenticity of the tool as a prehistoric artifact and as genuine evidence of long-distance exchange. Further, we hope that by examining this novel find we may draw professional attention to the state and condition of other New England artifact collections that are in need of examination.

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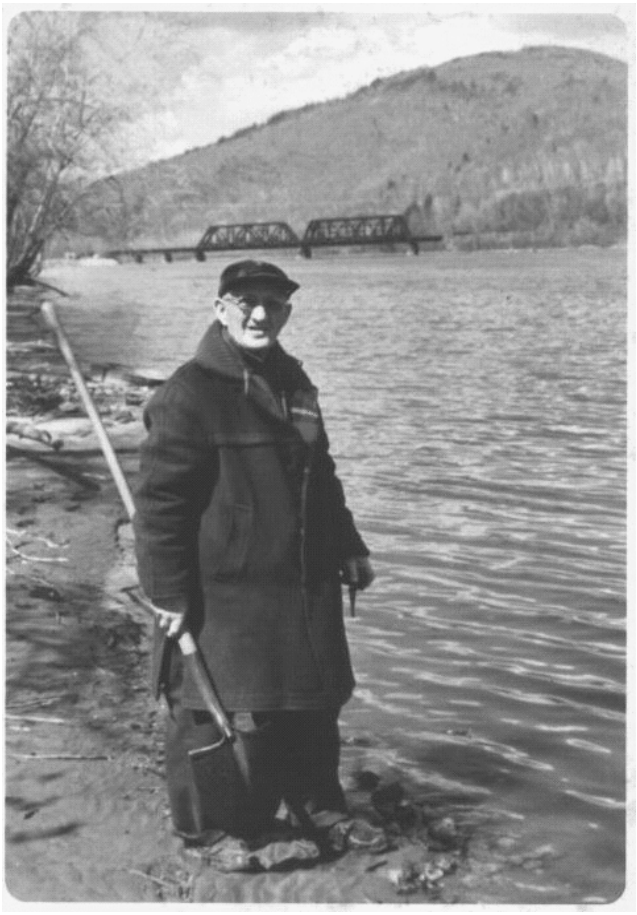

Figure 1. Photograph of Gerald Coane with shovel in hand, circa 1965. Coane is believed to be standing on the bank of the Connecticut River at the site of Fort Dummer. Wantastiquet Mountain and the railroad crossing of the Connecticut are visible in the background.

A BRIEF HISTORY OF THE COLLECTION

Gerald B. Coane (Figure 1) was born in Brattleboro, Vermont, in 1898. After serving in World War I, he returned to southeastern Vermont and worked for a local gear factory. Later in life he operated the railroad crossing over the Connecticut River. Coane retired in the early 1960s and began collecting artifacts on a regular basis. Although not trained as an archaeologist or educator, Coane freely lectured local schools on the prehistory of the region, and he used his collection as an educational guide. In the early 1970s, Coane moved into a retirement home and donated his collection to the PHS. In 1979, shortly after donating his collection, Coane died.

Artifact collecting seems to have been only a passing hobby for Coane. His collection is estimated to contain less than 250 prehistoric and historic objects, making it relatively small compared to other amateur collections that we have observed throughout the state. Projectile points and other flaked-stone implements are the most common objects in the collection, and most of these pieces appear to have been collected from sites in the state.

Coane maintained a catalog of his finds and provided a copy of it to the PHS with the collection. Entries in this catalog indicate that he focused his artifact collecting activities close to home. Though not all of the artifacts have proveniences, most of those that do are attributed to West River (VT-WD-3) at the confluence of the West and Connecticut rivers just north of Brattleboro. Within this catalog, we find two entries for obsidian artifacts. The first is piece numbered Y10 “Large obsidian (lava glass) arrow head. Made by the Tarahumare [sic] Indians of northern Mexico.” Immediately following this entry is Y11 “Obsidian arrow head found on the shore of the Connecticut River” (Figures 2 and 3).

As with many nineteenth- and twentieth-century artifact collections in the state, Coane’s collection has never been fully inventoried, cataloged, or analyzed by a professional archaeologist. The first mention of the point in a professional context of which we are aware comes from a brief survey of the collection made by Stephen Loring and Shelley Hight in 1978 then working with the Vermont Collections Survey. Loring and Hight had been asked to look at the collection by the PHS. Loring and Hight visited the museum after a day of examining other collections in the area, they stopped at the PHS in the late afternoon. The lateness of day and an early snowstorm made working in the unheated museum somewhat hurried and uncomfortable; however, they managed to photograph and briefly describe the collection before leaving for the day. In Loring’s (1978) writeup of the collection, he drew some general conclusions about the collection’s potential utility in addressing archaeological research in the Connecticut Valley. Though he mentioned the obsidian piece, he declined to speculate as to its origin.

