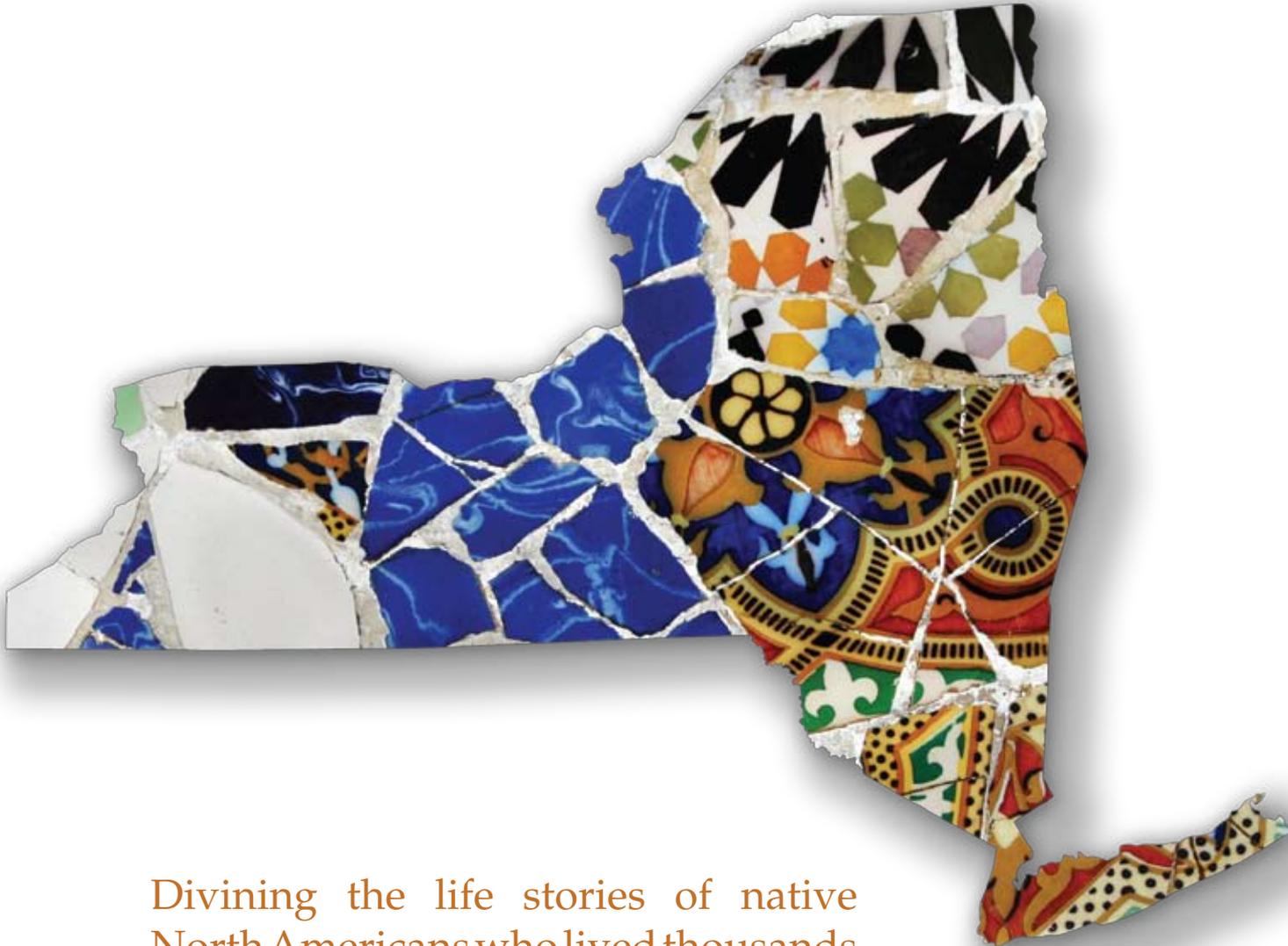


Dig New York



**ARCHAEOLOGISTS UNCOVER NEW
CLUES, THEORIES OF PREHISTORIC LIFE**



Divining the life stories of native North Americans who lived thousands of years ago but left no written records requires a unique blend of the social and life sciences. Thanks to a wealth of new data they've uncovered in recent years, and new techniques for extracting meaning from their findings, researchers at Binghamton University's Public Archaeology Facility (PAF) are rewriting some of the most widely accepted theories about prehistoric life in New York state.



