AS newsletter....

A PUBLICATION OF THE VERMONT ARCHAEOLOGICAL SOCIETY, INC.

Terms of office expire this year for three members of the Vermont Archaeological Society's Board of Trustees. A committee composed of three Board members will soon begin preparation of a slate of six nominees to the positions, which will carry three year terms. Election of the Trustees will be held at the Society's Fall Meeting, with ballots being mailed to the membership one month prior to the

The Nominations Committee consists of Jim Petersen, Sandy Partridge, and Bill Bayreuther, Chairman. All V.A.S. members are encouraged to suggest individuals for nomination. Nominees must be Society members in good standing; potential nominees will be contacted by the Committee to determine their willingness to serve. Please send recommendations to Bill Bayreuther at the Society's Post Office Box address.

Notes from the Editor

By William A. Bayreuther

Vermont State Archaeologist Giovanna Neudorfer will begin her V.A.S. Newsletter column in Number 28, not in this issue as previously announced. Time contraints prevented Giovanna from meeting the present copy deadline. but her column will be a regular feature in future issues.

Former V.A.S. members who have not renewed their memberships through payment of 1979 dues will be dropped from the Society's mailing list on the mailing date of V.A.S. Newsletter Number 28 (in July). In fairness to those members who have demonstrated their continued interest in the V.A.S. and its goals, the Society cannot "carry" members whose dues are delinquent. If you have not paid your 1979 dues and don't wish for the current NEWSLETTER to be your last, please renew your membership with the form provided elsewhere in this issue.

Members whose 1979 dues were paid as of April 17 are listed below.

- -Aldrich, George
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- -Breton, Marjory
- -Brown, Cathy
- -Brown, Richard D.
- -Beblowski, Peter L.
- -Brunelle, Gayle K.
- -Bumsted, M. Pamela
- -Burbank, Debra

PREHISTORIC POTTERY IN VERMONT

By James B. Petersen

The occupation of Vermont by pottery making peoples remains undated. There is a good potential for confirming the following suggested sequence, however, through radiocarbon dating at the Boucher, Winooski, McNeil, Ewing and Donohe

Presumably predating ceramics in Vermont. soapstone vessels were in use here some time before 800 - 1000 B.C., during the Transitional



period. Remnants of cooking vessels, soapstone bowl fragments are known from only a few sites in the state: the Auclair site near Shelburne Pond, a site near Rutland, and one other on the Connecticut River near Springfield. Pottery was probably introduced in the Transitional period. eventually replacing scapstone vessels.

The earliest known pottery in Vermont was recovered in 1973 from the Boucher site in Highgate. A form of pottery used widely in the Northeast during the Early Woodland period, ca. 800 B.C. - A.D. I, this early ceramic series is

VINETTE 1 VESSEL from the Boucher Site.



called Vinette 1 ware. These small, rounded bottomed, vessels were characteristically left undecorated, with cord paddled surface treatment on both the exterior and interior surfaces. One of the vessels from Boucher exhibits incised decoration near the rim, and red ochre staining from inclusion in a burial. Several exhibit evidence of use as cooking pots.

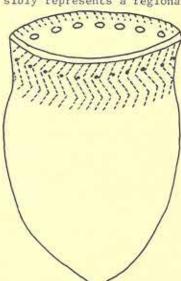


EARLY MIDDLE WOOD-LAND POTTERY of the Winnoski Site -

pseudo scallop shell decoration

Vermont's earliest well-documented ceramic series is known from an early Middle Woodland occupation at the Winooski site. Several dozen vessels recovered from the Winooski site are remarkably consistent with each other and with pottery of the Great Lakes-St. Lawrence drainage, dating to about A.D. 1-300 in a culture complex which has been called the Lake Forest Middle Woodland. This pottery is generally small. about one half to one gallon in capacity, and well made. Complex decorative patterns were applied with pseudo scallop shell stamps applied in a vertical, drag, and rocker stamped fashion on smooth surfaced vessels. Lips are square or pointed and usually everted or outflaring. These vessels have pointed bottoms and are generally decorated all over the exterior surface.

