SOCIETY for HISTORICAL ARCHAEOLOGY

The SHA Newsletter

Quarterly News on Historical Archaeology from Around the Globe

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SHA 2021

Lisbon, Portugal

6-9 January

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President's Corner

Mark Warner

The Challenge of Competing Interests

I want to begin by asking you to consider some seemingly disjointed facts:

- Last year the Bureau of Labor Statistics (BLS) revised their employment estimates for anthropologists and archaeologists. BLS currently projects 10% growth in the field between 2018 and 2028.

- The Bureau of Land Management (BLM) is moving its headquarters out of Washington, DC to Colorado, a move that will almost certainly have a negative impact on cultural resources on the nearly 250 million acres of land for which BLM is responsible (a move publically opposed by AAA, SAA, SHA, and ACRA, among others).

- Over the past few years there have been repeated budget proposals calling for the elimination of the National Endowment for the Humanities (NEH) and the cutting of budgets for SHPOs, THPOs, and other government agencies that deal with preservation (Congress has not acted on those budgets).

- In 2018, almost one million people visited historical archaeology sites or attended other public events, such as lectures or a public archaeology day.

I could probably expand the list, but I think these four points suffice. What I want to highlight is a duality about archaeology that I think we only sporadically wrestle with as a discipline. On the one hand, there is extraordinary interest in what archaeologists do and what we find. Stereotypes aside, a strong majority of the U.S. population has very positive perceptions of archaeology and archaeologists. On the other hand, there are also groups that view archaeology and associated federal and state preservation laws that protect cultural resources as a significant problem. The second and third points presented above are particularly concerning, as they are two of many recent examples of efforts to limit the scope of protections for cultural resources. Many of these legislative and regulatory maneuvers get pretty far into the weeds (example: a failed attempt to exempt new cell tower construction from the 106 process), but they clearly illustrate the perspective that, for many businesses, cultural resources are not something to be preserved; rather, they are an obstacle to industry.

I know I am repeating myself on this issue, but I think the disconnect between public support for archaeology and some businesses's disdain for archaeology is one of the crucial issues that we face. Being realistic, the lobbying dollars

spent advocating on behalf of archaeology and cultural resource protections is miniscule, when compared to the lobbying funds spent by groups such as the American Mining Association. However, we cannot forget that historical archaeologists are particularly well suited to act as advocates for archaeology. The bulk of our work is readily visible to the public and is usually an easy sell to local politicians. Our work as historical archaeologists consistently generates goodwill in communities and we need to make sure that we take advantage of this.

Speaking personally, I have found that it is not hard to make sure our local projects register with politicians. I regularly make a point to touch base with my state representatives and staff in my congressional offices each time I am doing some sort of project that has some public component to it. These offices are supportive of almost anything that actively engages their constituents. Certainly, this does not automatically create advocates for archaeology; after all, I live in Idaho, where mining is enormously influential. However, the phone calls and emails have opened channels of communication with a known entity (usually a staff member), on the infrequent occasions when I do have to call attention to something that is impacting archaeology. Basically, I have found that an hour or two of phone calls over the course of a year to my mayor, state representative, congressman, etc., is not hard to do, and at least it feels like I can register my opinion in a meaningful way. Let me be clear: I am under no illusion that we can convince everyone of the inherent importance of historical archaeology—but small, regular communications to engage politicians can be a counterweight when proposals are launched that undermine our cultural preservation laws. So please do take a small amount of time in the next year to reach out to your representatives and tell them about all of the good work that you or your peers are doing.

Finally, on a personal note: as this is my last submission as president, it has been an honor to serve SHA, an organization that I truly feel is my professional home—I hope I didn't mess things up too much.

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Images of the Past

Benjamin Pykles

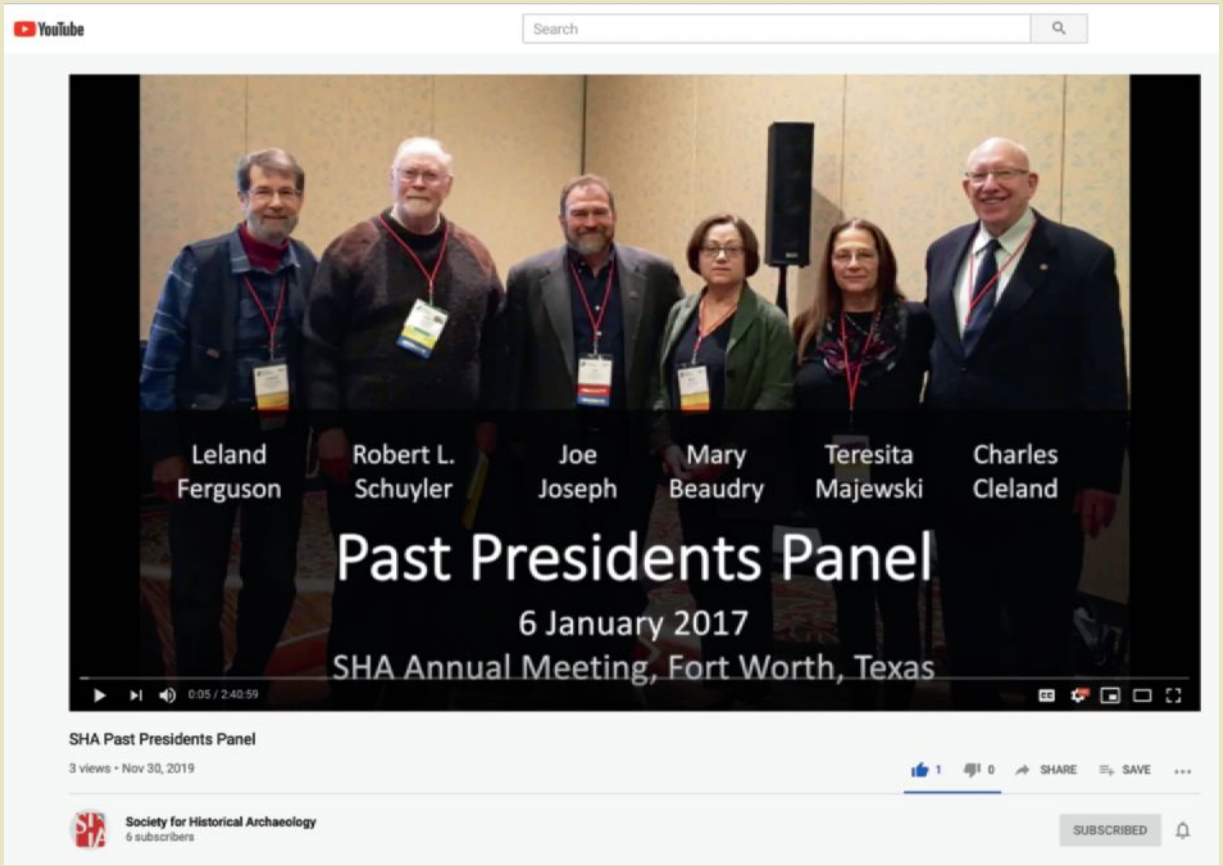
Past Presidents Reflect on the History of SHA

On 6 January 2017, exactly 50 years after the founding of the Society for Historical Archaeology (SHA), six former presidents of the society gathered for a panel at the SHA conference in Fort Worth, Texas. Each presented their thoughts about SHA and its history, the trends they had witnessed, the strengths and weaknesses of the society, and where they see SHA going in the future.

The six panelists were:

Charles Cleland	President in 1973
Robert L. Schuyler	President in 1982
Mary Beaudry	President in 1989
Leland Ferguson	President in 1991
Teresita Majewski	President in 1999
Joe Joseph	President in 2016

An illustrated audio recording of their remarks is now available on the SHA YouTube Channel. After you check it out, please subscribe, so you can be notified of new content that is uploaded.



"Leg 1 Strong": Citizen Science, Archaeology, and Single-Use Plastics in Our Oceans

Kimberly J. Wooten, California Department of Transportation, Division of Environmental Analysis, Cultural Studies Office

Earlier this year I was accepted as crew on the first leg of eXXpedition's round-the-world scientific research trip focused on studying single-use microplastics in the world's oceans. Prior to 2019, eXXpedition's all-women research voyages have been shorter trips with the mission to make the "unseen seen"—unseen women, unseen pollution, and unseen solutions. Leg 1, from Plymouth, England, to São Miguel in the Azores, would be the start of an ambitious 2-year circumnavigation of the world's oceans, covering over 38,000 nautical miles, 30 travel legs, and 300 women crew. To date, over 10,000 women have applied for those 300 crew positions.

I came on board as an archaeologist; after all, what do archaeologists do best, if not look at human refuse? And what better platform to capture public attention than archaeology? I had seven months to raise the $6500 crew cost, gain some basic sailing experience, gather my gear, write a how-to manual on ocean-based plastics and archaeology, begin the process of public outreach, and learn a bit of Portuguese, before departing Sutton Harbor in Plymouth, England, aboard the 73-foot ketch S.V. *TravelEdge* with 13 strangers (Figure 1).

FIGURE 1. The eXXpedition sailing vessel TravelEdge *in Sutton Harbor, Plymouth, United Kingdom, just before heading out into Hurricane Lorenzo.*

If we are able to view our own consumer behaviors as "future" archaeological deposits, seeing the ocean as a global archaeological site, perhaps we will be able to take steps toward changing the choices we make. The study of modern refuse with archaeological methods was most famously done by William Rathje in the University of Arizona's Tucson-based Garbage Project. More-recent landfill studies by Joshua Reno (2016) are profoundly eye-opening, and the use of modern refuse to teach archaeology methods has been conducted on college campuses by Stacey Camp (Michigan State University), Pamela Geller (University of Miami), Anthony Graesch (Connecticut College), and others. While my professional experience is as a land-based historical archaeologist and that was my focus for this trip, underwater archaeological methods will also be an important tool in the study of modern ocean refuse.

On 8 October, we set sail into the tail end of Hurricane Lorenzo. Our crew consisted of three professional sailors, including skipper Anna Strang and Emily Penn, cofounder of eXXpedition and experienced sailor in her own right, along with 10 guest crew from the United States, Croatia, Germany, Indonesia, Malaysia, and the United Kingdom. Of the guest crew, three women had professional sailing experience. This was not a prerequisite and several women had never sailed or even been on a boat. My own experience consisted of a handful of calm river sails, along with one 5-hour coastal trip during a small craft advisory that seemed harrowing at the time. By the end of my Atlantic trip, it would seem like a joyride. Within hours of departing Plymouth, 11 of the 14 crew members were seasick and would remain so for days. On the first night we lost our main sail, ripped from the mast by high winds, and one of the guest crew suffered several blows to the head that would later be diagnosed as a concussion. We lost our mizzen sail twice, had to radio freighters for diesel, experienced engine and water maker failures repeatedly, and destroyed the galley. By the time we landed in Ponte Delgada on the big island of São Miguel in the Azores 12 days later, we had covered more than 1600 nautical miles—much of it tacking at 45 degrees—with each crew member amassing 48 hours of night watch. I arrived 15 pounds lighter and covered head to toe in bruises; I could grind a winch like a real sailor, had learned to trust myself helming, and learned that the big toe plays a critical role in balancing on a ship while pulling on four base layers and your foulies. I happily stepped onto land with stories that will undoubtedly last a lifetime (Figure 2). And "Leg 1 Strong"? The mantra of our crew after surviving 1617 nautical miles on the open ocean.