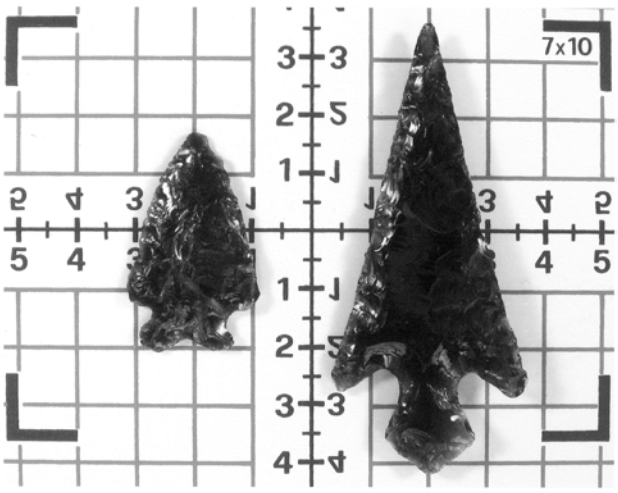

Figure 2. Dorsal sides of the two obsidian points found in the Coane collection. Left: Catalog number 11, a notched and indented-base obsidian biface reportedly found "On the Shore of the Connecticut River" in Vermont. Right: Large triangular biface reported as "[m]ade by the Tarahumare [sic] Indians of northern Mexico." Scale is in centimeters.

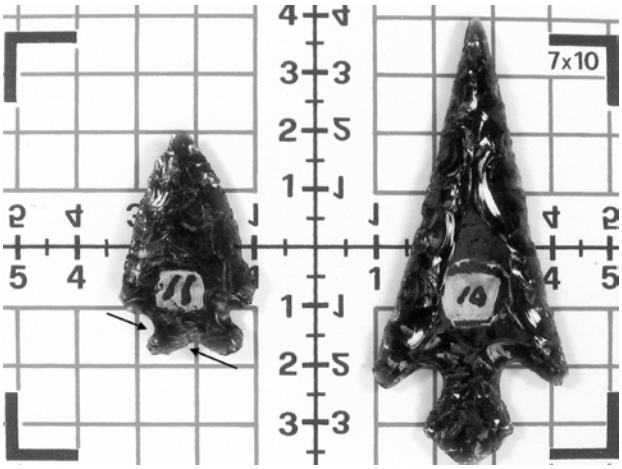

Figure 3. Ventral sides of the Connecticut River and northern Mexico points in the Coane collection. Left: Catalog number 11, a notched and indented-base obsidian biface reportedly found "On the Shore of the Connecticut River" in Vermont. Right: Catalog number 10, a large triangular biface reported as "[m]ade by the Tarahumare [sic] Indians of northern Mexico." Arrows indicate section removed for analysis. Scale is in centimeters.

In 1988, the Vermont obsidian point caught the attention of Daniel Cassedy, then working for the Vermont Division for Historic Preservation (VDHP). Cassedy obtained the Vermont obsidian piece and submitted it to Henry Chaya at the State University of New York at Albany (SUNY–Albany) for nondestructive trace element analysis. Though not explicitly stated in the initial correspondence between Cassedy and Chaya (on file at the VAI), Chaya likely intended to use X-ray fluorescence (XRF) to determine the point's composition.

Unfortunately, the researchers were unable to match the composition of the point to any obsidian sources characterized by the SUNY laboratory. In a short letter to Cassedy a year later, Chaya expressed his intent to analyze the point by neutron activation analysis (NAA). It is unclear whether the NAA assay was ever completed, but six years later while inventorying their collections, the PHS realized that the point had never been returned. By this time Cassedy had left the VDHP, and Chaya was no longer at the SUNY laboratory on a regular basis. A flurry of letters among the PHS, the VDHP, and the SUNY anthropology department ensued. Eventually the point was returned but without any indication of its geochemical composition geological source. Since that time, the Vermont point has been held by the PHS and no further attempts at analysis have been made.

REGIONAL CONTEXT FOR LONG-DISTANCE EXCHANGE

It is difficult to assess statements concerning most so-called exotic materials reported from New England as few researchers have used quantitative methods to establish from where the stone originated. In lieu of quantifiable data, we rely on qualitative assessments made by experienced archaeologists working in the region. However, we do so cautiously given the difficulty of confidently identifying types and likely geological sources of particular stones in New England (Calogero 1992, 1995).

Within the Connecticut River valley, Cassedy's (1991) inventory of sites located in the upper portion of the Valley (from the Massachusetts border in the south to the Quebec border in the north) contains descriptions of over 125 sites and prehistoric-artifact collections in New Hampshire and Vermont. Of the sites listed, eight contained stone described as nonlocal or exotic. Although there are two intriguing statements about artifacts made from a lustruous white chert (Cassedy 1991: 19, 30), there is no mention of obsidian being found at any sites in the valley.