Intermediate pottery developments are not well known. Our next ceramic evidence comes from a later occupation or occupations at the Winooski site, during the late Middle Woodland period, ca. A.D. 600 - 1000. This pottery possibly represents a regional ceramic tradition



LATE MIDDLE WOODLAND POTTERY

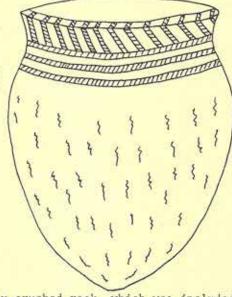
--dentate and circular punctate decoration

termed the Burnt Hill phase. These vessels are larger, with square and rounded lips and smooth interior and exterior surfaces. Pseudo scallop decoration had disappeared by this time.

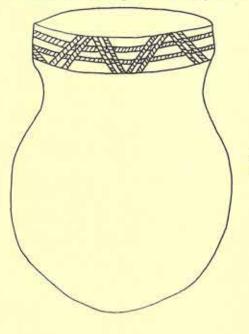
Dentate stamped, cord impressed, circular punctate, and incised decoration are all typical during the late Middle Woodland period. By A.D. 1000 cord-impressed decoration had become the dominant decorative mode, while cord paddled exteriors had replaced smooth exteriors. There is an overall greater variability in ceramics of this time in comparison with earlier styles.

With the beginning of the Late Woodland period, ca. A.D. 1000, the Owasco pottery series became the dominant form. Earlier trends toward increasing size, cord impressed decoration and cord paddled exterior surfaces continued. Vessel capacity ranged from two to twelve gallons.



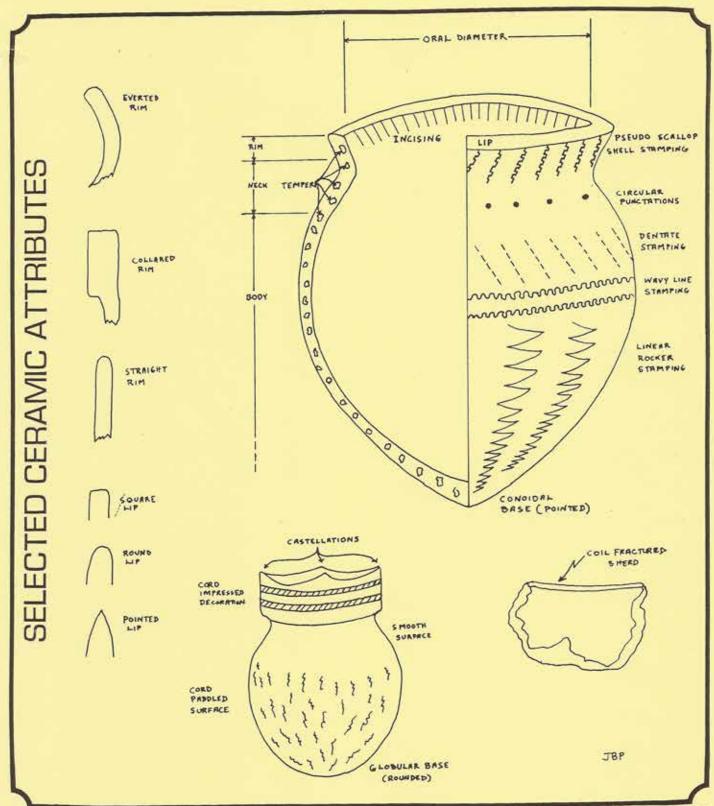


Temper, usually crushed rock, which was included to bond the clay together, was finer than that in earlier pottery. Lip forms were usually square, thickened, and sometimes outflaring. Vessels had become more globular or rounded in shape, with collars appearing in the late Owasco period, between A.D. 1200 - 1300. Incised decoration began to be more common, often in conjunction with cord impressions and cord paddled exterior surfaces. Ceramics pipes also became widespread during this time period.



OAK HILL POTTERY of the Ewing Site. Cord impressed decoration.

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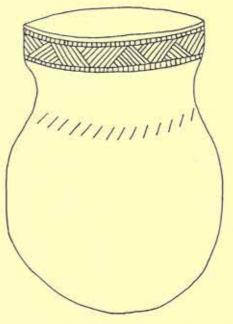


During the Oak Hill phase (A.D.1300 - 1400) of eastern and northern New York, cord impressed decoration was applied on vessels which had thickened rims or collars. Aboriginal groups in New York State had become somewhat sedentary by this time, living in fortified villages and practicing horticulture.