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Much of the new information used by PAF’s archaeologists has resulted from cultural resource management investigations for economic development projects across New York state (see sidebar pg. 12).



Culling valuable data from ancient objects — stone tools, broken pottery, a few seeds, the remains of a hearth — archaeologists piece together a tableau of people who lived hundreds or thousands of years ago. “You take the data you have, you apply analytical techniques and then you weave the results into an interpretive story,” said Nina Versaggi, PAF director.

As PAF personnel discover new sites and apply more powerful analytical techniques, their interpretations of ancient diet, community organization, division of labor and group dynamics within our valley systems become more complex. However, these interpretations are not static. “Somebody 20 years from now will be able to re-analyze the same data with new analytical tools and add to the story,” Versaggi said.

For now, though, based on the work of the PAF, the story that is beginning to emerge about life here before Europeans arrived is more detailed and more complex than any version that archaeologists have subscribed to in the past.

Chronological sequences are one example. For a long time, Versaggi explained, archaeologists maintained that changes in prehistoric technology (tools and how they were made),

“foodways,” or means of accruing sustenance (foraging vs. farming) and settlement patterns (seasonal movements vs. year-round villages) occurred at the same time everywhere across the region that now contains New York state. For example, traditional chronological models stated that people changed the shape of their hunting tools or projectile points, replaced stone bowls with clay pots and began to plant domesticated species of maize, beans and squash according to an established temporal framework.

Archaeologists in the early to middle 20th century based these chronologies on data collected from a small number of deep, well-stratified sites. “Researchers accepted these chronologies as fact and adhered to them for decades,” Versaggi said. “They were used by us, and they’re still used by archaeologists today. They’re not invalid. But they tend to hide a wealth of variability that could be related to cultural and ethnic differences among prehistoric peoples.”

New analytical techniques have assisted the process of discovery and interpretation. For example, a new method of radiometric dating, Accelerator Mass Spectrometry (AMS), has become more accessible and affordable, allowing the facility’s teams to obtain a greater sample of dates from a larger number of sites than archaeologists did in the past. Sometimes, these new dates show that sites with certain artifact types do not agree with the traditional chronologies. This suggests that the boundaries between cultural periods aren’t as precise as scientists

once thought. “We’re finding there are regional differences, and we’re finding these may be related to cultural differences,” Versaggi said.

For example, early archaeological research showed that at about AD 1000, people living on the lakeplain surrounding Lake Ontario started forming larger villages and going through rapid cultural change, Versaggi said. The ease of travel from the St. Lawrence Valley through the Great Lakes into the Midwest provided opportunities for people and ideas to travel over great distances. Some of these changes included a great deal of innovation in pottery design and decoration. But on the Allegheny Plateau — which includes New York’s Southern Tier — the terrain is more rugged, and water travel is oriented north-south rather than east-west via rivers, such as the Susquehanna, Delaware and Allegany. Villages in this region were smaller, and people probably did not have the same degree of interaction as the northern groups had. “So, certain aspects of material culture, such as pottery traditions, did not change at the same rate,” Versaggi explained.

This interpretation emerged when doctoral students Laurie Miroff and Tim Knapp (also PAF researchers) obtained a large

number of AMS dates from carbon associated with decorated pottery at the Thomas/Luckey site in the Chemung River valley. The dates suggested that certain types of decorated pottery persisted for about 100 years past the point traditional chronologies dictated. "Maybe 20 or 30 years ago, we would have said, 'Our dates are incorrect due to contaminated carbon,'" Versaggi said. "But now we are building a body of evidence that supports an interpretation of how people interacted with each other, and how change was incorporated into their social structures."

On a similar note, traditional chronologies based on a few sites on the Ontario lakeplain marked a time around 1000 BC when people stopped using bowls made of steatite — also called soapstone — and started using clay pottery. However, PAF's



Versaggi and Knapp have found that people in the valleys of the Southern Tier continued to use soapstone bowls, possibly alongside clay pottery, during periods that ranged from 900 BC to 200 BC.