In the lower portion of the river valley (the Vermont-Massachusetts border to Connecticut) McBride (1984) conducted an extensive site survey. Like Cassedy's 1991 study, McBride reports finding a low percentage of artifacts made from presumably nonlocal stone, but he makes no mention of finding or hearing reports of obsidian artifacts.

The authors are aware of only one other instance of an obsidian artifact being found in Vermont. Paul Bilhuber, another Vermont artifact collector, reported to the Vermont Historical Society (VHS) that he had collected an obsidian biface from the Donovan site (VT-AD-2) in western Vermont. The only reference to this point comes from a letter written by Bilhuber to the VHS. According to Giovanna Peebles, Vermont state archeologist, after Bilhuber's death portions of his collection were donated to a local library, and other portions were sold to another artifact collector (personal communication from G. Peebles to M. Boulanger, March 16, 2007). Cassedy was unable to locate this piece in the 1980s, and this piece could not be located for our analyses either. We believe it likely lost to history.

Reports of obsidian in New Hampshire are quite similar. Richard Boisvert, State Archaeologist of New Hampshire, informs us that one artifact collector reported finding an obsidian point in the state. Boisvert, however, is skeptical enough of the claim that he has not pursued it. Aside from this single hearsay report, Boisvert is unaware of any other reported finds of obsidian in the state (personal communication from R. Boisvert to M. Boulanger, June 9, 2005).

OBSIDIAN IN THE NORTHEAST?

Despite the fact that prehistoric long-distance exchange of stone occurred, obsidian is not commonly found in archaeological contexts within Vermont's borders or the greater Northeast. However rare or unbelievable such finds may be, several researchers have pursued these claims in recent years.

Dillian et al. (2005) analyzed several obsidian artifacts purportedly found in New Jersey, and they determined that these pieces are geochemically similar to obsidian sources located in California and Utah. They argue that the obsidian may be evidence of "occasional gifting or reciprocal exchange of exotic items" (Dillian, et al. 2005) prior to European contact.

Gramly (2003) has also reported the presence of some isolated pieces of obsidian in the Northeast. Four obsidian artifacts present in an amateur's collection were purportedly discovered in New York's Genesee River valley. Geochemical analysis of these pieces determined that their compositions matched those of four separate obsidian sources in northern California and Oregon. In reporting the analytical results to Gramly, one of us (Glascock) stated his opinion that "the diversity of sources and long distance from the Genesee Valley raise serious doubt concerning [the pieces'] authenticity" (Glascock cited in Gramly 2003: 38).

In discussing these findings, we note some similarities in the histories of each of the obsidian pieces: Each was found by an artifact collector or amateur archaeologist during the mid-twentieth century; none of the pieces has a well-documented provenience; and, in the single instance when a controlled excavation has been made at the reported findspot (i.e., Donovan), no additional obsidian has been found (Table 1).

We note that there are also several early twentieth-century reports of obsidian, particularly and peculiarly in New Jersey; however, as with the above-noted reports, all were made by amateur archaeologists, the finds were in poorly documented contexts, and few of these pieces can be located at present. How then can two different groups of researchers studying obsidian artifacts reach two different explanations concerning

Table 1. Proveniences, find histories, and typological affinities of reported Northeast obsidian finds discussed in the text. Reports of obsidian found in New Jersey during the early twentieth century discussed by (Dillian et al. 2005) are not included. Note that all of the pieces of obsidian found in the Northeast have been traced to geological sources in the far west, and that obsidian from these sources has not been found at other sites east of the Mississippi.

Reported Provenience	State	Year of Discovery	Found By	Typological Affinity	Geological Source	Reference
"found…while digging the foundation [of a] house"	NJ	1960	Private Individual	Similar to defined types from CA, OR, WA.	Blue Spring (CA)	(Bello and Cresson 1998)
No data on date of find, provenience, or circumstances of the find.	NJ	1958?–1976	Geologist	Nondiagnostic	---	(Bello 1997)
"On a slope above the North Branch of the Raritan River"	NJ		Amateur Arch.	2 pc. Debitage	Black Rock (UT)	(Dillian, et al. 2005)
General provenience of Monmouth County	NJ		Amateur Arch.	1 flake, 1 biface not typologically similar to defined NE types	Topaz Mnt (UT)	(Dillian, et al. 2005)
General provenience to various Woodland-period sites	NY	Mid 20th Century	Amateur Arch.	2 edge-retouched flakes, 2 bifaces dissimilar to any defined NE types	Blue Mnt (CA) Newberry Crater (OR) Annadel (CA) Bodie Hills (OR)	(Gramly 2003; Speakman 2003)
Donovan (VT-AD-2)	VT	1921–1951	Amateur Arch.	Unspecified	---	VAI Site Files
"On the shore of the Connecticut River"	VT	1961–1975	Amateur Arch.	Elko series from the Great Basin	Double H (NV)	VAI Site Files