Pottery of both the Owasco and Oak Hill Series has been found at the Ewing Site in Shelburne. Owasco ceramics have also been recovered from the Donoghue site in Burlington and the Warrell Farm site near St. Johnsbury. Oak Hill pottery has likewise been excavated at Ft. Dummer near Brattleboro.

By the time of the Chance phase, which began ca. A.D. 1350, cord paddled surfaced vessels had largely been replaced by smooth surfaced varieties. Incised decoration had supplanted D

cord impressed decoration, and was generally confined to the collared portions of these vessels. It is believed that slab construction had succeeded the earlier coiling technique sometime



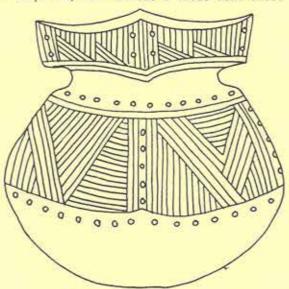
CHANCE POTTERY of the Ewing Site.

Incised decoration on a collared rim.

previously in the Late Woodland period. Slim evidence of the Chance ceramic series has been found at the Ewing Site.

By about A.D. 1450, when New York's final prehistoric phase (known as Garoga) began, castellations and collar notching were common in association with incised decoration. An intact vessel recovered in Bolton, Vermont seems to be typical of the Garoga phase ceramics.

The Vermont native pottery industry seems to have survived after European contact. continuing until at least the late 1600's. Evidence of this survival has been documented at two Connecticut River sites, namely Fort Hill in New Hampsire, and Vermont's Great Bend site.



The COLCHESTER JAR - incised and punctate decoration with a castellated collar.

The Colchester jar, presumed to have been made in the style of the St. Lawrence Iroquois, probably dates to the late prehistoric or early historic period. Found in Colchester, this small pot is final evidence of a lengthy, highly developed, ceramic industry in Vermont.

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EIGHTEENTH CENTURY VERMONT FORGES

By Victor R. Rolando

(Last fall, at the invitation of the VAS, I made a presentation at the Annual Meeting on the subject of Vermont's eighteenth and nineteenth century iron making blast furnaces. The presentation was repeated, somewhat updated, to the Rutland Historical Society in February as part of the Bi-monthly Seminars in Archeology. Response to these two very preliminary Industrial Archeology excursions into early industrial Vermont has been very warm and enthusiastic, and I have been encouraged by many of you to put something on paper. What follows is the first of a yet undetermined number of insights into an industry that few understand or realize existed in Vermont. The object of these articles. therefore, shall be to encourage an awareness of these industries through an understanding of why they were there and what they did, in the context of what archeological remains might exist. This first paper concerns eighteenth century Vermont forges. Future papers will cover iron and bog ore, charcoal making, foundries, and blast furnaces. I look forward to your continued encouragement in the form of leads. invitations to visit suspected ironworks sites, newspaper clippings, or just plain interest.) +++

The first iron making industries of Vermont began operation shortly after the end of the American Revolution. These industries responded to a purely local demand for basic domestic and agricultural needs that were the result of a dramatic population growth. From a few thousand people in the 1770's, Vermont's population grew to about 85,000 in 1790, and nearly doubled to 155,000 by 1800 (Thompson 1842:211). One of Vermont's earliest iron entrepreneurs was Col. Matthew Lyon, who built an iron making complex at the upper falls in Fair Haven after petitioning the General Assembly to lay a duty on nails coming into the state, enabling himself to supply all local needs. In addition, Lyon's forges supplied axes, hoes, various agricultural implements, and workable iron bars (Adams 1870:141-42).

Lyon's forges should not be confused with blacksmith's forges, which were much smaller, required less heat, and worked smaller pieces of iron. Neither were Lyon's works connected with blast furnaces, which, under the encouragement of higher temperatures in a significantly larger structure, produced on the order of a ton of cast iron a day. The product of a forge was wrought iron; a relatively low-carbon iron capable of being hammered and shaped. For convenience, it was produced in bars; hence its name-bar iron. Easily handled and transported in approximately 100-pound bars, bar iron was reheated, rolled, slit into rods for drawing into wire; cut and headed into nails, rolled again to make barrel hoops or wheel tires, etc.

