



Archaeologist Curtiss Hoffman (left) checks a quartz artifact found by volunteer David DeMello.

# Redistributing The Ceremonial Wealth

Researchers are finding that the Little League site in southeastern Massachusetts served an unusual and mysterious function.

By Jennifer Weeks

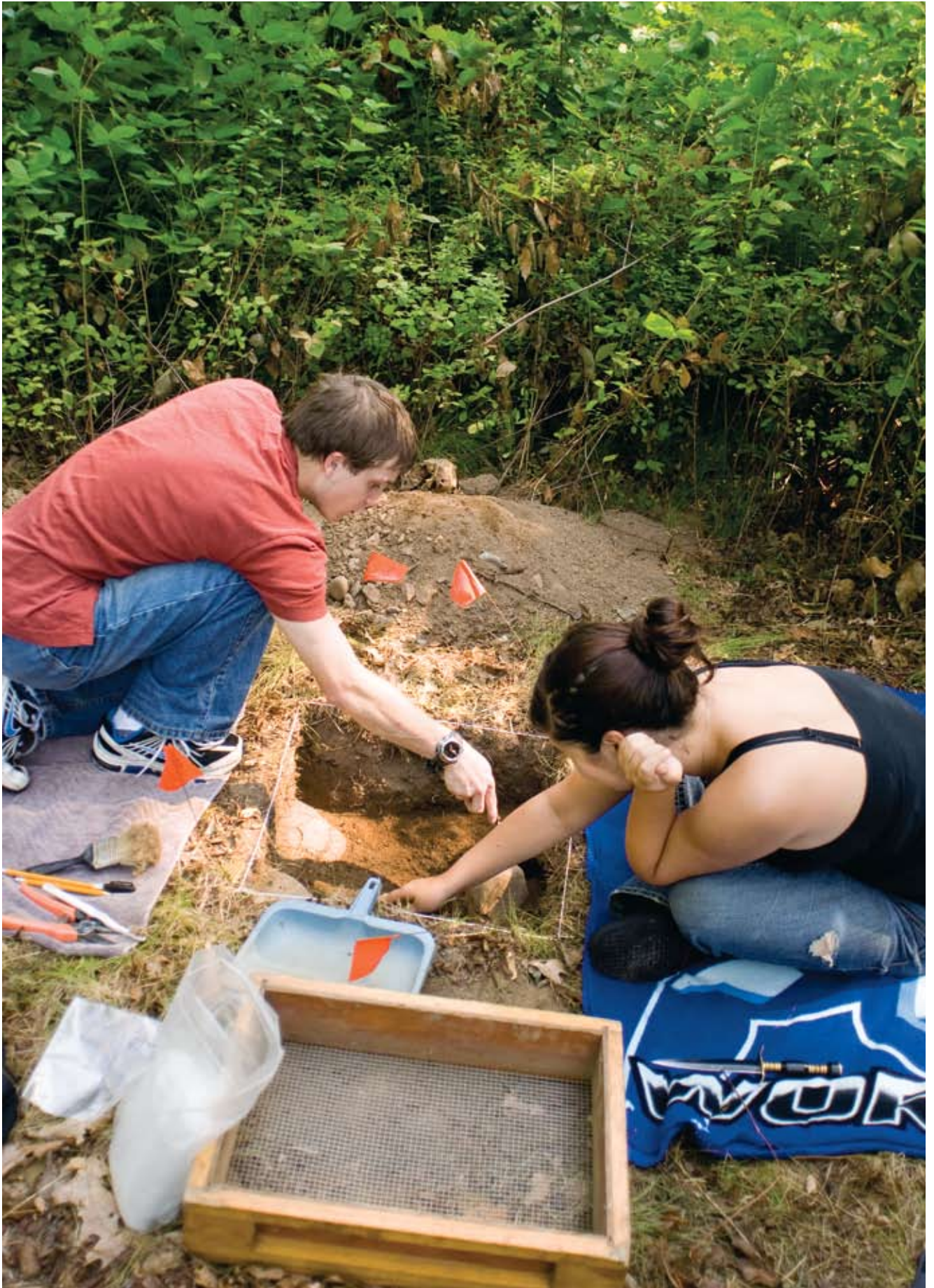


**IT'S A TIME-HONORED RITUAL:** kids playing Little League baseball on a grassy diamond, with parents cheering from the bleachers. As this modern ritual takes place at the Field of Dreams sports complex in Middleborough, Massachusetts, researchers have found evidence of other rituals dating back millennia before the invention of baseball. A decade of excavation at the Little League site, led by Bridgewater State