authenticity of these finds, and how do we explain the Coane obsidian piece? Is the Vermont biface authentic evidence of exchange, or is there reason to doubt its authenticity? We believe that scientific reasoning is key to determining the authenticity of Coane's obsidian point as well as other reported finds of obsidian in the greater Northeast.

DETERMINING AUTHENTICITY

Building on research of the late 1960s (Griffin, et al. 1969), most finds of obsidian east of the Mississippi River have been definitively linked to a relatively small number of large obsidian quarries. Further, these pieces have been found in contexts typically associated with the Adena/Hopewell interaction sphere of the Midwest. Because of this preponderance of evidence, we propose that if the Vermont point is authentic evidence of prehistoric exchange (manifest in any form) it will be traceable to a geological source from which other artifacts have been found east of the Mississippi. We further propose that the most likely context for obsidian will be associated with other Adena/Hopewell materials or during the contemporaneous Middle Woodland Period. Although we admit that it is *possible* that the point could be from an obscure geological source that was neither extensively used in prehistory nor widely exchanged, we do not believe that this is a *plausible* scenario.

Based on the above evidence, we propose that for any obsidian to be considered authentic evidence of prehistoric exchange, it must fit a majority of (at least) the following criteria:

1) well-documented and testable archaeological provenience;

2) reasonable cultural or typological affiliation or affinity supported by additional evidence from the region;

3) be demonstrably older than the age of European contact; and

4) have originated from a quarry from which other long-distance-exchange items have been obtained. In the absence of a well-documented archaeological context for the Vermont specimen, we forego this criterion and proceed to assessing the point's cultural and typological affiliations.

TYPOLOGICAL AFFINITY

It must be stated from the outset that although there is some evidence to argue for at least a slight Adena influence in Vermont (Ritchie and Dragoo 1959), evidence for a Hopewell influence is lacking. Regardless, Coane's Vermont obsidian biface does not fit easily into any type definitions associated with Adena/Hopewell or types defined for the Northeast.

The point (see Figures 2 and 3) is notched and has a bifurcate base. Morphologically, the point could be grouped with the Bifurcate-base Point tradition of the Early Archaic in New England. Though specific subtypes of this tradition are poorly defined, the point somewhat resemble the Swanton Corner-Notched type, a corner-notched and bifurcate-base point type associated with the Early Archaic period of northern Vermont (Haviland and Power 1994; Thomas and Robinson 1980). The Early Archaic period is generally recognized as a period of sparse occupation, and few sites that date to this period have been found in northern New England. Importantly, long-distance exchange is not considered prevalent during this period.

AGE OF THE BIFACE

Unfortunately, determining the absolute age or cultural association of a stone point is not a straightforward endeavor. Radiometric dating is not an appropriate technique for analyzing obsidian artifacts, and the archaeological context of the point is vague. Undertaking intensive excavations to recover charcoal suitable for radiocarbon dating also is not an option precisely because of the vague context. This leaves two potential techniques for establishing the age of the point: Culture-historical typology and obsidian hydration dating. As discussed above, the point is similar to an Early Archaic bifurcate-base type found in northern New England. In addition to this type designation, we also employ obsidian-hydration dating to determine a relative date at which the point was manufactured.

Obsidian-hydration dating, like any archaeological dating technique, has limitations and benefits. Rates of hydration are not constant across the world, primarily due to variations in local temperatures and humidity. Chemical composition also affects hydration rate, and hydration rims on obsidian from different geological sources should not be directly compared. Further, reuse or exposure of a new surface on the artifact will produce a hydration rim that does not represent manufacture of the tool. Despite these factors, we believe that obsidian hydration is a useful tool for establishing relative ages of artifacts (i.e., the thicker the rim, the generally older the artifact) and among artifacts from the same site or region and from the same geological source (i.e., comparison to a population of artifacts from similar sources). Because it is inappropriate to blindly compare obsidian hydration rims from multiple sources and contexts, we sought first to establish the geological source of the obsidian.

ANALYSES OF THE BIFACE

The obsidian biface was analyzed at two facilities: the University of Missouri Research Reactor (MURR) Archaeometry Laboratory, Columbia, and the Northwest Research Obsidian Studies Laboratory (NWORSL), Corvallis, Oregon. In addition to the biface reportedly found in Vermont, the other obsidian piece in Coane's collection (reportedly from northern Mexico) was also analyzed by XRF (at MURR) as a comparison.