I would like to report here that the application of archaeological methods to modern ocean debris was a perfect success, but the Atlantic Ocean had other ideas for my journey. A binder full of consumer history and habits, methodological guidance, and ocean-tailored catalog sheets remained firmly closed as I struggled to survive "life at 45 degrees." In spite of this disappointment, from what I observed on a daily basis out on the ocean, I firmly believe that archaeology is not only fully applicable, but that the behavioral studies that are the focus of our discipline can be a critical element in finding solutions to our global waste issues. With few exceptions, archaeologists define the "past" as something apart from ourselves, but archaeology is as pertinent to the study

*FIGURE 2. Kimberly Wooten (*left*, United States) and Sonja Jakic (Croatia) during one of their many 4-hour watch shifts.*

of refuse generated a century ago as it is to waste disposed of in 2020. The idea is the same, even if the manufacturing materials and technologies are different. When combined with citizen science that engages the public, archaeology can provide a powerful platform allowing archaeologists the opportunity to participate in hear-and-now actions and solutions.

Once we set sail, marine debris sampling was to consist of surface and subsurface water sampling. During our leg of the trip, the Niskin bottle for collecting subsurface samples did not function in the open ocean. With the extreme sea state, we were only able to deploy the Manta Trawl, which looks vaguely like a hammerhead shark (Figure 3), four times. Surface trawls are a systematic process that allows for the collection of comparative samples from around the world. The sea state must be quiet enough that the boat can travel at 1 to 2 knots to allow the Manta Trawl to remain along the water surface without diving or riding above the swells. Samples are collected for 30 minutes, feeding through the mouth into a fine skein, or codpiece, with sample locations documented by latitude and longitude. (This latitude- and longitude-based locational information was new to me as a terrestrial archaeologist, where we rely on different ways to map a site that exists in a fixed location.) One sample was collected for the crew to sort on board (Figures 4 and 5); a second, blind sample was collected for studies to be conducted at the University of Plymouth, one of the eXXpedition program's academic partners. While we were only able to sample ocean plastics 4 times in our 12 days at sea, subsequent crews have had much friendlier weather with more opportunities to do data collection.

The volunteer model eXXpedition uses is based in citizen science, empowering women who are generally from non-science professions to be part of environmental solutions. I believe strongly in citizen science and archaeology as ways to engage the public in solutions, from single-use plastics to more traditional engagement in historic preservation and archaeological site protections. Archaeology immediately captures the attention of the public. I see that appeal as one of our discipline's strongest assets. But that goodwill needs to be cultivated, especially in a society that clamors for at-

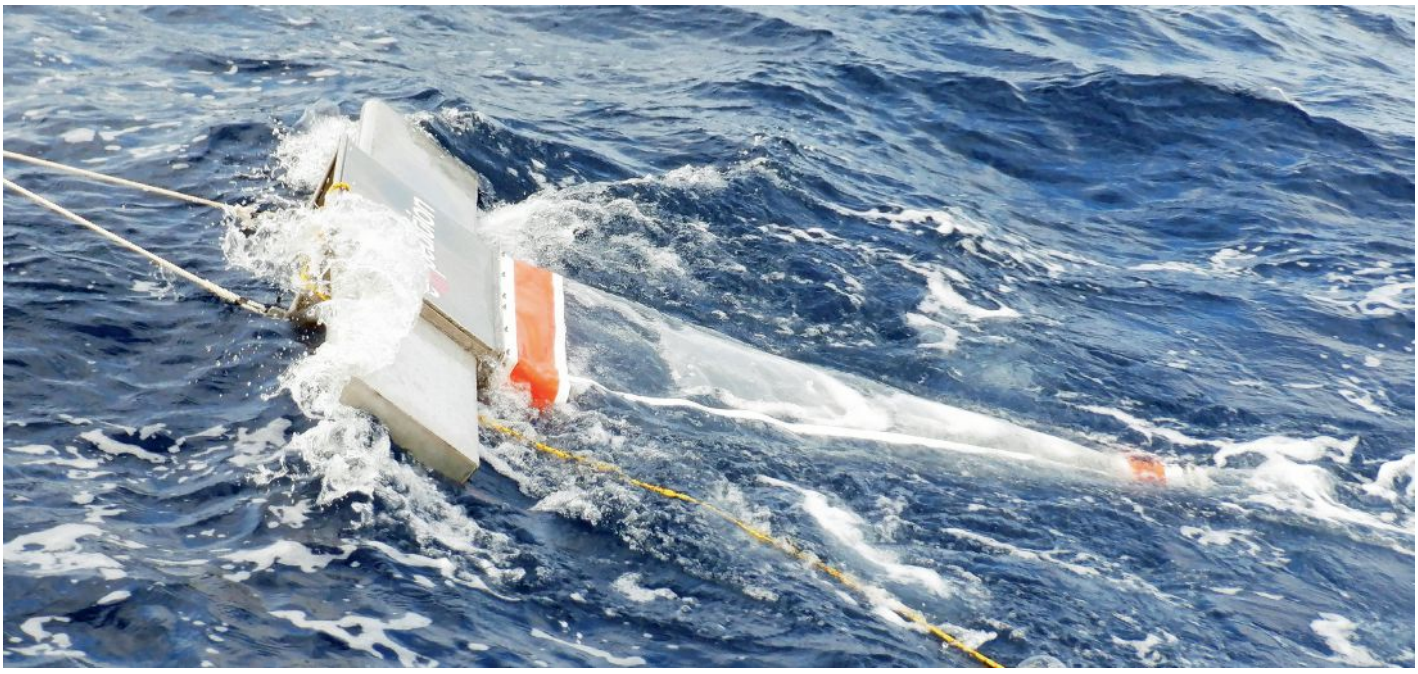


FIGURE 3. The Manta Trawl at work.

FIGURE 4. Surface sample prior to being processed; the small hydrozoan has pieces of microplastic embedded in its "mouth."

tention from every direction. What is citizen science? It is the engagement of everyday people, primarily from limited scientific backgrounds, working on data-driven projects in partnership with experienced scientists. One of the most successful examples of this public partnership in the United States is perhaps the U.S. Forest Service's Passport in Time program (http://www.passportintime.com/).

EXXpedition's science program is a based in data collection by the crew, with additional specialized studies conducted by partner universities. Both shore and ocean data collection were employed, and in addition to the Manta Trawl samples, included

- Circularity Assessment Protocols (CAP) to study the flow of plastic debris within countries and its relationship to the plastics found in the global environment.
- The use of a Van Veen Grab Sampler for marine sediment sampling while at port.
- The use of a Niskin bottle for subsurface water sampling at a depth of 25 m "to study the composition and distribution of different plastic polymer types within the upper ocean, which is currently a data deficient topic" (https://exxpedition.com/about/science/).
- Onboard analysis of the composition and distribution of different plastic polymer types.
- Several data management applications popular for use in citizen science were used when possible by the crew, including the Wildnote and Marine Debris Tracker apps.
- Microbial-origin studies, which hope to "tag" the country of origin of plastic at the end of its lifecycle, were prepared for certain sample sets.
- The study of nurdles, the small pellets of raw plastic material used in manufacturing plastic products. In our four Manta Trawl samples we collected just one nurdle. The Leg 2 crew collected 424 nurdles on a small São Miguel beach in 30 minutes. (You can participate in a global study of nurdles here: https://www.nurdlehunt.org.uk/).
- The study of microplastics versus intact plastics in four of the five ocean trash gyres.

In addition, I recommend visiting The Story of Stuff's webpage on how to run a product "brand audit" at https://storyofstuff.org/uncategorized/how-to-organize-run-a-brand-audit/.

I continue to welcome suggestions for research questions and methodologies based on historical and marine archaeology. Material culture studies, especially of modern consumer behaviors or focused on plastics, would be especially pertinent. To discuss archaeology, or if you have any questions about the eXXpedition program, please email me at kimberly.wooten@dot.ca.gov. For more information on eXXpedition or to apply as crew, please visit http://exxpedition.com/rtw/.

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FIGURE 5. Sorted plastic samples.

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CURRENT RESEARCH BEGINS ON NEXT PAGE

Canada - Prairie

Saskatchewan

Old Sites, New Sights: Ongoing Research at a Métis Overwintering Site (*submitted by Eric Tebby and William Wadsworth, University of Alberta, Department of Anthropology*): The Chimney Coulee site (DjOe-6) is situated on the eastern slopes of the Cypress Hills overlooking the vast beauty of the Canadian prairies. Located north of the town of Eastend, Saskatchewan and along the Laurentian Divide, this small wooded oasis was an important crossroads for many peoples and cultures. The site's turbulent history is a rich source of unique Canadiana and has fascinated many locals, visitors, writers, artists, historians, and archaeologists. Métis scholar Dr. Kisha Supernant and her students are the latest iteration of academics to find themselves wrapped up in all the profound discoveries and challenges that this site has to offer.

•*EMITA: Exploring Métis Identity Through Archaeology*

Dr. Kisha Supernant from the University of Alberta initiated the EMITA project in 2013 with funding from the Social Sciences and Humanities Research Council (SSHRC). Through the project she hopes to explore how Métis identity can be expressed through the archaeological record at various historically known sites in the Canadian West. It is through a detailed examination of the material culture that Dr. Supernant plans to reconstruct the day-to-day lives of the Métis to understand the similarities and differences of their colonial experience as opposed to that of contemporaneous groups. The project has mainly focused on looking at the cabin remains at "overwintering" or hivernant sites. In addition to traditional excavation methods, Dr. Supernant and her students have been applying nondestructive remote sensing techniques to gather data and highlight the activities of the Métis families at these unique sites.

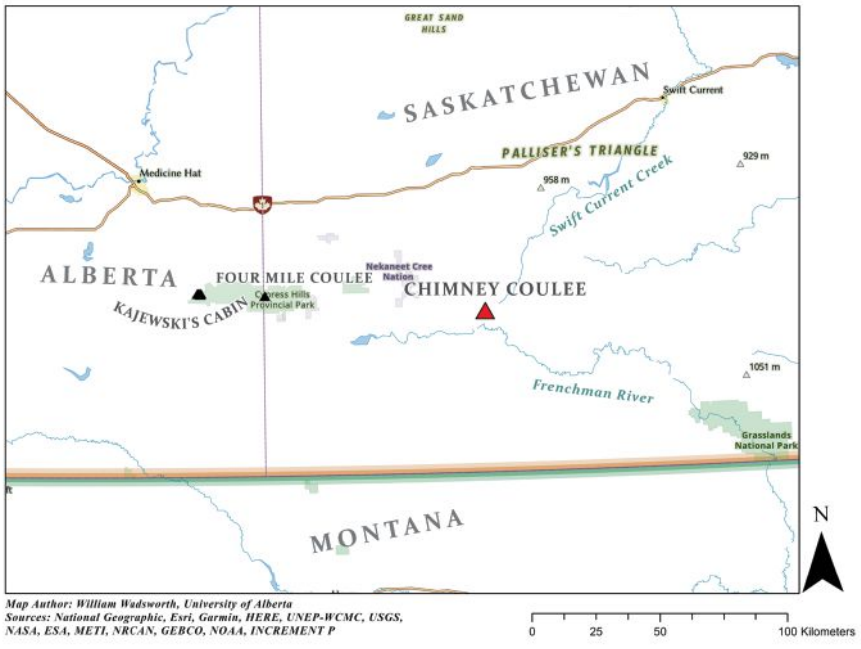


FIGURE 1. Map showing location of the Chimney Coulee site.

•*The Many Angles of a Métis Cabin: Four Field Seasons at the Site*

The Chimney Coulee site first attracted the attention of Dr. Supernant in 2013 during a preliminary 10-day investigation into the potential and viability of researching Métis overwintering villages. The site had become considerably more overgrown since Burley and colleagues' (1988) original survey in 1986. The first research objective was to resurvey the site with a RTK-GNSS receiver for more-accurate planning of future work on the site. Some excavations had been conducted in the 1990s and early 2000s to locate the North-West Mounted Police (NWMP) cabins and the Issac Cowie longhouse (SEDAR 1995; SEDAR 1996; Brandon 2001); the focus of the EMITA project was to locate any remains of the Métis hivernant cabins. Five test excavation pits were placed in an area below the known NWMP cabins where Métis occupation was purported to be located. All tests were positive for precontact material, with the final one, started on the second-to-last day of the field season, having a particularly large concentration of historic artifacts associated with a potential Métis cultural affiliation.