The capability of a forge was measured in terms of the number of fires, or hearths, it contained. The hearth was centered in an approximately 15 feet wide by 10 feet deep and one to two feet high brick-lined platform. Small vents led from the bottom of the hearth to one wall of the platform, where air was forced in by waterwheel-powered bellows. The pulsating draft kept the hearth at working temperature. The waterwheel was usually situated just a few feet away, on the outside of the forge building wall. In the hearth, iron ore was continuously added and mixed with hot glowing charcoal until enough of the heavier iron settled to the middle of the hearth in a sort of pasty, red-hot ball.

Because of such physical limitations as the small size of the hearth and the draftproducing bellows, the iron from the forge usually didn't melt. In fact, if it did melt, it would have been useless for the intended purposes of the forge. Even if the heat of the forge could coax the iron to run as free liquid, in this state it would reach such temperatures that it would chemically absorb excessive quantities of carbon from the charcoal, and after removal from the hearth, would be much too hard for hammering or rolling with the methods of the time. By keeping the iron just 'cool enough not to melt, little if any carbon was picked up by the iron and thus the iron maintained its characteristic malleability.

The ball of iron forming in the hearth was called a bloom. For this reason, many forges show up in the documentation as bloomeries. (The French used the word "loupe", often spelled loop; the Germans used "stuke," or wolf. Wolf furnaces were in fact bloomeries.) The bloom, weighing a hundred pounds as the piece of bar iron it will become, however, required removal of the pieces of solid coal, ash, and stones embedded in or stuck to it. The only way to remove them was to 'squeeze' them out through hammering. Worked quickly before it cooled and hardened, the bloom was removed from the hearth, hammered by rapid strokes of the trip hammer, and returned to the hearth. The cycle was repeated until all visible impurities were removed.

The trip hammer was another waterwheelpowered device in the forge. Replacing the older method of manual hammering, it consisted of an iron hammerhead attached to a 10 to 15 ft. long, strong wooden beam. The hammer end of the beam was raised and dropped on an anvil by action of cams which were attached to the rotating waterwheel shaft. The hammer weighed anywhere from 100 to 1,000 pounds. The bellows and trip hammer were turned on and off by hand-operated linkages to gates in the flume. Opening and closing water flow in the flume controlled the waterwheel and the devices it powered.

The anvil, on which the bloom was held with iron tongs, was mounted on the flat end of a large diameter log. The log was buried vertically in the dirt floor of the forge. Long after abandonment of the forge, long after the hearth bricks, tools, hammer, and anvil have disappeared, the subsurface discoloration caused by that anvil seat is a significant archeological clue to the trip hammer's, and probably the entire forge's, existence and location. The waterwheel pit(s), flume, and dam cribbing are other supporting evidences.

Bloomeries were laid so that every two hearths, each tended by an ironworker, were separated by one trip hammer which was used alternately by the ironworkers on each side. If dimensions of the ca.1765 Charlotteburg, New Jersey Middle Forge can be used as a typical example, this two-on-one hearth/trip hammer arrangement took up some 80 by 25 feet (2000 sq. ft.) of floor space. The Charlotteburg site contained two such sets of hearths (fires) and trip hammers in a building measuring approximately 80 by 50 feet (4000 sq. ft.) (Lenik 1974: 9-17).

I do not know the extent of Lyon's eighteenth century forge operations, but in 1794, within ten years of petitioning the Vermont General Assembly and building the dam at the upper falls to power his waterwheels, he sold the "two south fires together with a hammer, anvil, and coal house" (Adams 1870:142). Lyons apparently also used the two-on-one formula. Taking the forge then operating in Tinmouth into account, a considerable number of forge fires are left operating at Fair Haven, making Lyon's Works (as the complex was then known) the center of Vermont's iron producing industry for at least a decade.

In a reference to Nathaniel Chipman building a forge in Tinmouth to produce bar iron in 1781 (Federal Writers' Project 1937:242) is correct, then this might be the birthplace of Vermont's iron making industry. Tinmouth needs further work. Benjamin Wilbur's biography of Ira Allen also hinted at this when he wrote that Ira Allen rode to Tinmouth in 1791, where he signed a contract for the erection of another forge with two fires (Wilbur 1928:6). But another at Tinmouth, or another elsewhere on that same trip?