Analyses at MURR were conducted first using an ElvaX energy-dispersive X-ray spectrometer calibrated using a variety of standard reference materials and well-characterized obsidian sources. Analysis with the ElvaX spectrometer is nondestructive, and requires virtually no sample preparation for most samples. To ensure an accurate characterization of the obsidian, each biface was analyzed six times (three on the dorsal, and three on the ventral side of the artifact) at varying locations. The resulting spectra were converted to compositional data and compared against the MURR obsidian-source XRF database consisting of approximately 250 separate source localities including the major, and most minor, obsidian source in North America.

The composition of the northern Mexico biface matches the geochemical source profile of the Pachuca-1 obsidian source in Mexico. Though the point appears to have been made in a haphazard manner suggestive of a tourist-trade item, the provenience listed in Coane's catalog seems plausible because the Pachuca obsidian source is indeed in northern Mexico. The source of the Vermont biface was more difficult to determine. Its composition did not match any of the 250 sources we have characterized with the ElvaX spectrometer.

In an attempt to confidently identify the geological source of the Vermont piece, we obtained permission from the PHS to remove a small section of the biface for analysis by neutron activation (NAA). After analysis by XRF, a small portion of the Vermont biface was removed with a diamond-tipped rocksaw and submitted for NAA using standard MURR procedures for short (5 sec.) and long (24 hr.) irradiations and counting (Glascock 1992). Because of its small size, the same analytical sample was used for both irradiation cycles.

MURR has characterized over 15,000 individual pieces of obsidian by NAA, a sample that includes over 500 geological sources. However, as with the XRF results, no definitive match to the biface's composition could be found in the database. We were unable to identify the geological source of the sample or any other artifacts that matched the composition of the Vermont biface. We believe that this result is itself quite telling, because it allowed us to exclude the possibility that the Vermont piece came from any of the more than 500 obsidian sources characterized by NAA at MURR. Importantly, this database contains data for all sources to which obsidian artifacts found east of the Mississippi River have been traced (e.g., DeBoer 2004; Griffin, et al. 1969; Hatch, et al. 1990), and the Vermont point is not assignable to any of these sources (Figure 4). Because no match to the point's composition could be made within the MURR database, it seems reasonable to conclude that whatever source this artifact came from was not one that was widely used or distributed in prehistory.

Following completion of these two assays at MURR, the lead author contacted Skinner at NWROSL and requested that he compare the MURR-generated compositional data against his database of obsidian sources in the western U.S. Skinner agreed to do so, but because of differences in instrument detection limits and the numbers of elements measured, this comparison was inconclusive. Skinner requested that the point be sent to him for direct analysis as well as hydration-rim measurement.

The composition of the Connecticut River obsidian point as determined by each technique at both laboratories are provided in Table 2. After unsuccessful comparison with geochemical profiles of several other obsidian source profiles a positive match was found with the Double H obsidian source located in the Double H Mountains of north-central Nevada (Figure 5). The Double H obsidian source is a relatively obscure and small source not typically associated with long-distance exchange even within the northern Great Basin (Jones, et al. 2003). Indeed, the source was so obscure that Skinner himself had only recently identified it and submitted samples to MURR for characterization by NAA.

	NWROSL XRF		MURR XRF		MURR NAA	
	Value	±	Value	±	Value	±
Al%	---	---	---	---	6.03	0.26
Ba	bdl	31	---	---	bdl	1.19
Ce	---	---	---	---	121.06	0.69
Cl	---	---	---	---	413.10	106.00
Co	---	---	---	---	0.03	11.93
Cs	---	---	---	---	9.27	0.09
Dy	---	---	---	---	16.14	2.00
Eu	---	---	---	---	0.74	14.83
Fe%	2.80	0.11	2.18	0.01	2.26	0.01
Ga	22	7	15	0.2	---	---
Hf	---	---	---	---	14.90	0.15
K%	---	---	4.03	0.01	4.11	0.24
La	---	---	---	---	58.07	0.53
Lu	---	---	---	---	1.39	0.03
Mn	580	28	563	4	487.09	5.00
Na%	---	---	---	---	3.33	0.04
Nb	30	2	59	0.3	---	---
Nd	---	---	---	---	64.50	3.90
Pb	55	5	78	0.4	---	---
Rb	204	5	192	1	198.58	3.66
Sb	---	---	---	---	3.17	0.21
Sc	---	---	---	---	0.25	4.66
Sm	---	---	---	---	14.39	0.09
Sr	10	10	bdl	1	bdl	3.03
Ta	---	---	---	---	1.80	0.04
Tb	---	---	---	---	2.41	0.05
Th	14	5	---	---	19.22	0.11
Ti	1620	91	1346	14	---	---
U	---	---	---	---	10.13	0.62
Y	91	3	118	1	---	---
Yb	---	---	---	---	9.62	0.15
Zn	176	11	182	1	174.54	4.52
Zr	502	10	620	2	547.44	24.27