The 4-week 2017 field season focused on the area including and surrounding the notable artifact concentration found in the previous season. Primarily led by Eric Tebby, a graduate student of Dr. Supernant, the successful 2013 test pit was expanded into three excavation units. These revealed even-larger concentrations of domestic items with a clear Métis cultural signature. Screening methods employed at other hivernant excavations were used and formalized during this excavation. Artifacts recovered to date include over 1500 glass seed trade beads, over 200 ceramic sherds, over 200 glass sherds, various other personal items including buttons and pins, and various other domestic and non-domestic items. Ceramic sherds were principally of Copeland Spode style with dates of manufacture overlapping the known historical dates of Métis occupation. Other artifacts also aligned within this known occupation period of between 1870 and 1882. The most remarkable find was the relatively intact remains of a flower beaded pattern that appears to be Métis in style. Crossing through all three units in a lineal direction

were the faint remains of a wooden trench. This was notable, as it appeared to separate the vast majority of artifacts, both domestic and nondomestic on one side with much fewer artifacts and less soil compaction evident on the alternate side. This was hypothesized to be the wall of the cabin.

Dr. Supernant and team returned again in the 2018 field season for three weeks to gain more information on the purported cabin. Improving on previous methods, all artifacts were shot with a Total Station for more-specific mapping of artifact types and concentrations. Ground-penetrating radar (GPR) was used in an exploratory fashion with some success over the area. Four more excavation units were placed to try and find more of the suspected cabin wall. Dr. Natasha Lyons was brought in to conduct a survey of the numerous plant species surrounding the site and soil samples were taken from the excavation. Results from the 2018 field season closely resembled those from the previous season. The wooden trench pattern continued in a lineal direction, with a clear bias of large concentrations of domestic artifacts found on the same side as in the previous excavation units. The hypotheses developed during the 2017 field season were further supported by the preliminary data found in the 2018 season. In addition to the excavations, a Métis friendship society of youths and elders visited the site, as well as a film crew from the Aboriginal Peoples Television Network (APTN) for the show *Wild Archaeology*.

FIGURE 2. GPR survey of Chimney Coulee.

The final visit to the site occurred this past August and spanned a period of 11 days. Similar excavation methods were employed, but with more-targeted objectives. A GPR unit with a 900 MHz center frequency antenna was used to survey the hypothesized cabin and locate its walls and chimney remains. This survey was complemented with magnetic gradiometry data, which successfully located the chimney and corroborated interpretations formed from the GPR data. One excavation unit was placed far from previous units in an attempt to groundtruth the geophysical interpretations. A wooden trench was found in this unit that matched the wooden materials in previous excavations and further supported the hivernant cabin hypothesis. Similarly, the chimney feature identified in GPR and magnetic data was excavated via a single unit and revealed a large mass of stone, distinct soil dicoloration, and copious amounts of calcined bone fragments. The ground-truthing data demonstrated the accuracy of our interpretations and led us to expand our surveys to other potential cabins at the site. Additionally, a drone-mounted multispectral sensor was used to collect site-level data in an attempt to locate additional cabins. The results of the multi-instrument remote sensing survey proved to be overwhelmingly successful at identifying Métis cabins and a viable strategy for future studies of overwintering sites. This season was primarily focused on refining remote sensing methods and determining the structure of the suspected cabin. In comparison with past years, relatively few domestic artifacts were found; these were consistent with the overall assemblage.

•*Future Applications*

These investigations into the Métis cultural component at the Chimney Coulee site have provided new insight into a crucial crossroads of the history of the Métis. From almost a century and a half of primary-source documents to drone-mounted multispectral sensors, this ongoing project has illuminated an intimate and personal space of Canadian history often overlooked. Not only have the investigations contributed to the understanding of the Métis archaeological signature, they have also allowed our team to formalize survey and excavation strategies for Métis sites in the future.

FIGURE 3. Field crew at the Chimney Coulee site.

Manitoba

Experiments with New Mapping Methods at the Sourismouth Forts (*submitted by Scott Hamilton, Dept. of Anthropology, Lakehead University*): The author has been evaluating the archaeological utility of Unmanned Aerial Vehicles (UAVs) (Hamilton and Stephenson 2017), in part through reinvestigation of fur trade posts along the Assiniboine River in southern Manitoba (Figure 1). This began by comparing UAV output to archaeological topographic maps and near-surface geophysical prospection dating to the 1980s (Hamilton 2017), but has since expanded to include other remote sensing data (orthophotography, LiDAR imagery) (Hamilton 2018, n.d.). The latter papers explore data precision and accuracy, and how such remotely sensed data can be used to augment archaeological site interpretation.

These fur and provisioning trade post sites date to between the 1780s and 1830s, a time of intense competition between the British traders. They were initially investigated by the Manitoba government in the early 1980s to determine their locations and assess their cultural heritage significance and condition. Fieldwork focused on site mapping, near-surface geophysical prospection, surface collection, and evaluative excavation. This labor-intensive effort was constrained by the technology available at the time, and since then has motivated consideration of how new remote sensing methodologies might offer improvement.

The 1980s baseline site cartography derived from paper 1:50,000 topographic maps and 1:30,000 black-and-white air photographs supplemented with information from optical survey instruments. This has been supplanted by digital cartographic data and web-based satellite imagery (Google Earth, Bing, etc). While significantly improving resolution, precision, and accuracy, these data are still insufficient for detailed archaeological inquiry. Figure 2 presents conventional digital data illustrating one Sourismouth Forts locality. Using GIS software, 1 m resolution orthophotography was integrated with shapefiles from the Canadian National Topographic Survey database (NTS). Surface conditions are readily apparent, but close examination reveals cartographic errors deriving from the legacy data, coupled with insufficient resolution to reveal archaeologically relevant details. While Google Earth satellite imagery offers somewhat better resolution (Figure 1), it, too, is insufficient for many archaeological purposes. These problems are even more severe when considering the publicly available elevation model (ca. 15 m horizontal resolution) (Figure 3).

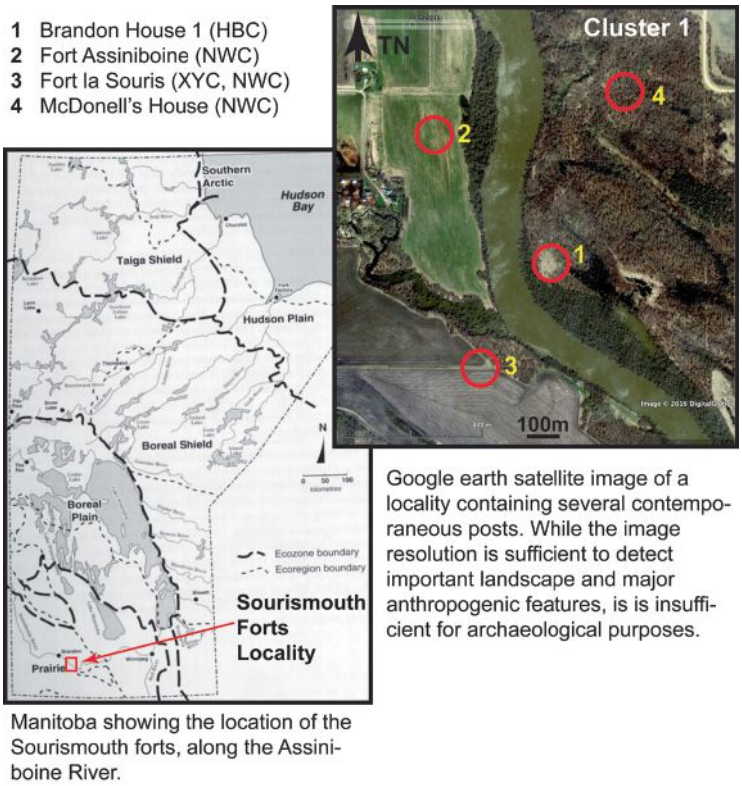


FIGURE 1. Manitoba biogeographic regions, with the Sourismouth forts located along the Assiniboine River. The inset Google Earth satellite image reveals landscape features associated with some of the trade posts.

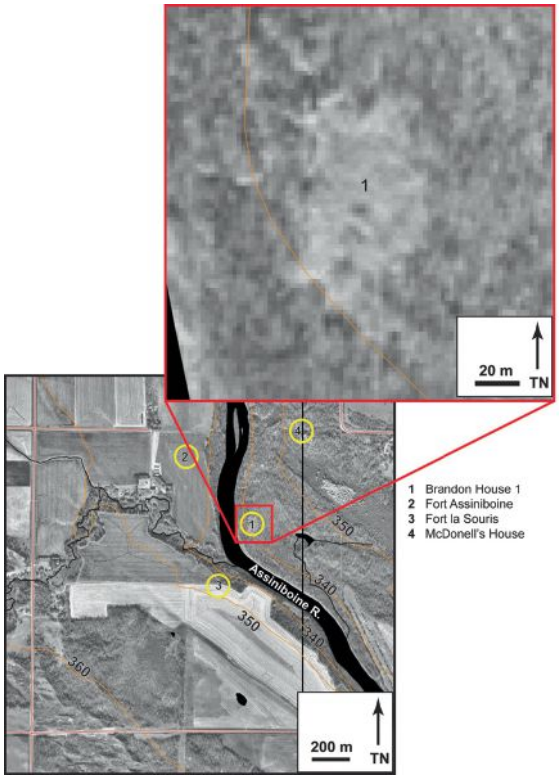


FIGURE 2. GIS rendering of the orthophotograph with NTS shapefiles. The location of four trade posts is included, with the inset detail revealing the lack of interpretative detail of the clearing containing Brandon House 1.