american archaeology

University archaeologist Curtiss Hoffman, has uncovered thousands of artifacts from the Middle Archaic to Late Woodland periods, including many ceremonial objects.

Settled in 1660, Middleborough is a leafy town of 22,000. Although this is one of the fastest-growing parts of the state, much of it is still forested with pine and oak, which grew over the past century after large-scale farming was abandoned in



GORDON S. BERNSTEIN

Field school participants Mike Nelson and Jessica Chmielorz use hand tools to excavate.

New England. The area is dotted with freshwater streams and ponds, many of which are interconnected and served as important waterways for ancient Native Americans and, later, colonial settlers. The Little League site is on a series of three terraces stepping downhill to the Nemasket River, which flows north from Lake Assawompsett and empties into the larger Taunton River.

The investigation of the Little League site began after the town announced plans in 1986 to build a soccer field there. Though the state’s preservation laws didn’t require a cultural resource survey, members of the Massachusetts Archaeological Society (MAS) took it upon themselves to survey the area while the field was being built, and they found a number of artifacts. They then consulted the Massachusetts Historical Commission, which concluded that the second (middle) terrace was largely destroyed by the construction, and that cultural resource surveys should be done in advance of any further work.

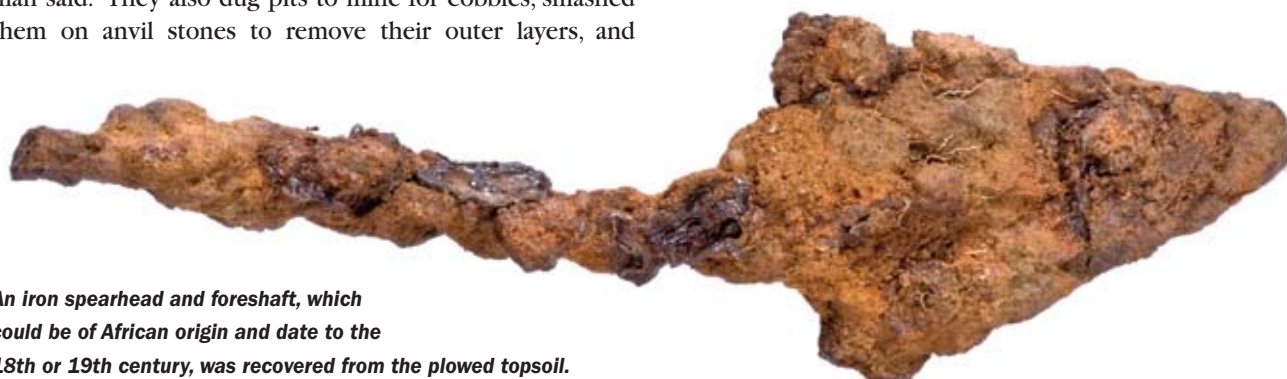
In 1994 Middleborough’s team went to the Little League World Series, and the town decided to convert the old soccer field into two baseball fields, while adding a new soccer field and a concession stand on the site. Hoffman, a long-time MAS member, conducted a survey in 1996 with students from nearby Bridgewater State University, where he has taught archaeology, mythology, and cultural studies since 1978. They found enough artifacts to merit a longer survey in 1998 that found even more items. Hoffman predicted that his investigation of the site would conclude the following year, but it didn’t turn out that way.