Ira Allen was connected with many iron making activities to attract investors and speculators into his land holdings, and also to provide some income for Vermont's postrevolutinary cashless frontier economy. In 1789, he was willing to lease iron manufactory sites at the falls in Winooski and Shelburne, and also along the Missisquoi, for seven years free from rent, at the end of which time paying a 'fair price' for the forges. Later that year, he was shipping bar iron to Quebec on rafts, augmenting his lum-

ber business with Canada. By 1790, Ira was authorized by Quebec to ship bar iron to England via Canada without paying the export duty leveled by Quebec.

In 1792, Ira Allen commenced the design of the largest forge he had yet constructed. He obtained the hammer, bellows, etc. from Canaan, Connecticut, near a blast furnace built by brother Ethan thirty years earlier at Lime Rock. In the spring of 1792, Ira signed the contract and specifications for a forge and anchor shop (anchors were big business with our new, growing navy) at Colchester, and a forge building measuring 50 by 40 feet (2000 sq. ft.) in Shelburne (Wilbur 1928:27). Upon completion of these works he immediately leased them out in an attempt to create business in the city that was coming into existence between them--Burlington.

There are references to four forges in Addison County by 1792 (Williams 1794:317), although I know for relative certain only that in Middlebury, built by Jonathan Nichols (Smith 1886:327). This forge, in addition to the trip hammer, had a foundry which produced guns (cannon?). I suspect that eighteenth century forges were also operating in Lincoln, the predecessors to the Ackworth Bloomeries, and also at Vergennes, where the Monkton Iron Company grew to be the largest in the United States during the War of 1812. I am also tracking down a pre-1800 forge in Swanton (Aldrich 1891:405).

At Bennington, bar iron was being made and sold in 1786 at a forge operated by William Blodgett (Sparge 1938:28). But Bennington was to make more of an iron making name by a succession of blast furnaces, even though the first blast furnace in Vermont was built many miles north at Pittsford by Col. Israel Keith in 1791 (Smith and Rosin 1886:741). The blast furnaces are another phase of Vermont's iron making industries, which usually, but not always, followed in the foundations of successful forges. In the process they obliterated archeological evidence of the replaced forges.

REFERENCES CITED

Adams, A. N. History of the Town of Fair Haven,
Vermont. Leland and Phelps, Fair Haven,
1870.

Aldrich, Lewis C. History of Franklin and Grand Isle Counties, Vermont. D. Mason, Syracuse, 1891.

Federal Writers' Project. Vermont. Houghton, Mifflin, Boston, 1937.

Lenik, Edward J. Peter Hasenclever and the American Iron Company. Northeast Historical Archeology 3 (2):9-17, 1974.

Smith, H. P. History of Addison County, Vermont. D. Mason, Syracuse. 1886.

. and W. S. Rosin. History of Rutland County, Vermont. D. Mason, Syracuse. 1886.

Sparge, John. Iron Mining and Smelting in Bennington, Vermont: 1786-1842. Bennington Museum, Bennington. 1938.

Thompson, Zadock. History of Vermont. Chauncey Goodrich, Burlington. 1842.

Wilbur, Benjamin. <u>Ira Allen</u>. Vol. 2. Houghton, Mifflin, Boston and New York, 1928. DOC 17 199

FORT DUMMER RESEARCH

By Martha Pinello and Peter Beblowski

Fort Dummer, on the Connecticut River in Brattleboro, is believed to have been Vermont's first European settlement. It was built under the supervision of Timothy Dwight in 1724, upon the order of Governor Dummer of Massachusetts. Between 1724 and the Fort's abandonment in 1760, it underwent periodic fluctuations in population. A small contingent of British troops resided at the fort in times of peace, while periods of conflict with the French and Indians saw the garrison increase to as many as forty individuals. The history of the fort's site following its abandonment is largely unknown.

A hydroelectric dam built just downstream from the site in 1909 covered Fort Dummer's remains with up to eight feet of water. Subsequent siltation in the dam's floodpool resulted in the deposition of approximately five feet of sediment over the site. This overburden has made verification of the fort's location extremely difficult.