Semiautonomous mapping flights using consumer-grade UAVs were conducted over several of the posts to assess data quality relative to the original archaeological cartography. Figure 4 illustrates Brandon House 1, coupled with the original 25 cm contour-interval isoclines and the archaeological grids. The color inset map illustrates the Google Earth satellite coverage of the clearing containing the fort site. Figure 5 presents the UAV photomosaic of the fort clearing, with the relevant portion of the 25 cm interval topographic map and the key features

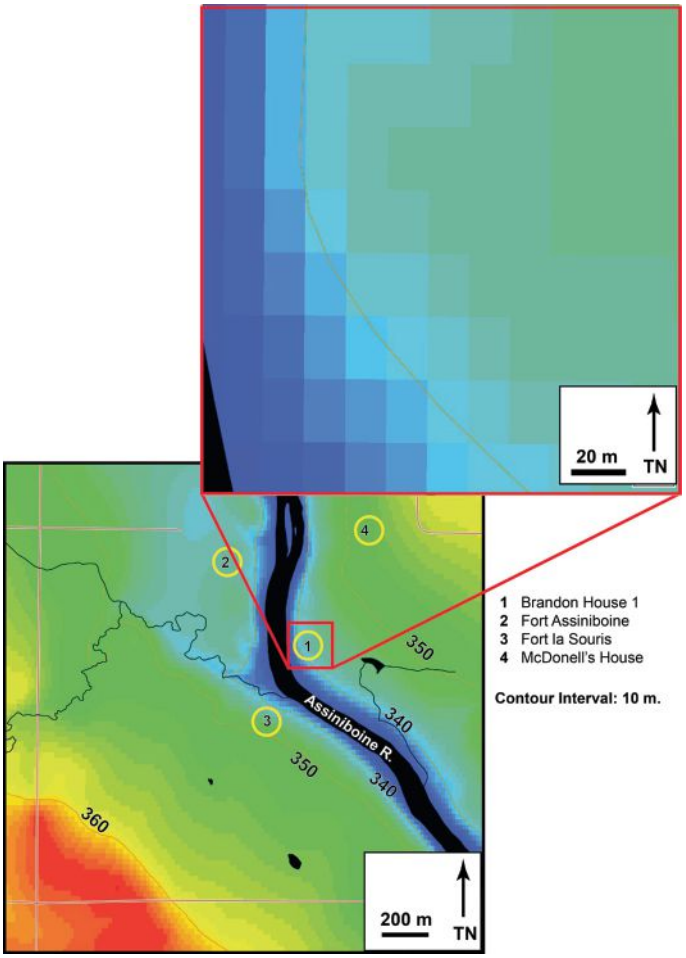


FIGURE 3. GIS rendering of the NTS shapefiles and 15 m resolution elevation model. The point bar terrace upon which Brandon House 1 is located is not detected.

superimposed. This flight was conducted at an elevation of 40 m, and the resultant UAV mosaic is quite large (124 x 202 cm), revealing many surface details. In order to present it in a manageable size, it has been reduced, with a significant loss of detail. Figure 6 is the Digital Elevation Model (DEM) deriving from the UAV flight, with 5 cm contour-interval isoclines superimposed as fine black lines. Details from the original 1980s mapping are included. The output from the UAV flight offers significantly improved data resolution, including relief representation sufficient to document archaeological features. However, such photogrammetry is constrained by obscuring vegetation that contributes 'false relief.' However, in situations of minimal vegetation cover, the results of photogrammetric processing of UAV aerial images enable the detection of anthropogenic features that remain undetected through conventional ground mapping (see Hamilton 2017).

To address the obscuring vegetation issue, the Brandon House 1 locality was examined using LiDAR imagery downloaded from Manitoba government sources (Figure 7). These data were originally collected and processed to aid flood forecasting, and the elevation point cloud was downsampled to ease data download and rendering using conventional computers. This results in elevation models with 1 m horizontal resolution that can be processed to detect and delimit some archaeologically relevant features. While still comparatively limited in availability in Canada, and generally quite expensive, LiDAR imagery offers revolutionary improvement in relief representation in terms of both precision/accuracy and representation of 'bare earth' relief. Figure 7 illustrates the Brandon House 1 locality, with the inset being the 1980s site plan. The heat map used with the LiDAR elevation model was modified to emphasize archaeologically interesting relief at the expense of areas of higher (red) and lower (blue) elevation. The 20 cm interval contours are included to delimit subtle relief that is difficult to represent with colors. This reveals major anthropogenic features upon the point bar ridge containing the palisaded fort compound. Due to LiDAR's ability to penetrate through dense forest cover, the LiDAR data also reveal a network of shallow linear depressions that are interpreted to be ditches to drain water away from the 'plantation area' that may have contained the extensive gardens. As LiDAR coverage becomes more widespread and readily available, it may supersede the value and utility of UAV-generated aerial imagery because of its ability to represent absolute elevation in spite of dense vegetation cover. On the other hand, UAV imagery is less costly to collect and can be generated under user-specified conditions at a higher resolution (but with detail constrained by vegetative overburden).

Comparison of the UAV elevation model with that deriving from LiDAR reveals yet another consideration. Li-

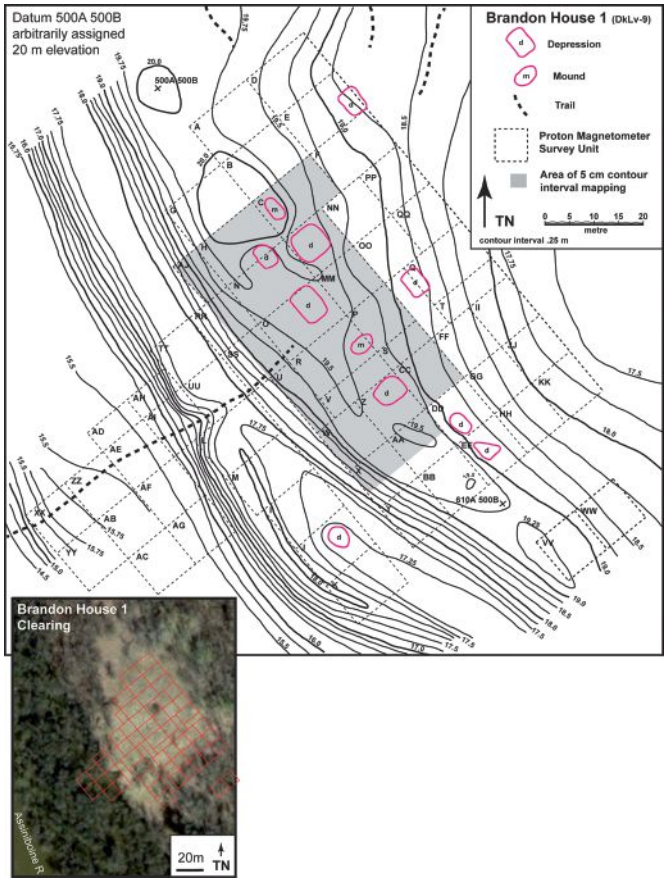


FIGURE 4. Archaeological site mapping of the Brandon House 1 locality dating to the 1980s.

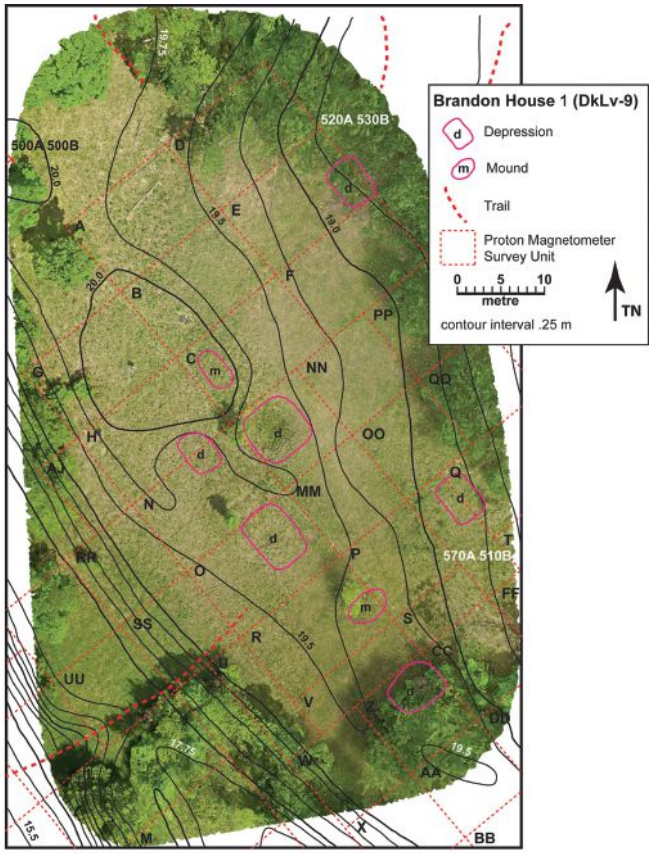


FIGURE 5. UAV-generated photomosaic of the Brandon House 1 locality, overlaid with portions of the 1980s isoclines and site grid.

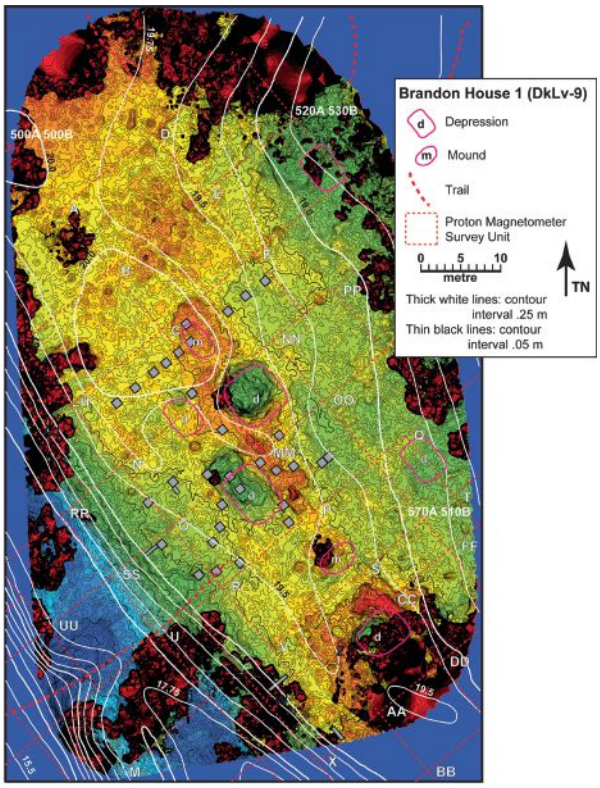
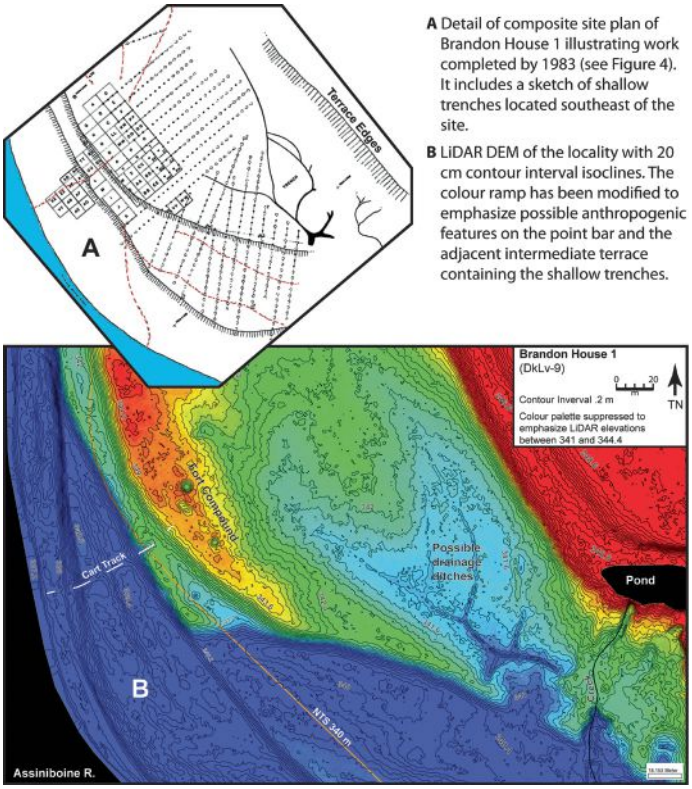


FIGURE 6. UAV-generated Digital Elevation Model (5 cm interval isoclines), overlaid with the 1980s archaeological cartography.



A Detail of composite site plan of Brandon House 1 illustrating work completed by 1983 (see Figure 4). It includes a sketch of shallow trenches located southeast of the site.

B LiDAR DEM of the locality with 20 cm contour interval isoclines. The colour ramp has been modified to emphasize possible anthropogenic features on the point bar and the adjacent intermediate terrace containing the shallow trenches.

FIGURE 7. LiDAR imagery of the Brandon House 1 locality, illustrating anthropogenic features detected despite the vegetation cover.