**“IT WAS A TWO-DAY SURVEY** (in 1996), and then it just grew and grew,” Hoffman said with a shrug on an August morning during his 10th year at the Little League site. Tall and burly, with a wiry white beard, he could be a good candidate to play Santa Claus. From 1999 through 2002 he directed field schools that excavated a portion of the third terrace, the uppermost level of the site, above the playing fields. This work yielded some 5,000 artifacts, many of which were what Hoffman called “typical New England archaeological finds” like projectile points, knives, and scrapers. The researchers also unearthed anvils, pestles, and choppers. Most of the items were approximately 6,000 to 3,000 years old.

“People conducted normal subsistence activities here, like making tools, scraping hides, and preparing food,” Hoffman said. “They also dug pits to mine for cobbles, smashed them on anvil stones to remove their outer layers, and



**These items were recovered from the site. An arkose sharpening stone is at the top. Beneath it are hematite (top row), graphite (middle row), and limonite (bottom row) paint stones.**



**An iron spearhead and foreshaft, which could be of African origin and date to the 18th or 19th century, was recovered from the plowed topsoil.**

# REVEALing Archaeology

Software engineers are using data from the Little League site and six other digs worldwide to beta-test a new software package called REVEAL (Reconstruction and Exploratory Visualization; Engineering Meets ArchaeoLogy). The program is funded by the National Science Foundation and is being developed by a consortium that includes Brown University, the University of North Carolina at Charlotte, Tel Aviv University, and the Institute for the Visualization of History in Williamstown, Massachusetts. Its purpose is to enable archaeologists to digitally record, visualize, and query findings from a dig as it unfolds, viewing the entire site or a subsection that can be as small as one excavation unit.

To do this, the program converts two-dimensional images into three-dimensional models. For example, when student McKayla Hoffman (no relation to Curtiss Hoffman) uncovered a small polished pebble buried about two feet below the surface on the first terrace, she went through the typical steps—loosening dirt around the pebble with a paintbrush, measuring it, documenting its location within her excavation unit, and recording the data on a card. Then she put the pebble back where it had been embedded, added a label with the artifact number and an arrow pointing north for orientation, and took 16 digital photos looking down into the square, working around the stages of the compass—north, then north-northeast, then northeast, and so on.

REVEAL programmers will use her photographs to build an interactive, three-dimensional computer model of the pebble in situ, embedding data about its size, composition, depth, and other features. Users who want to know about the pebble can launch a browser window containing the three-dimensional model of the excavation square that shows the pebble in its exact location and click on it to learn its characteristics. The image can be rotated and researchers can zoom in on it.

“There’s a lot of documentation in archaeology, and often it gets lost. At the end of the

day you’ve got a lot of material that you try to assemble into something coherent, develop theories about it, and link it into a regional chronology,” said Eben Gay, a senior systems software architect at Brown. For example, a researcher may send out pottery fragments for analysis, which generates chemical and metallurgical data. Post-excavation information like this can be added to the REVEAL database and integrated with image, text, tabular, and three-dimensional model data.

Though only two of Hoffman’s 15 field school students tested REVEAL, he’s concluded it could be helpful for analyzing relationships among various artifacts across a site—for example, whether particular types of artifacts are concentrated at certain depths or in certain zones of the site. “Doing this by hand would build in all kinds of inaccuracies, especially if you’re investigating a site over a period of years, as is the case here,” said Donald Sanders, president of the Institute for the Visualization of History. “With REVEAL you can measure inside the model to get measurements that you forgot to take during the dig. Viewers can see accurate three-dimensional images of specific artifacts that are in storage, without actually going to the place where they are kept. They can also go back to a site that was excavated years ago and look for information that didn’t seem significant at the time.”