Table 2. Elemental composition of the obsidian biface reportedly found in the Connecticut River Valley of Vermont (G. Coane catalog number Y11) as determined by X-ray fluorescence (XRF) at the University of Missouri Research Reactor Archaeometry Laboratory (MURR) and the Northwest Research Obsidian Studies Laboratory (NWROSL), and by neutron activation (NAA) at MURR. Concentrations below the detection limits of the analytical instrument are denoted *bdl*. Elements not measured are denoted ---. All data in parts per million unless otherwise noted.

An obsidian-hydration-rim sample was removed from the side of the artifact and measured. Curiously, the hydration rim is 7.1 ± 0.2 µm thick. This is quite thick for obsidian pieces from the Double H source. Compared to 110 other hydration rims taken from artifacts from Double H, the thickness of this rim falls in the upper five percent. Though it would be inappropriate to attempt conversion of this hydration-rim thickness to any calendrical date, the rim does clearly indicate that the point is a prehistoric creation rather than a modern fake.

DISCUSSION

These results demonstrate that the obsidian biface purportedly found in Vermont is a prehistoric creation made of glass from a relatively obscure obsidian source in the northern Great Basin. The remoteness of this obsidian source alone suggests that the Coane biface is not the product of prehistoric exchange, as obsidian tools originating from the Double H source have not been identified in secure archaeological contexts east of the Mississippi River (e.g.,Griffin, et al. 1969; Hatch, et al. 1990). Further, once the source of the point was established, we compared its morphology against the established typology for the Great Basin and determined that it fits the morphological description of the Elko Eared type (Justice 2002: 298–310, Fig. 27, Thomas 1981: 20–22, Fig. 8).

The Coane point fails to meet the criteria we have outlined for documenting long-distance exchange. Its provenience is vague and impossible to test. Though the point shares morphological similarity with the northeastern Early Archaic Bifurcate-base type, it is also similar to a point type defined for the Great Basin. In this instance, we believe that point morphology alone is insufficient evidence to suggest that it was produced in New England, and that the source of the obsidian gives cause to favor the Elko Eared type designation. Further, given the extremely long distance between Vermont and the geological source of the point and the lack of other evidence for far-reaching exchange during the Early Arch-

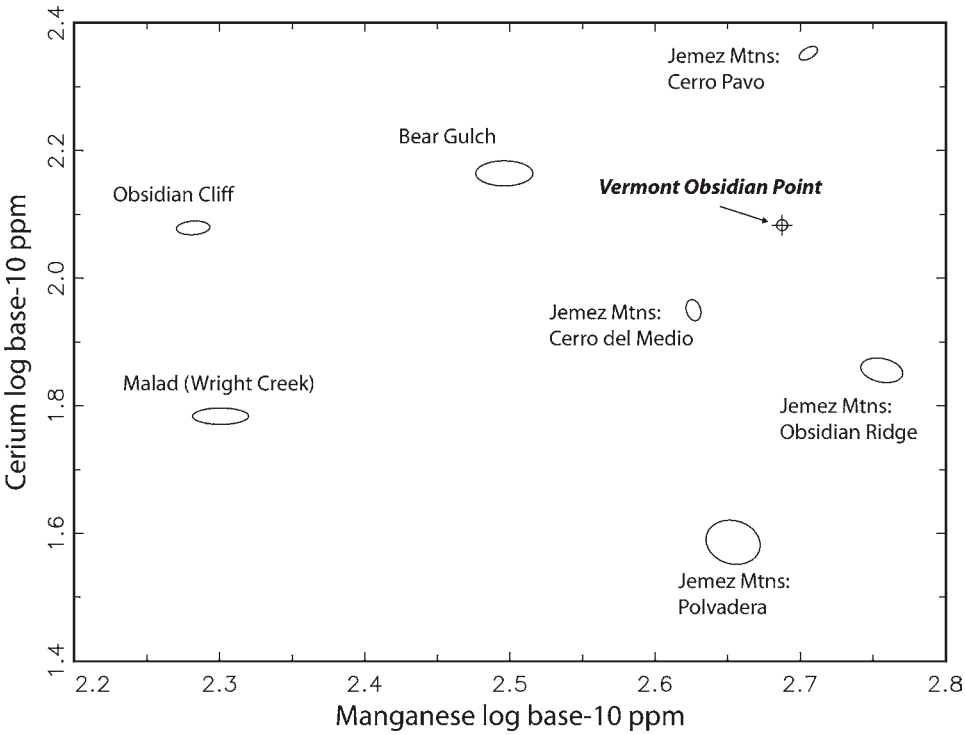

Figure 4. Bivariate plot showing the composition of Coane's reported Vermont obsidian point compared to major obsidian sources in North America. These sources represent the major sources from which obsidian artifacts found in well-documented archaeological contexts east of the Mississippi River have originated. Compositional data generated by neutron activation, axes are base-10 logarithms, and ellipses represent 90% confidence of group membership.