DAR imagery is generated from manned aircraft with considerable investment to generate absolute elevation values (m above sea level), with differential GPS to aid georeferencing to maximize precision (with 1 m horizontal resolution). In contrast, at 40 m flight elevation the UAV data offers 5 to 10 cm horizontal resolution, but with uncertain precision of the relative relief model (also impeded by the vegetation canopy). Comparison of the two elevation models is presented in Figure 8. Image A is an overview of the point bar containing Brandon House 1, with the major cellar depressions readily apparent. Image B is a detail of these key features highlighted with red dashed ovals and with fine red lines defining the 20 cm isoclines. Image C superimposed 20 cm isolines (fine black lines) from the UAV flight upon the LiDAR data, with black dashed ovals representing the apparent location of the major depressions. There is a consistent displacement of the UAV isoclines from those in the LiDAR imagery, likely indicating a systematic georeferencing error. UAV imagery is georeferenced using the GPS unit aboard the UAV to provide the Exchangeable image file format (Exif) tags for each of the images. The precision of these coordinates is limited to the precision of the GPS, which does not feature differential correction (±2–5 m). While the photogrammetric processing to create the mosaic and elevation model appears to refine georeferencing precision, it is not perfectly consistent with the differentially corrected LiDAR imagery. Although this was initially disappointing, it is clear that the UAV output is within 50 to 150 cm of the same degree of precision as the LiDAR output. In the absence of LiDAR imagery, photogrammetric processing of

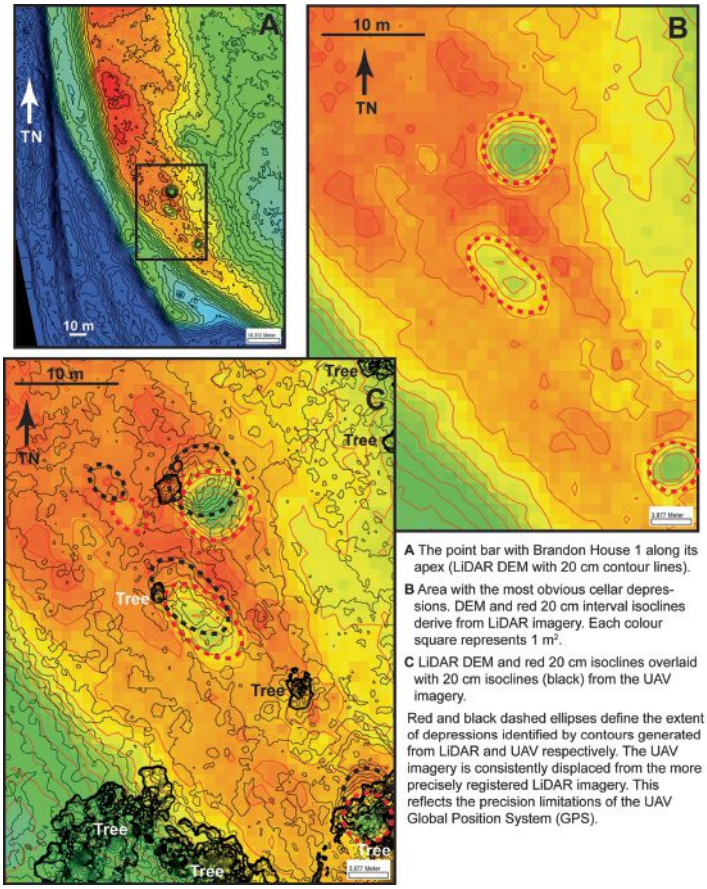


FIGURE 8. Comparison of the UAV and LiDAR elevation models for portions of Brandon House 1.

UAV photography offers a very significant improvement in precision, accuracy, and resolution over other conventional mapping products.

As LiDAR-equipped UAVs with built-in RTK georeferencing capabilities become available, the current shortcomings associated with UAV-based archaeological site mapping will be overcome.

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Continental Europe

Austria

The Oldest Shopping Mall in Vienna: Excavations in Karlsplatz Square (*submitted by Heike Krause, Wien Museum – Stadtarchäologie; heike.krause@stadtarchaeologie.at*): Vienna City Archaeology has been digging in Karlsplatz Square for several weeks now. The site under investigation is the future plaza in front of the newly modernized Wien Museum, which has necessitated a 5-meter-deep construction trench. In other words, the historical museum is investigating the history of its own location. The team has already excavated several meters' depth of stratigraphy. Most recently, the remains of streets from the second half of the 19th century have been uncovered, and the dig is not yet finished: still to come is the southern bank of the River Wien, which once flowed beneath the site of the museum and which has been channeled underground elsewhere since river engineering work occurring in the 19th century.

The excavation began with the uncovering of the foundations of the oldest shopping mall in Vienna (Figure 1). It dates to the 1920s and stood on the site of today's mu-

FIGURE 1. Vienna, Karlsplatz 8. The 3-D model of the uncovered remains of the shopping mall makes it possible to visit the excavation virtually at any time. (Figure courtesy of Crazy Eye.) Link: https://sketchfab.com/3d-models/grabung-karlsplatz-8-ba5206bf380f-464bae969cac1026700e.

seum, covering an area of ca. 3,000 m2. This shopping center, which existed for barely 12 years in the interwar period, had been almost completely forgotten before its foundations were rediscovered.

A city museum was planned for the site at the start of the 20th century. A building was designed by the famous Austrian architect and city planner Otto Wagner, but was not constructed due to enormous arguments and resistance. Architects and artists feared that the museum building would lessen the prominence of the Baroque Charles Church nearby. By contrast, on 9 March 1922 the newspaper *Neues Wiener Tagblatt* praised the appearance of the "elegant," almost entirely ground-level shopping mall then being built in Karlsplatz Square. The economy needed a boost following the end of the First World War and the slump that came with it. The shopping mall—on the edge of the downtown area in a good position for traffic—was to contribute to that by housing numerous businesses under one roof. The still-unbuilt lot close to the Charles Church was ideal. As it happens, the first covered shopping mall in the United States was built in Southdale, south of Minneapolis, Minnesota, by the architect Victor Gruen (1903–1980), who was born in Vienna. The simple building in Vienna was constructed much earlier, between 1 February and 22 July 1922, according to plans of the Viennese architect Robert Kalesa (1883–1967) (Figures 2 and 3). It had a two-story entrance area from which a central aisle, flanked by shopping booths, led through the halls. Construction cost more than five times as much as expected, which was attributed to the use of expensive materials. The shopping center was meant to be temporary, but ended up being used for a much longer time. Garden areas were laid out around it to enhance the pleasant ambience.

The *Neues Wiener Tagblatt* covered the opening on 16 August 1922 and once again hailed the "lavish mercantile establishment." An additional article emphasized the wide range of goods. The "centralization system" was praised, as the shopping center with its great variety of wares offered "an almost ideal shopping environment even for the harried professional person." That very modern sentiment was written almost a hundred years ago. Renowned retailers offered products for a wealthier sort of customer. Antique clocks, textiles, furs, dressing gowns, hats, umbrellas, and shoes could be purchased. The extremely high prices mentioned—a warm, blue-beige jersey blouse cost 270,000 crowns—reflect the inflation in that period. Three-wheeled Phänomobils from Zittau in Germany, Morgan 3 Wheelers and Runabouts, and Norton motorcycles from Great Britain could be bought in the mall. The traffic in luxury goods seems to have soon ceased to be satisfactory, however. Businesses came and went quickly and finally workshops were established in the mall and different products manufactured in its halls. Mechanics' and book-printing businesses opened there in 1927. *Heurige* (wine-tavern) evenings with traditional Viennese folk music were held in the restaurant in the central wing of the building in that year. The innkeeper called his premises the "First Viennese City Heurige" and offered his guests music in splendid dust-free gardens. Not two years later he was forced to close as well. Bandaging material was now produced in the former dining and drinking areas.

Thus, the history of the mall reflects part of the history of the interwar period in Austria. The notion of a shopping center with exclusive products, serving the needs of wealthier people, was a counterpoint to "Red Vienna's" program of welfare and public housing. Yet this early shopping mall was not a great success. The sales generated did not match expectations and the Great Depression from 1929 onward brought on the demise of the building. The demolition of the halls was authorized in 1933–1934.

Traces of the demolished building were not expected, and yet very thin concrete foundations, remains of wooden doorsteps, and pipes that channeled rainwater away from the internal courtyards were discovered. Examples of the luxury goods that were once sold there were not found, however.

FIGURES 2 and 3. These photos were taken by Martin Gerlach Jr. immediately before the demolition of the mall in Vienna's Karlsplatz Square in 1934. (Photos courtesy of Wien Museum Inv.-Nr. 58057/1–2.)

USA - Midwest

Illinois

Archaeological Field School Investigations at Fort Kaskaskia Historic Site, 2017–2019 (*submitted by Mark J. Wagner, associate professor in anthropology and director of the Center for Archaeological Investigations, Southern Illinois University Carbondale*): The Southern Illinois University Carbondale (SIUC) Anthropology Department and SIUC-Center for Archaeological Investigations (CAI) are currently engaged in a multiyear archaeological field school investigation at Fort Kaskaskia Historic Site, Randolph County, Illinois (Figures 1 and 2). The centerpiece of this state-owned property, which is currently administered by the Illinois Department of Natural Resources (IDNR), consists of the grass-covered earthen walls, bastions, and fortification ditches of the colonial-era French Fort Kaskaskia (11R326), construction of which began during the French and Indian War (1754–1763).

The site has received surprisingly little attention from archaeologists, with the exception of limited test investigations by Charles Orser (then at SIUC) in the 1970s (Orser and Karamanski 1977) and an early 1980s remote sensing investigation by John Weymouth, then at the University of Illinois (Weymouth and Woods 1984:20–37). When our project began in 2017, Fort Kaskaskia (11R326) was thought to represent an unfinished colonial-era French fort (1759–1763) reoccupied by an American adventurer named John Dodge in the 1780s (Belting 1948). The fort also was believed to have been rebuilt by the U.S. Army in 1803 and visited by the Lewis and Clark Expedition that same year, with final abandonment occurring shortly afterward.

Our 2017 field school investigations revealed that, in actuality, Fort Kaskaskia (11R326) is entirely a late-18th-century colonial era-construction that lacks any evidence of reuse by the early-19th-century U.S. Army. Following this discovery, we located the previously unrecorded remains of the American-era (1803–1807) Fort Kaskaskia (11R612) 100 m to the north of the French fort. In contrast to the nearly intact French fort (11R326), the American fort (11R612) has been heavily damaged by 20th-century park-related road and waterline construction.

The field school investigations at both forts were supported by a 2017–2018 grant from the Lewis and Clark Trail Heritage Foundation, a 2018 public outreach grant from the Southeastern Archaeological Conference, and volunteers from the USDA Forest Service's Passport in Time archaeology program in 2019. Tribal youth from the Shawnee Tribe of Oklahoma as well as the Cathoula band Cherokee also participated in the 2017–2018 investigations. The Shawnee have a historical link to the American Fort Kaskaskia, in that George Drouillard, Lewis and Clark's hunter and guide who had a Shawnee mother, visited the site with other expedition members in 1803.

The 2017–2019 field school investigations have centered on recovering baseline information through remote sensing (Figure 3) and hand excavations on the location, kinds, and extent of archaeological deposits at both sites to help aid in their preservation. Structural features encountered within the French fort (11R326) included a wall trench of a poteaux-en-terre or post-in-ground kitchen (Figure 4) first identified by Orser in the 1970s (Orser and Karamanski 1977). Remote sensing (Figure 3) of the fort in 2017 also succeeded in locating the previously unknown stone foundation of the French barracks, as well as the presence of colonial-era pit features and artifacts outside the fort walls (Figures 5a–b).