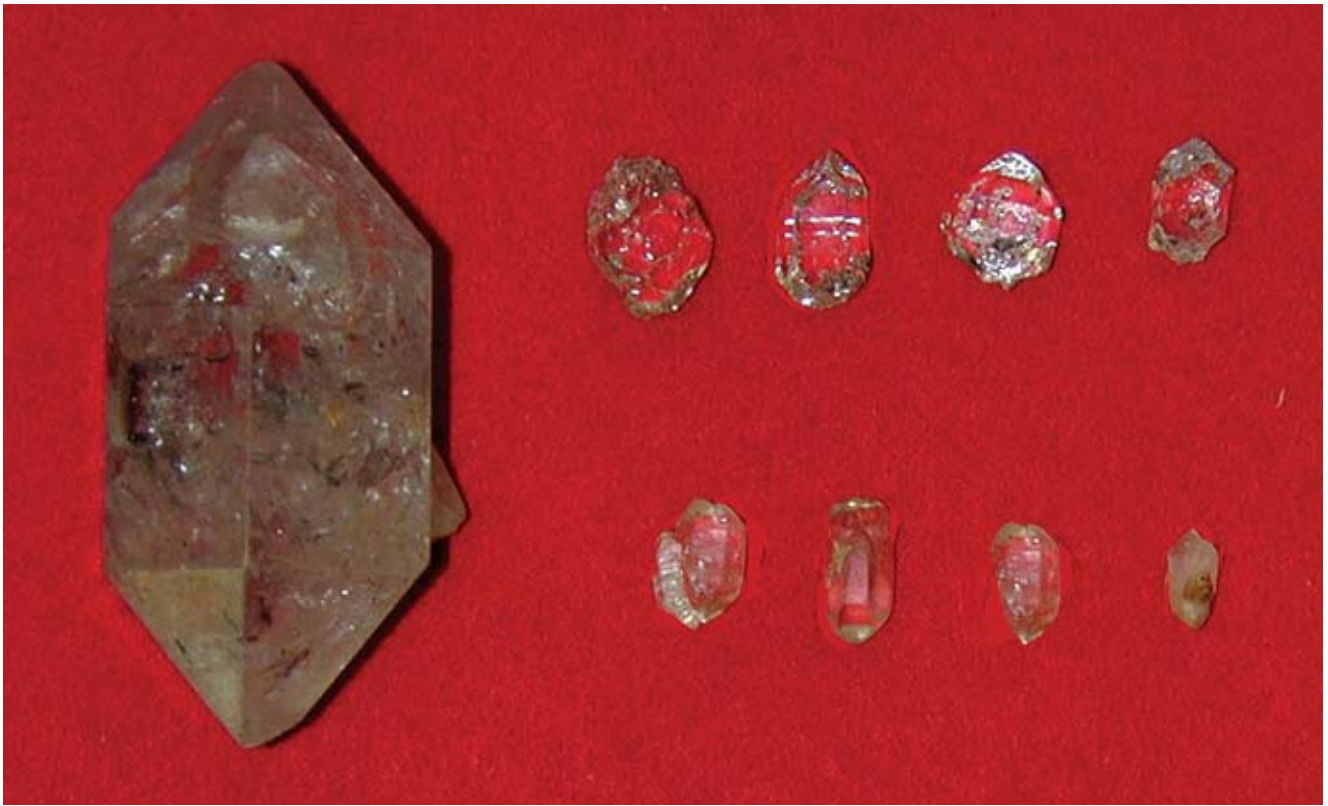
“It can give me a three-dimensional contour view of the site,” Hoffman said, that will show the distribution of artifacts across its entirety. In addition to helping archaeologists deduce connections between various types of artifacts, this kind of imaging could help them target their excavations.

REVEAL is “not a panacea,” Hoffman said, “but it’s a useful tool.” —Jennifer Weeks



MCKAYLA HOFFMAN (LEFT) / EBEN GAY (RIGHT)

**A two-dimensional photo of an excavation unit (left) is converted into a 3-D image (right) using REVEAL. The blue and red icons hovering in space represent two artifacts and the stratigraphic levels they were found in.**



*These Herkimer diamonds were found on the third terrace of the site. They came from quarries roughly 265 miles away.*

shaped the cores into artifacts.” This process created numerous sharp flakes, which could be used for cutting and scraping. An exhibit at MAS’ nearby Robbins Museum displays items from the third terrace, including a hammerstone and a foot-long anvil stone, flake knives and scrapers, sharpening stones, projectile points, and plummets that were probably used as fishing weights.