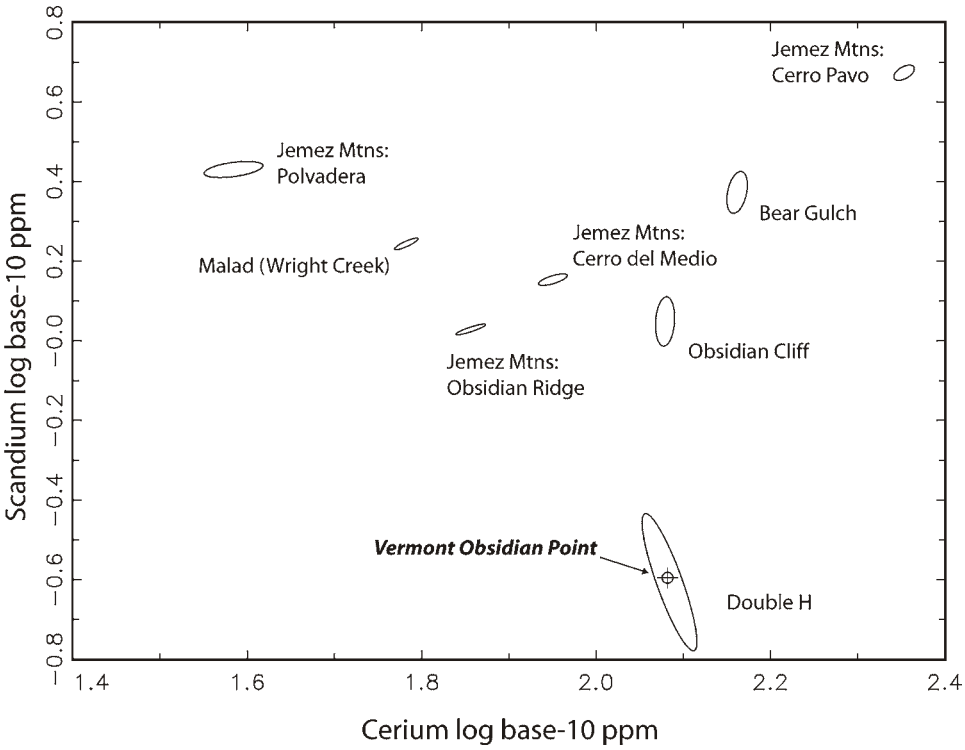

Figure 5. Bivariate plot showing the composition of Coane's reported Vermont obsidian point compared to major obsidian sources in North America as well as the Double H source located along the Nevada-Oregon border. Note that the Vermont obsidian piece plots well within the compositional range identified for this source. Compositional data generated by neutron activation, axes are base-10 logarithms, and ellipses represent 90% confidence of group membership.