"The use of stone bowls persisted well beyond when people were supposed to have shifted to using clay pots," Versaggi said. Steatite is a raw material that is not available in New York's valleys. The closest quarry sources are in the Lancaster area of Pennsylvania. However, when PAF's researchers teamed with scientists at the Archaeometry Lab at Missouri University, and applied Nuclear Activation Analysis to the steatite, they found that the steatite probably came from more distant quarries in Maryland and Virginia. Not only that, but people were making a prodigious effort to bring those heavy receptacles to the region well beyond the time when



Nina Versaggi

other groups were using locally available clays to make pots.

“You’re traveling by canoe to a region where you may not have access to the quarry,” Versaggi said. “You have to negotiate with somebody to give you access, or to supply you with finished stone bowls.” The presence of the bowls in central New York suggests that people from this area formed trading (and possibly political) alliances with people near the Chesapeake Bay. In this case, science provided a means to speculate about how people were making decisions. “There was something complex going on that involved people, interaction and transactions that we were able to tease out of the artifacts and analytical results,” Versaggi said. Persistence in the use of steatite could signal that this material was an identity or alliance marker, she added.



PAF’s teams are not the only archaeologists to propose that regional variations in cultural material and sites are important to our understanding of the social aspects of prehistory. But they stand at the forefront of the movement to reassess the traditional, one-size-fits-all chronology

and the interpretations that result from this framework. “Because of the dynamic exchange of ideas between the Anthropology Department’s faculty and students, and PAF’s researchers, I think we probably were more open to a lot of these revisions and new interpretations,” Versaggi said. “As we continue to present and publish our findings, other researchers may use our results to justify and support the patterns they are finding. They’re linking into what we’re doing, either to enhance our models, or maybe to advance new models of their own.” ■

— Merrill Douglas

WHAT IS CULTURAL RESOURCE MANAGEMENT?

Several federal and state laws require that, before starting many kinds of construction projects, developers determine whether any archaeological sites, standing historic structures or cultural properties of significance are present that should be preserved.

Under a cultural resource management services contract, archaeologists survey a project area to answer a series of questions: Are cultural resources present within an area that will be developed? If so, are they significant? In legal terms, “significant” means eligible for the National Register of Historic Places. Finally, can impacts to significant sites be avoided, or will a final excavation be necessary?

When the Public Archaeology Facility investigated the site of Binghamton University’s new downtown center, for example, the answer to the first two questions was yes. “We found the foundations

to the first European settlements in the city of Binghamton,” said Nina Versaggi, PAF director. The site also revealed remnants of carriage houses, outhouses, wells and cisterns, plus traces of Native American settlements. “We found a partial longhouse with hearths and storage pits,” she said. Also, pieces of cooking pots and numerous stone tools indicated earlier native settlements, going back 4,000 to 5,000 years.

In a case like this, the PAF works with the developer to mitigate the impact of construction on the archaeological resources. That might mean moving the project to a different location, leaving the resources in place for scholars to study in the future. If that’s not possible — as was the case in downtown Binghamton — then PAF’s archaeologists excavate a final sample of the site to recover data for analysis and interpretation.

The PAF does about 60 to 70 percent

of its work for the New York State Department of Transportation under contract to the New York State Museum. The current five-year contract, awarded in 2007, is worth \$20 million. Other clients include federal, state and local government agencies, engineers and private developers.

With a staff that varies seasonally from 30 to 60, the PAF conducts work throughout most of New York. “We try to focus on our research area, which is central New York and the Southern Tier,” Versaggi said. But if a client needs work in another area and PAF has the necessary expertise, it will send a team further afield.

The PAF also negotiates with Native American groups on the appropriate way to handle, and often repatriate, any human remains or sacred artifacts found in its excavations, as U.S. law requires. “We have very good relationships with Native American groups,” Versaggi said.

FISHING FOR ANSWERS

A sharply defined area of rich, black soil in Castle Gardens, a residential development near Binghamton University, has archaeologists wondering if they've found the site of a large, specialized site that focused on fish processing.

"The organic soil contained a diverse assortment of stone artifacts and burnt animal bone," said Nina Versaggi, director of Binghamton University's Public Archaeology Facility.