Researchers also found abundant ceremonial objects at the site, notably thousands of paint stones—soft rocks, mostly hematite and graphite, that could be scratched or ground into powder and mixed with fats to make pigments. Hoffman believes that these paints were used for body and clothing decoration, and possibly other purposes. Other ceremonial items included pebbles polished by wear, quartz crystals, and slabs of arkose, a type of coarse local sandstone

“What makes this site unusual is the high density of ceremonial goods. We have more quartz crystals from this site than projectile points,” he said. “These are the kind of things that you find more often in burial sites.” Hoffman believes that Little League was a place where these ceremonial objects were collected and then redistributed to other sites in the region, such as Wapanucket. The soil at Little League is too rocky for burials, for instance, but Wapanucket has fine, sandy soil, suitable for burials, and digs there have produced many ceremonial items similar to Hoffman’s finds, including quartz crystals, hematite powder, and polished pebbles. Many graves at Wapanucket are lined with slabs of arkose, which could only have come from the area near the Little League site. Wapanucket, which was occupied at roughly the same time as Little League, is less than two miles

upstream as the crow flies, so these items could have been transported by boat.

Most of Little League’s ceremonial items could have been gathered from nearby locations; sources of graphite and hematite lie within 15 miles of the site and the only local outcrop of arkose is less than 1/4 mile away. But there’s one striking exception: Hoffman and his students found 13 Herkimer diamonds—quartz crystals with two naturally pointed ends, which came from quarries around the town of Herkimer in New York’s Mohawk Valley, some 265 miles away. These are virtually the only Herkimer diamonds that have been found in southern New England. Even in New York, where they are common, they’ve been discovered in contexts no more than 1,500 years old, whereas Hoffman has found them in stratigraphic levels as old as 5,000 years.

This is puzzling, but then archaeologists are learning that there was extensive movement of goods throughout the continent in the Late Archaic period, according to Hoffman. He hypothesized that this exchange “cemented social relationships,” but not, as it has in other times and places, social hierarchies.

**HAVING LEARNED THAT MIDDLEBORO** Little League officials were considering more construction at the site, Hoffman directed further excavations on the third terrace from 2006 through 2008. His findings during this phase broadened the occupation period for the site from 8,500 to 1,000 years ago, and they also compelled Little League officials to abandon plans for new construction on sections of the third terrace that hadn’t been thoroughly excavated.



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**After careful sifting of the soil, student McKayla Hoffman records data from her square.**

But Hoffman suspected that at some point the officials could decide to bury fiber-optic cables along a power line route that runs through the first terrace, which hadn't been surveyed, so he secured permission to examine it in 2009. Over the past three years his teams have recovered some 3,400 artifacts. "The first question to ask was whether there was anything here. It took about two days to show that the answer was yes," Hoffman said. The next phase was to determine how far this portion of the site extended and to try to determine what took place there.

Though the artifacts from the first terrace, which included two Herkimer diamonds, were primarily ceremonial, they also consisted of utilitarian tools, indicating that it was used for both ritual and subsistence activities. This was also the case with the third terrace, but the artifacts suggest people performed different chores there. The top terrace yielded many tools, such as scrapers and knives, that were likely used for food and hide processing. Tools from the lower terrace, such as mortars and anvils, were predominantly related to processing vegetables, which suggests that hunting was not as important an activity there.

Hoffman has two radiocarbon dates—one is 6,000, and

the other 1,000, years ago—from the first terrace. The styles of the other artifacts he's recovered lead him to conclude that the terrace was occupied during this period. Since glacial lakes at the site drew down in stages, the first terrace, unlike the third, could have been underwater or too swampy to occupy until 6,000 years ago.

Little League appears to have been a seasonal site occupied during the warm months. There is, for example, no evidence of structures that would have provided shelter during winter's cold, and the limited food remains were likely harvested during warm weather. That the site served as a place to hunt and fish is not surprising, but its ceremonial function is. Hoffman hypothesizes that Little League played this unusual role because of the site's proximity to an arkose quarry, the stone from which was used to line the burial pits at Wapanucket and some other regional sites. But he has no explanation for the Herkimer diamonds. Their mysterious presence is "one of the things that keeps us digging."

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