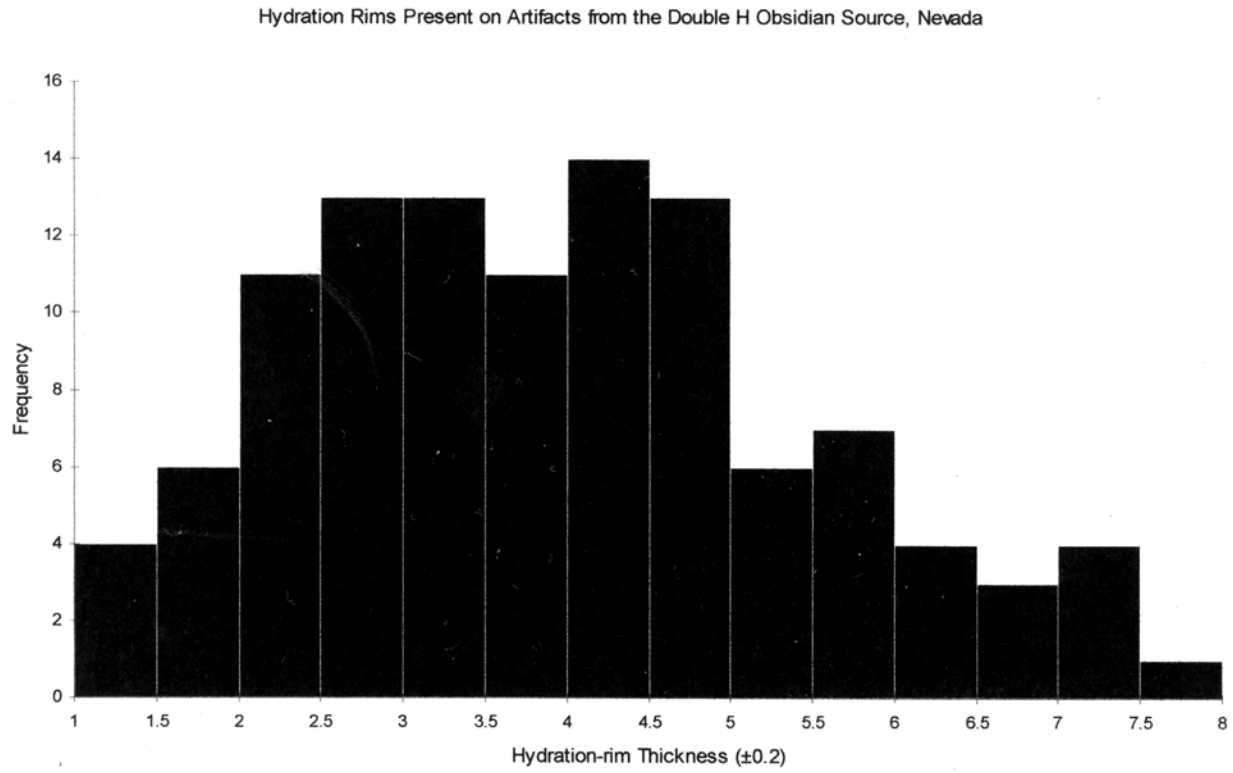

Figure 6. Histogram showing frequencies of hydration rims examined on artifacts from the Double H obsidian source in Nevada (n=110). Note that rim examined on the Vermont obsidian point is 7.1 ± 0.1 µm thick, placing it in the upper 95th percentile of samples examined from this source. Raw data are on file at the Northwest Obsidian Research Lab.

aic of northern New England, we believe that the point cannot be confidently associated with any cultural manifestation present in the region within which it was reportedly found.

Although the point does appear to have been made prehistorically, it did not come from a geological source associated with inter-regional trade. Though it is possible that the point represents evidence of prehistoric exchange originating somewhere in the northern Great Basin, we believe that this is highly improbable. A more reasonable explanation is that the artifact was traded historically, and that it somehow came into the possession of Coane either by intention or by chance.

How the point arrived in his collection and became labeled as it did is an open question. Coane's catalog entry for the northern Mexico point seems to accurately reflect its geological source, and no other artifacts in his collection seem to be deliberate forgeries or misrepresentations. We see little reason to believe that Coane himself misrepresented the point's provenience, particularly when we consider that he used his collection as an education instrument for local school children.

One possibility to explain the evidence at hand is that the point truly was picked up on the shore of the Connecticut River. Simply because Coane found the artifact within the borders of Vermont does not necessarily mean that it was brought there prehistorically. As early as 1939 Arthur C. Parker was finding Mexican, Danish, Chinese, and Polynesian artifacts in the stream banks of New York, finds that he attributed to the "peculiar habit of omnivorous collectors whose surviving relatives either throw away their hoardings, or leave them in crumbling cottages and camps" (Parker 1939). The Coane point could very well represent a similar find.

It is impossible to confidently state precisely how Coane obtained this point, or whether he did in fact find it in the Connecticut River drainage; however, data presented here strongly suggest that the point does not represent evidence of prehistoric exchange. In concluding, we repeat that single maxim learned by most archaeologists early in their careers: *Context is Everything*. We do not dismiss *a priori* the potential for long-

distance exchanges of material or ideas by early Native Americans, nor do we consider it impossible that obsidian could have been traded into New England. However, extravagant claims such as "obsidian in New England" carry with them a burden of proof necessary to establish authenticity.

ENDNOTES

[1] As part of this paper, we made several unsuccessful attempts to contact Chaya to discuss his analyses and compare our results with his.

[2] We note here that the MURR and NWORSL have not characterized all of the same obsidian sources. NWORSL has focused substantial effort on characterizing every known source of obsidian in the northwest U.S., regardless of obsidian quality or prehistoric exploitation. MURR has focused characterization efforts on obsidian sources used prehistorically throughout the Americas, the Mediterranean, and the Pacific Rim.

[3] Quite coincidentally, the Double H source samples were irradiated and measured in the same batch as Coane's obsidian point. Hence, when the data were compared against the source database, no source was identified because the Double H data had not yet been entered into the source database.

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