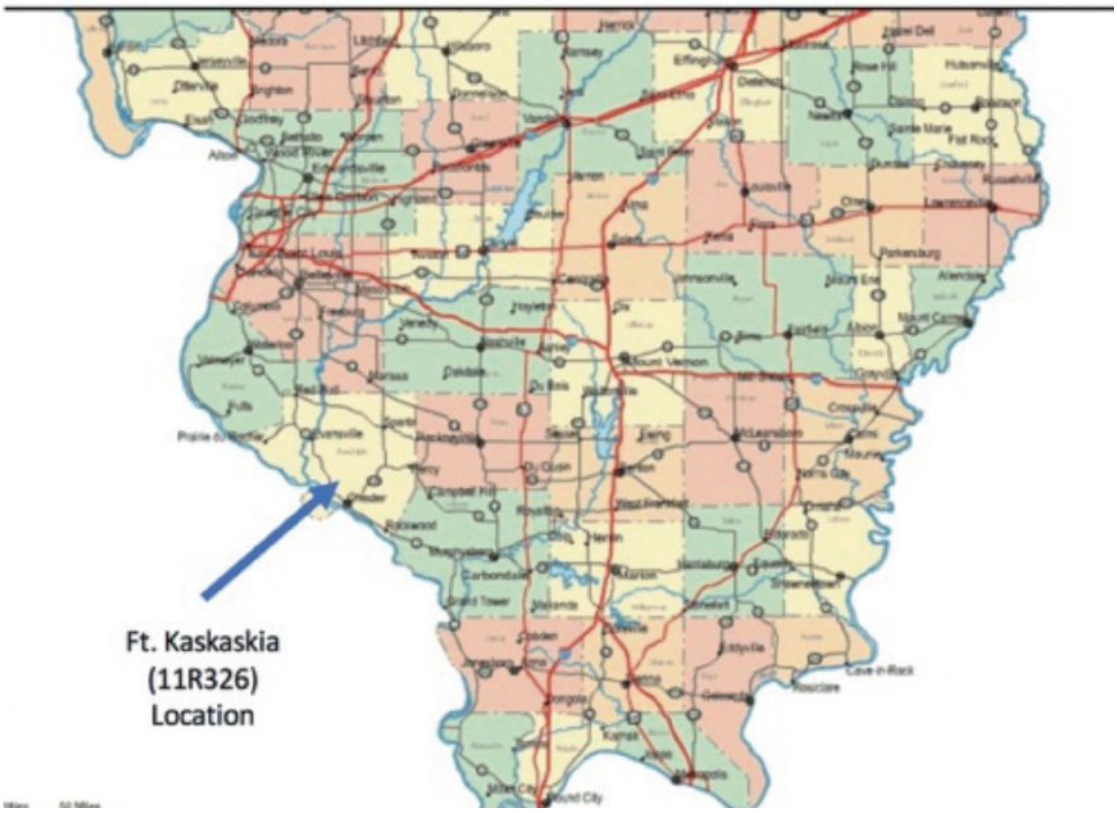

FIGURE 1. Fort Kaskaskia Historic Site Location, southwestern Illinois, United States. For other photos, see slide show.

Rather than being a stone structure, the barracks is suspected to have been a poteaux-sur-sol or post-on-sill structure (Figures 4 and 5a–b). Subsequent hand excavations in 2018 and 2019 revealed that sections of the stone foundation had been partially dismantled in the colonial period, most likely for building material for structure foundations in the nearby town of Kaskaskia. Hand excavations also revealed that a large depression in the western part of the fort believed to represent the fort cellar contained a basal layer of 18th-century artifacts, burned clay, and charcoal capped by a dense deposit of 20th-century refuse (Figure 6). Artifacts recovered from the site so far have included a small number of French faience and English creamware and stoneware ceramics, French gun flints, bottle glass, clothing and uniform buttons, faunal remains, and architectural items (Figures 7a–b and 8).

The American Fort Kaskaskia (11R612) was one of a series of forts constructed by the U.S. Army in 1803 under orders from Secretary of War Henry Dearborn to protect the frontier. More recently, a descendant of the artillery commander at the fort—Captain Amos Stoddard—has suggested that Fort Kaskaskia may have been constructed to preposition men and supplies for the Lewis and Clark Expedition on the last leg of their journey to St. Louis (Stoddard 2016). There is some merit to this argument, in that the secretary of war negotiated only a three-year lease of the property containing Fort Kaskaskia, meaning that the U.S. Army intended to abandon the fort in about 1806, when the expedition was scheduled to return to the eastern United States. The fort does indeed appear to have been largely abandoned about this time, although it is possible that a small number of men, as well as some supplies, may still have been present at the fort as late as 1807.

Archaeological investigations at the site over the past three summers (Figures 9–13) have included a combination of magnetometer and ground-penetrating radar (GPR) investigations as well as the hand excavation of a series of test units ranging in size from 1 m2 to 4 m2. These have revealed that this early 1800s American fort appears to have been constructed immediately adjacent to the bluff edge, with a midden area located downslope and north of the fort. The abandoned fort site was initially impacted in the 1890s, when a monument associated with the relocated cemetery of the town of Kaskaskia was constructed by the state of Illinois through its western edge (Figure 14). More serious impacts occurred in the 1940s, when a park road was constructed through the fort center and fort-related brick rubble was pushed over the northern part of the site. More-recent disturbance consists of the excavation of waterline trenches through the fort in the 1980s. Despite these disturbances, subsurface features still exist at the site. The 2019 field school, for example, succeeded in locating an early 1800s shallow trench feature near the cemetery monument that may represent the remains of the eastern stockade trench of the fort (Figures 15 and 16). Excavation of a test trench west of the cemetery monument also intersected a large earthen feature containing early 1800s U.S. Army uniform buttons and other artifacts that is suspected to be an earthen pit cellar beneath one of the fort buildings (Figures 17 and 18). U.S. Army-related artifacts recovered from the site so far have included First and Second Infantry buttons (Figures 19–20); brass clasps to a U.S. Infantry leather neck stock (Figure 21); a hexagonal rifle barrel (Figure 13); a brass musket or rifle butt plate; iron architectural items; faunal remains; creamware, pearlware, and redware ceramics; and dark green bottle and aqua window glass. In sum, the information recovered by our investigations to date leaves no doubt that site 11R612 represents the remains of the American Fort Kaskaskia visited by the Lewis and Clark Expedition in 1803 and at which some expedition members, such as Sergeant Patrick Gass, served both before and after the expedition.

We plan to resume the field school explorations at both sites this coming (2020) summer. Investigations scheduled for the French Fort Kaskaskia (11R326) include additional magnetometer and ground-penetrating radar investigations, as well as the excavation of additional test units in select areas of the fort to clarify its construction history and use. The goals at the American Fort Kaskaskia (11R612), which is much more poorly documented, are to locate additional stockade trenches that will allow the shape of the fort as well as its placement on the landscape to be determined, further investigate the large subsurface feature found in 2019 to determine if it is indeed a substructure cellar from the fort, and conduct additional magnetometer and ground-penetrating radar survey of areas both within and surrounding the fort.

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Michigan

Down in the Trenches: A New Chapter in the Exploration of Fort St. Joseph (*submitted by Erika K. Hartley, Curation Fellow, Fort St. Joseph Archaeological Project and Michael S. Nassaney, Western Michigan University*): In July and August 2019, archaeological test excavations were carried out along the southern boundary of Fort St. Joseph (20BE23) beneath a 20th-century landfill, in conjunction with the 44th annual archaeological field school hosted there by Western Michigan University (WMU). The field school was under the auspices of the Fort St. Joseph Archaeological Project, a long-term, multidisciplinary, community-based partnership between the city of Niles and WMU that is designed to investigate and interpret colonialism and the fur trade in the region. Over the past 20 years, the project has contributed to our understanding of Native American and French interactions through its investigation of Fort St. Joseph, an 18th-century French mission, garrison, and trading post located in present-day Niles, Michigan, and associated sites in the area (see Nassaney 2019).

Information recovered from archaeological excavations, historical documents, and oral traditions provides a glimpse of the various activities occurring at Fort St. Joseph during its occupation (see Nassaney 2019 for an extensive list of publications). Initially established as a mission on the St. Joseph River in the 1680s, Fort St. Joseph became one of the most important frontier outposts in New France (Brandão and Nassaney 2006; Nassaney 2008, 2015, 2019; Peyser 1992). For nearly a century (1691–1781), this post served as a hub of commercial, military, and religious activity for local Native and European peoples alike (Brandão and Nassaney 2006; Nassaney 2008, 2019).

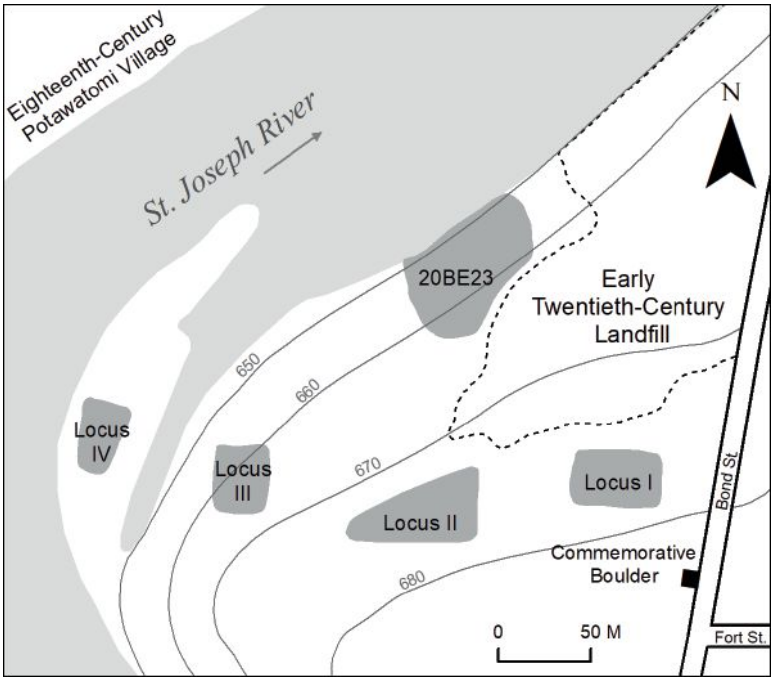

FIGURE 1. Map showing the locations of Fort St. Joseph (20BE23), the contemporaneous Lyne site (20BE10; Loci I–IV), and an 18th-century Potawatomi village. (Drawing courtesy of Jason Glatz.)

Information on the land-use practices of the area, from the abandonment of Fort St. Joseph in 1781 until the early 19th century, is limited. These practices most likely contributed to the loss of the fort's exact location for over two hundred years. The land was settled and farmed from the 1820s to 1866–1867, when then-owner Jacob Beeson sold the land to the Niles Water-Power Company (Cremin and Nassaney 1998:24–25). Ten years later, under the leadership of the company's president, J. W. French, a dam across the St. Joseph River was constructed by the Niles Water-Power Company, raising the river some 10–12 feet (Cremin and Nassaney 1998:25). This dam, along with the later expansion, submerged much of the land that was once Fort St. Joseph, effectively creating a swamp.

In the 1930s, this swampy area, then owned by the French Paper Company, began to be filled in by the dumping of trash and the covering of it with layers of earth (*Niles Daily Star* 1961). These activities continued and expanded in 1956, when the city of Niles entered into an agreement with the French Paper Company permitting the use of the land as a municipal dump without charge (*Niles Daily Star* 1961; Sills 1963). The municipal dump was ultimately closed on 1 June 1963 (Sills 1963). The French Paper Company maintained its ownership of the land until the early 1990s, when the city of Niles obtained it in exchange for the city's rights to the dam (Mary Ellen Drolet, pers. comm. 2019).