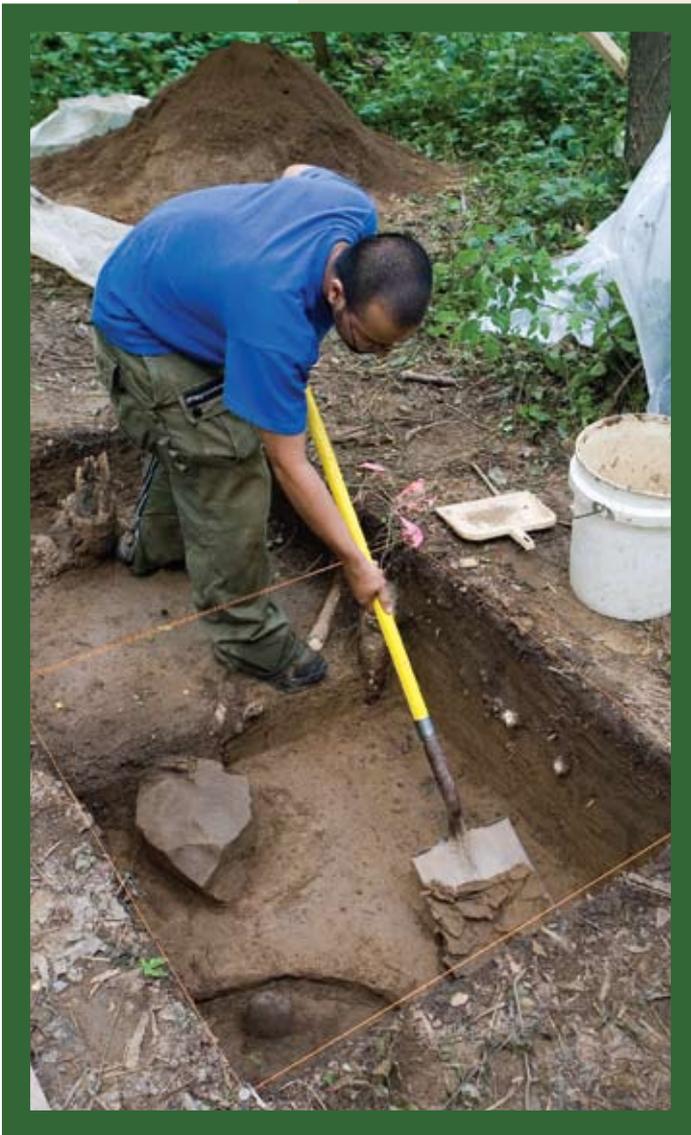
Moreover, the soil stain has a distinct boundary, outside of which the black soil isn't present. "It's clear that some form of human activity occurred here, but the exact function is not so clear."

PAF archaeologists Versaggi and Laurie Miroff have their suspicions. Thousands of years ago, they propose, local people used the spot to capture and clean masses of fish, whose discarded scales, skins and innards produced the organic compost-like soil.

If people fished the Susquehanna at Castle Gardens, they probably didn't use nets, since few stone netweights have been found, Versaggi said. But they might have built stone or wooden weirs in this narrow section of the river, funneling the fish into pens and keeping the fish alive until needed.

"I don't want to say it's like a fish tank," Versaggi said. But the comparison isn't far off the mark. The holding area might have offered fresh fish anytime someone wanted to scoop out a bunch to prepare for cooking. Proving this theory is more difficult.

Joseph Graney, associate professor of geology at Binghamton, has suggested that the PAF test the blackened soil for mercury. The oceans have always contained some mercury, even before human activity raised its levels, and fish migrating up the Susquehanna would have carried the chemical as far as Castle Gardens. "If you had enough of a concentration of fish remains in the soil, even from thousands of years ago, you might see a spike in the mercury in that dark layer, and then the absence of that spike in the area just outside it," Versaggi said.



This is one of many ways in which PAF's archaeologists collaborate with colleagues in other disciplines to coax new knowledge from old sites and the cultural material within them, Versaggi said. "We're looking for innovative ways to try to get at other types of information, using techniques that are new to us, but that are not new to other scientists."