An historic site believed to be Fort Dummer was excavated in 1976 by a group of Brattleboro area volunteers under the direction of Walter Harrington, also of Brattleboro. Artifacts recovered during the site's excavation were transported to the Department of Anthropology at the University of Vermont, where work/study students cleaned and sorted them. The artifact classes and types were numerous, as is the case at most historic sites. They included rings, beads, pins, thimbles, ceramics, gunflints, gun parts, hinges, with direct or indirect contact with the French

keys, and nails of wire and wrought iron.

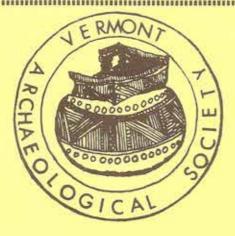
In February of 1979, funds were secured through the Vermont Division for Historic Preservation for the completion of artifact identification and analysis, as well as interpretation of the total assemblage. It is hoped that the final phase of this research will establish whether or not the site excavated in 1974 was in fact that of Fort Dummer. If such is the case, the artifact analysis and review of historic documents will aid in the conceptual reconstruction of the life style of the people who inhabited this small military station and trading post.

The system of artifact classification being employed in the present research is based on the work of Lyle Stone (1974). Stone developed this particular method of classification for his study of the materials excavated from Fort Michilimackinac, a post occupied by French and, later, British troops between 1715 and 1781. As was the case for the Michilimackinac artifacts, those from the presumed Fort Dummer site have been divided into various classes according to their context of utilization. Artifact categories within the "household context of utilization" division are, for example, 1) food preparation and consumption, and; 2) furnishings. The furnishings category includes artifact classes such as hinges, tacks, hasps, locks, candleholders, and draw

One third of all the artifact classes have been analyzed at the present time. These in-clude rings, beads, buttons, coins, thimbles, gunflints, and ceramics. From the data analyzed, there is evidence of British occupation,

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and Indians.

Approximately 50 percent of the ceramic sample is of British manufacture, dating from the eighteenth and nineteenth centuries. The remainder of the sample can be divided into two groups: lead glazed ware, and burned ceramics. The former are of local manufacture and are not readily datable. The latter are thermally altered to a point at which they are unidentifiable.

The British ceramics are excellent temporal indicators, because of the detailed documentation of that industry. Analysis of these ceramics seems to indicate two periods of British occupation of the site; the initial one falling within the 1724-1760 Fort Dummer time frame, and the second within the early to middle nineteenth century. While there are several possible hypotheses which may be drawn from these data, research on local land use and residential development will be necessary to account for the presence of the later ceramics.

Contact with the French and Indians is suggested by the recovery of a copper tinkler, wampum beads, and white and blue seed beads. Seed beads similar to these have been found at eighteenth and nineteenth century sites where trade between the French and Indians is known to have occurred (Good 1972; Stone 1974). Plain brass rings and others with cut glass in brass settings were also discovered during the Brattleboro excavation. While neither the beads nor the rings pose definite proof that the site's occupants traded with the French and Indians, the evidence suggests such activity.

processed with the assistance of Dr. Charles Woods at the University of Vermont's Department of Zoology. Analysis of the faunal material may provide data on the diet of the site's inhabitants. Ferrous artifacts are being cleaned by electrolysis, and their analysis is currently being undertaken.

The combination of laboratory analysis of artifactual material, interpretation of data recorded in the field, and a comprehensive archival search may lead to the painting of a clearer picture of life at eighteenth century Fort Dummer.

REFERENCES SITED

Good, Mary Elizabeth. Guebert Site: an 18th century Kaskaskia Indian Village in Randolph County, Illinois. The Central States Archaeological Societies, Inc., Memoir II. 1972.

Stone, Lyle M. Fort Michilimackinac, 1715-1781, an Archaeological Perspective on the Revolutionary Frontier. Publications of the Museum, Michigan State University, Anthropological Series, 2. 1974.

PARTRIDGE JOINS VAS BOARD

The V.A.S. Board of Trustees is pleased to announce that Sanborn Partridge has accepted an appointment to the Board. A Vermont State Senator (Rutland County), Sandy was recently selected to fill a vacant Trustee position. He currently serves on the Senate's Appropriations and Governmental Affairs Committees, chairing the latter. Sandy is a former University of Vermont Board of Trustees Chairman.

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Faunal remains from the site are being

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