For over 20 years, the project has conducted excavations in the floodplain between the St. Joseph River and the 20th-century landfill, now recognized as the location of Fort St. Joseph (Figure 1). Knowledge gleaned from these excavations has contributed to our understanding of 18th-century life at Fort St. Joseph, particularly in regard to adornment and dress, architecture, foodways, religion, cultural exchange, and the fur trade (see Nassaney 2019). Research conducted over the past several years has been focused on identifying and investigating the architectural remains associated with the fort. This has resulted in the determination of the projected size and locations of six buildings (Figure 2; see Hartley and Nassaney 2019; Loveland 2017; Nassaney 2015). However, the area previously investigated likely does not contain all of the buildings that once existed at the site, indicating that the occupied space extends beyond the 2000 m2 area that has been explored thus far. The site may extend further downstream and to the south beneath the landfill between the floodplain and Bond Street. To investigate its southern boundary, we conducted excavations this season beneath the landfill to gain a better understanding of the fort's size and spatial extent.

Preliminary investigations began on 21 May 2019, when we monitored the excavation of three 5 x 25 m trenches through the landfill to explore the underlying soil. The trenches were generally oriented perpendicular to the St. Joseph River, roughly diagonal to the previously established grid system. Excavations determined that the modern refuse was approximately 1.5–2 m thick and consisted of glass bottles, appliances, tires, and domestic and industrial debris. Underneath the

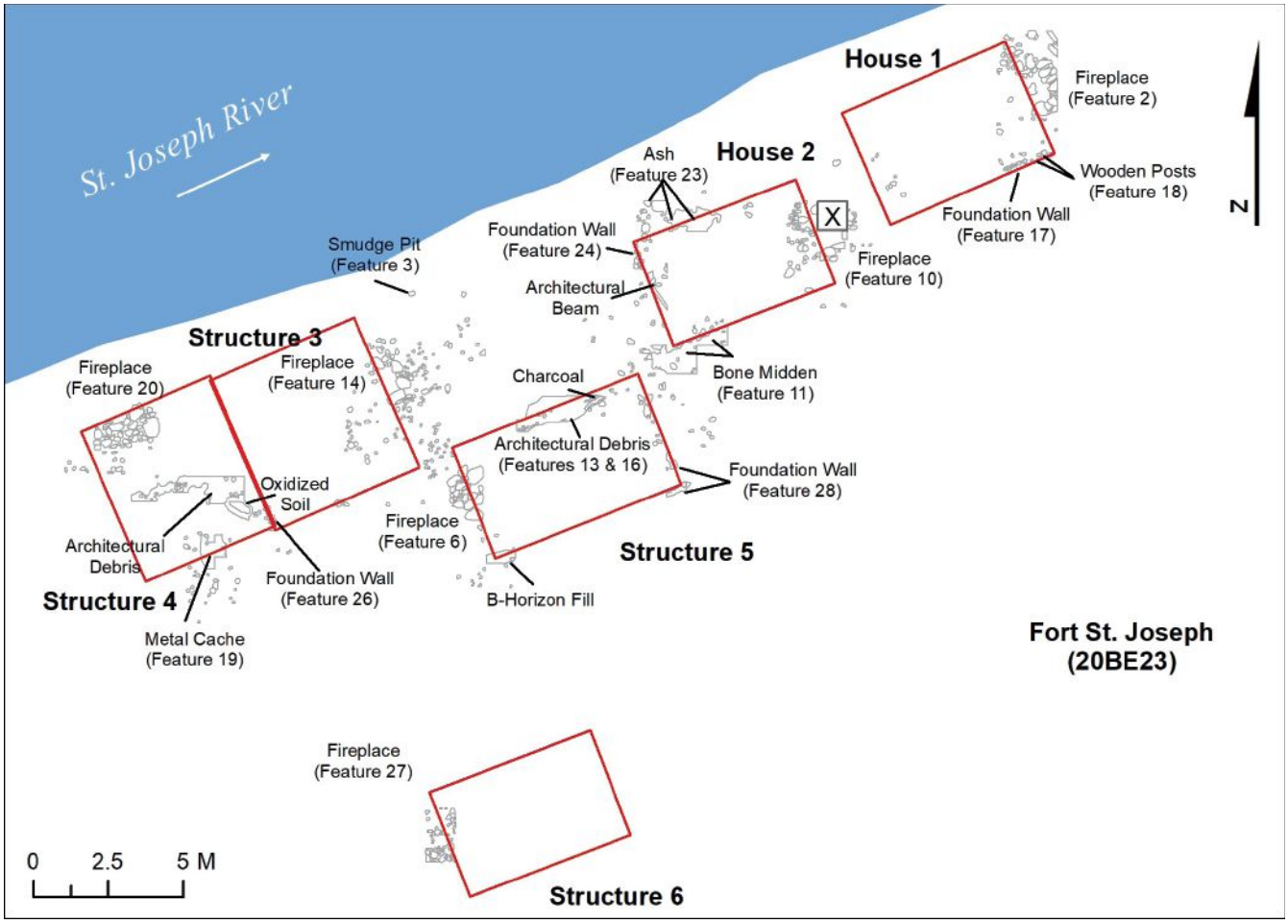

FIGURE 2. Map of buildings found at Fort St. Joseph. The red lines denote their proposed outlines. (Map courtesy of Jason Glatz and Erika K. Hartley.)

landfill deposits, an old plowzone was present and appeared to be similar to the soil zone found on the floodplain. Efforts were made to dig only as deep as the base of the 20th-century debris in order to expose the buried plowzone. This was difficult, because all the trenches filled with water immediately upon excavation (Figure 3).

FIGURE 3. Backhoe excavation of Trench 1. Note the water beginning to fill the trench in the foreground. (Photo courtesy of Erika K. Hartley.)

Once the refuse was peeled back by the backhoe, each trench was sampled with a series of 3 in. PVC cores to determine if 18th-century artifacts were present. Five core samples were collected from Trench 1, while three core samples were collected from Trenches 2 and 3. Eight of the 11 core samples were positive for 18th-century artifacts such as a silver ear bob, a clay pipe stem fragment, lead shot, seed beads, and wampum.

Due to high water levels in the trenches, a dewatering system was installed to lower the water table in the two trenches that had the largest number of positive cores. Soil removed during the installation of these pipes was selectively collected in Trench 1 and wet screened through a 1/8 in. mesh. Somewhat surprisingly, we recovered the remains of charred corn cobs from one well point in Trench 1 (Figure 4). At Fort St. Joseph, charred maize—while found infrequently—occurs in association with smudge pits used for hide processing (see Mendes and Nassaney 2019). The recovery of this find, as well as other 18th-century material, provided some initial confirmation that evidence of Fort St. Joseph did exist under the landfill.

In July and August, we returned to the site to conduct test excavations in the trenches as a part of WMU's archaeological field school. Excavations were conducted in several locations beneath the landfill in Trenches 1 and 2; time did not allow for investigations in Trench 3 (Figure 5).

Four test units were located in Trench 1, each yielding numerous 18th-century artifacts and associated animal remains. One test unit was placed near the well point where charred maize was recovered during the installation of the

FIGURE 4. Charred maize recovered from the soil collected in well point 1.2 during the installation of the dewatering system. (Photo courtesy of Hannah Rucinski.)

dewatering system. By placing a unit in this location, as close to the well point as possible, we hoped to recover a larger sample of maize and determine its context. Unfortunately, excavation could only be carried out in the northern half of this 1 x 1 m unit, due to time constraints, and we were not able to recover any additional spatial or contextual information. However, three structural stones, each approximately 10 to 15 cm wide, were exposed in the unit's floor. Two of these were located closer to the east wall of the unit where a lead seal was recovered, suggesting that a potential feature could be exposed in this location. More excavation is needed to explore this area.

Further south in Trench 1, part of an intact bone midden designated as Feature 29 was uncovered (Figure 6). While we were able to determine that the bone midden was concentrated along the northwest quadrant of S6 E18, a 1 x 1 m unit, and the western half of the extension unit placed to the northwest, we did not determine the depth of the midden. Notable 18th-century material recovered from the units include a catlinite pipe fragment recovered just above the undisturbed feature and a lead seal from within the feature. Future excavation will provide insights on the extent of this midden.

Three test units were opened in Trench 2 during the field season. Though no features were uncovered, two of the units did reveal undisturbed deposits containing 18th-century material. The furthest unit from the floodplain, N3 E36, was located at the south end of Trench 2 and did not contain intact 18th-century deposits. Additional test units are needed to identify the horizontal extent of these deposits and ultimately the site boundaries.

To conclude, the test excavations conducted in several locations beneath the landfill have led to the recovery of 18th-century artifacts, ecofacts, and the identification of a feature. The presence of these materials and their contexts indicates that undisturbed remains associated with the fort continue beneath the dump and effectively double the size of the site. As we continue to recover the past at Fort St. Joseph, information will be disseminated to both professional and public audiences. To stay updated with the project and our findings, you can like us on Facebook, follow our blog at fortstjosepharchaeology.blogspot.com, and search "fsjarchaeology" on Instagram!

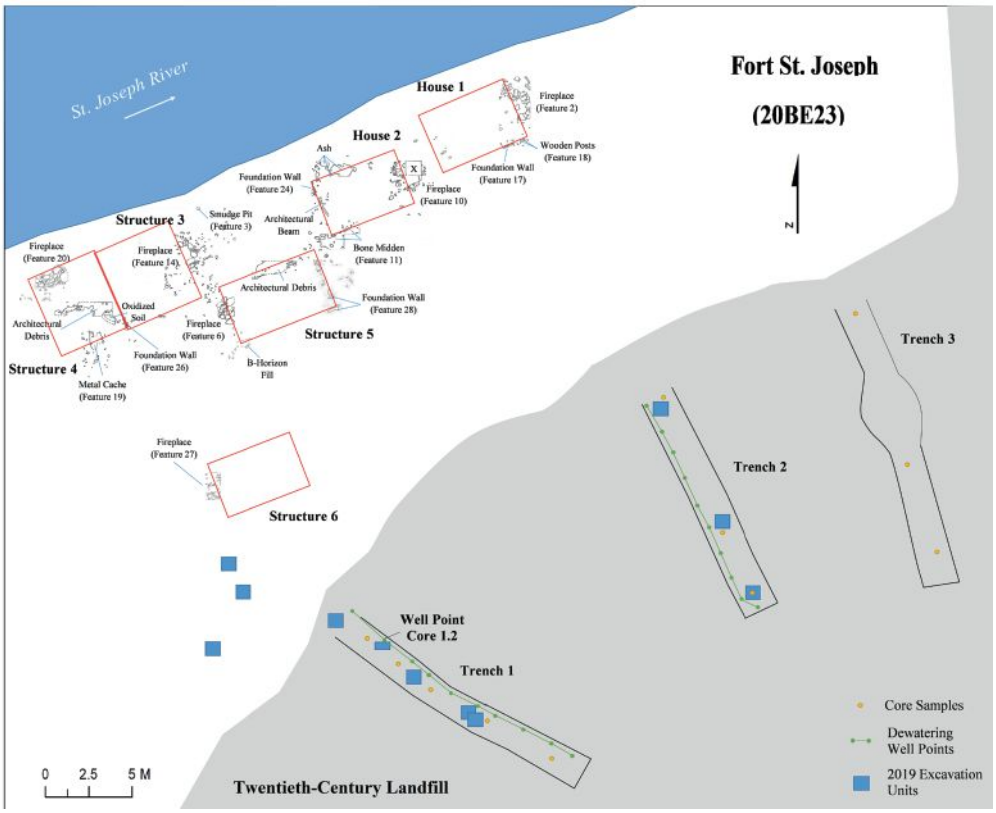

FIGURE 5. Map of the proposed structures, 20th-century landfill, and 2019 test excavations at Fort St. Joseph. (Illustration courtesy of Jason Glatz and Erika K. Hartley.)

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FIGURE 6. Plan view of Feature 29, a bone midden, present in S5.5 E17.5 and S6 E18. (Photo courtesy of Hannah Rucinski.)

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USA - Northeast

New York

STAMP Sites 13 and 19, Alabama, New York (*submitted by Ryan Austin, SUNY at Buffalo Archaeological Survey*): Phase III data recovery excavations undertaken for the planned Western New York Science & Technology Advanced Manufacturing Park (STAMP) by the SUNY at Buffalo Archaeological Survey investigated two lower socioeconomic status European American farmsteads, STAMP Sites 13 and 19. Both sites are located along the northern shoulder of Patterson Road, immediately adjacent to and to the east of the Tonawanda Indian Reservation in the town of Alabama, Genesee County, New York (Figure 1).

Sites 13 and 19 were owned and lived on by two successive generations of the Patterson family during the mid-19th and early 20th centuries. The first generation consists of the household of James and Laura Patterson, who occupied Site

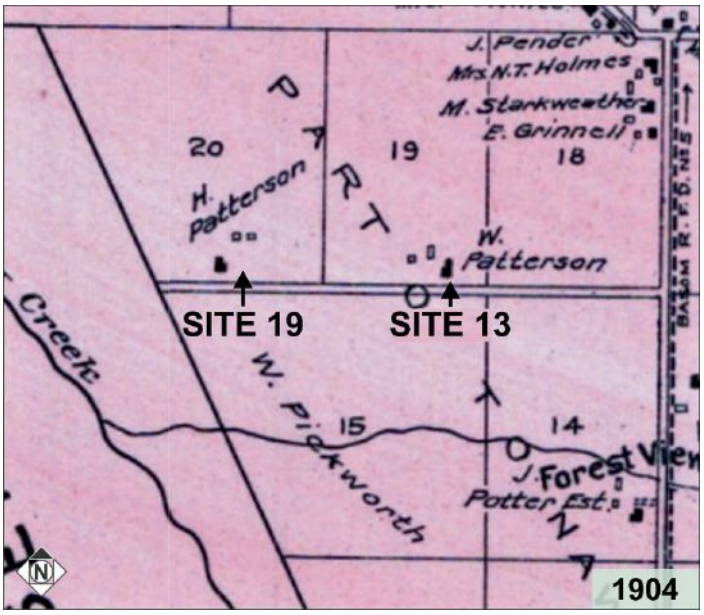

FIGURE 1. Location of STAMP Sites 13 and Site 19 in The New Century Atlas of Genesee County, New York *(1904).*

13 between 1860 and the late 1870s/early 1880s. The second generation is associated with two of the Pattersons' sons: the household of Hiram B. Patterson, his wife Fanny, and their children occupied Site 19 between ca. 1881 and 1926; that of Orrin W. Patterson and his wife Mary occupied Site 13 between ca. 1878 and 1915. Afterwards, both sites were occupied by a series of transient owners and tenants until the mid-20th century, at which point the domestic and agricultural structures were abandoned and the cultivated fields were incorporated into the holdings of neighboring farmers.

Data recovery excavations studied the partially intact stone foundation pits of each site's farmhouse and barn outbuilding(s), wells, and fence lines, as well as identifying and sampling domestic sheet midden scatters and buried refuse-pit features found in the surrounding yard areas. Artifacts recovered from Site 13 suggest that the first-generation Patterson household spent most of its available funds on farmstead improvements, as opposed to the acquisition of portable material culture such as ceramic or glass wares that could be used to convey social status. Food-related ceramics included the least-expensive decorative wares, such as shelledged or annular banded vessels, as well as nonmatching more-expensive transfer-printed wares that may have been purchased piecemeal.

As stated above, Site 13's first occupation household improved their farmstead's infrastructure, though this did not involve the purchase of the additional farmland that would later be incorporated into Site 19. This included the construction of a shed-type addition along the barn's eastern façade used to house animals, as well as the construction of a fenced paddock that was watered with its own well. The bulk of household trash was discarded in the farmhouse's immediate perimeter, particularly in its front and rear yards. This deposition occurred as a result of the broadcast discard of household refuse through open windows or doorways directly onto the ground surface. It also appears that the Site 13 occupants did periodically attempt to sweep away surface debris from the house's northern yard, where such debris accumulated along the fenced margins.

During the second-generation occupation of Sites 13 and 19, both Patterson brothers' farms were semisubsistence operations employing different production strategies from that of their parents. Unlike James and Laura, who had able-bodied adult sons, neither Hiram nor Orrin had male children who could contribute manual labor, and therefore had to supplement their own labor with that of nonfamily farm laborers. Hiram and Orrin themselves continued to farm into old age and neither brother passed their farms on to their children. It is also possible that the declining local agricultural economy of the late 19th and early 20th centuries, combined with the marginal nature of the farmland, made the prospects of future agricultural work unattractive to the next generation.

Several other comparisons can be made regarding both sites' second-generation occupations. In terms of structural remains, both farmhouses have mortared-cobblestone foundation walls covered with concrete parge coats, and both houses have a cistern built into their foundation pits that was coated with a waterproof concrete lining. However, Site 13's farmhouse appears to have a cruder-built foundation, with individual building stones being nonuniform in size and shape. The surviving walls are roughly/unevenly built, and following the erosion of the mortar, have slumped into the foundation pit's open base. Conversely, Site 19's farmhouse has foundation walls built from dressed stones that were selected for both shape and uniformity, and their mortar bindings have remained intact.

Machine-cut nails recovered from both sites indicate that the farmhouses were balloon-framed structures. However, it should be noted that there are far more cut nails at Site 19, many of which are uniform in size and shape and are specialized for carpentry or finishing work. Also, there are more wire nails at Site 19, as well as more window glass by volume. While it is possible that the construction-related debris recovered from Site 19's second occupation period is related to the construction of the house's banked northern wing, it is also possible that these materials reflect a general improvement in house-construction techniques during the late 19th century.

In terms of portable material culture, the second-generation occupants of both sites used similar domestic ceramic and glass vessels, some of which may have been originally acquired and used during Site 13's first-generation occupation and later curated by members of both sites' second-generation households. Both sites' second-generation occupations appear to have continued to use ceramic food-storage vessels, even after glass canning-jar technology became more widely available during the late 19th/early 20th centuries. Moreover, both sites' second-generation households purchased and used undecorated and less-expensive annular banded and shelledged decorated wares; more-expensive transfer-printed and polychrome decal-decorated vessels appear to have been acquired sporadically as nonmatching single items.

Moreover, both second-generation Patterson households continued to dispose of household refuse in broadly scattered surface sheet middens located immediately adjacent to living and working spaces well into the 20th century. However, it appears that Orrin W. Patterson's household at Site 13 made more of an effort to segregate their trash into a relatively discrete refuse scatter located within the barnyard margins. In contrast, the bulk of Hiram B. Patterson's household refuse disposal at Site 19 occurred within the farmhouse's immediate perimeter.

Both Site 13 and Site 19 retain archaeological integrity and document rural lifeways and consumer behavior during the late 19th and early 20th centuries in rural western New York State. A final report on the 2018 data recovery investigation is in progress.

SOCIETY *for* HISTORICAL ARCHAEOLOGY

USA - Pacific West

California

The Arboretum Chinese Labor Quarters Project at Stanford University (*submitted by Megan Rhodes Victor and Laura Jones*): From April until early November of 2019, the Arboretum Chinese Labor Quarters (ACLQ) Project held its first full-length field season, which came about after pilot testing at the site in 2016 and 2017. The project seeks to use community-based archaeology, historical documents, and oral history to better understand the daily lives of the Chinese workers who lived at the Arboretum Chinese Labor Quarters from the early 1880s until 1925. This complex of three-to-five wood-framed buildings was one of at least four residential quarters for the Stanfords' Chinese laborers. Numbering between 30 and 300 individuals at any given time, the laborers worked at the Palo Alto Stock Farm and, later, on the grounds of Stanford University's campus. These workers at the Arboretum Chinese Labor Quarters planted every palm on Stanford University's iconic Palm Drive, as well as the orchards and gardens of the Main Quad; they also dug and planted the Oval and likely created the Lagunita Dam and Reservoir (Lake Lag).

The ACLQ Project is a joint effort between the Stanford Archaeology Center and Stanford's Heritage Services, as well as the Stanford University Archaeology Collections. Megan Rhodes Victor, a postdoctoral scholar at the center, led the 2019 archaeological excavations at the site. She worked closely with the university's Heritage Services, of which Laura Jones is the director, and its archaeological staff. Other key members of the ACLQ Project include Barbara L. Voss, faculty advisor for the project; and Christina Hodge, academic curator and collections manager of the Stanford University Archaeology collections, as well as Heritage Services' field supervisor Garrett Trask, lab manager Lauren Conway, and historian Julie Cain.

FIGURE 1. The midden at the Arboretum Chinese Labor Quarters site, excavated to reveal its cut on all sides.

The 2019 excavations started during the spring quarter with a Field Methods course at Stanford, cotaught by Rhodes Victor and Jones. The class participants included undergraduates, graduate students, a visiting scholar from China, and a Chinese Stanford staff scientist auditing the course. During the class, the students conducted testing on the site grid with shovel test pits and then started excavating 1 x 1 m units in two trenches near a promising area identified in 2017 as possibly containing a midden. In June, excavations started for the summer with Heritage Services' year-round

FIGURE 2. An assortment of Chinese porcelaneous stoneware Winter Green bowl sherds, fragments of Chinese brown-glazed stoneware jars and bottles, and pieces of British-American refined white earthenware tableware from the ACLQ site.

FIGURE 3. A tea ceremony, led by Gerry Low-Sabado, commemorated the beginning of trench excavations at the ACLQ. Pictured (left to right): Hilton Obenzinger, Barbara L. Voss, Megan Rhodes Victor, Fahdah Ai AlSubaihin (Field Methods student), Gerry Low-Sabado, Emanuel Vigil, Jingbo Li, Ran Chen, Stephanie Linlin Niu, Laura Jones, and Yue Wu.

and summer archaeologists. During this 2019 season, the Arboretum Chinese Labor Quarters' midden was found, which ended up being a purpose-dug pit that measured about 3 x 3 m and extended in three layers to about 1.2 m below the ground surface. The feature, which may extend deeper in some areas, will be explored during the 2020 excavation season. Thousands of artifacts were recovered, all pertaining to the residents' daily lives. These included fragments of Chinese Bamboo-pattern, Four Seasons Flowers-pattern, and Winter Green-pattern porcelaneous stoneware rice bowls; Chinese brown-glazed stoneware storage jars and bottles; English and American refined white earthenware bowls, cups, dishes, and plates; glass wine, whiskey, bourbon, soda water, and medicine bottles; window glass and nails; a wide variety of buttons and other clothing fasteners and needle threaders; and even several wooden shingles.

Thanks for a wonderful excavation season go out to our students Stephanie, Fahdah, Jingbo, Emanuel, Ran, Chunjing, and Yue (also on our summer staff); to the Heritage Services summer staff Aidan, Emma, Sloane, Sophia, and Edwin; and to the Heritage Services year-round staff Garrett, Lauren, Shane, Marco, Miles, Suzanne, Mahpiya, and Carol!

To discover more about the ACLQ Project, please go to our website: http://chineselaborquarters.stanford.edu/ or follow us on social media. We are on Facebook, Instagram, and Twitter with the handle @ACLQProject.

FIGURE 4. Several members of the summer crew pose on-site with the midden. Pictured (left to right): Megan Rhodes Victor, Aidan McKay, Yue Wu, Sloane Agruss, and Edwin Magana.

Photo courtesy of Tom Byrom; Unsplash.com

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