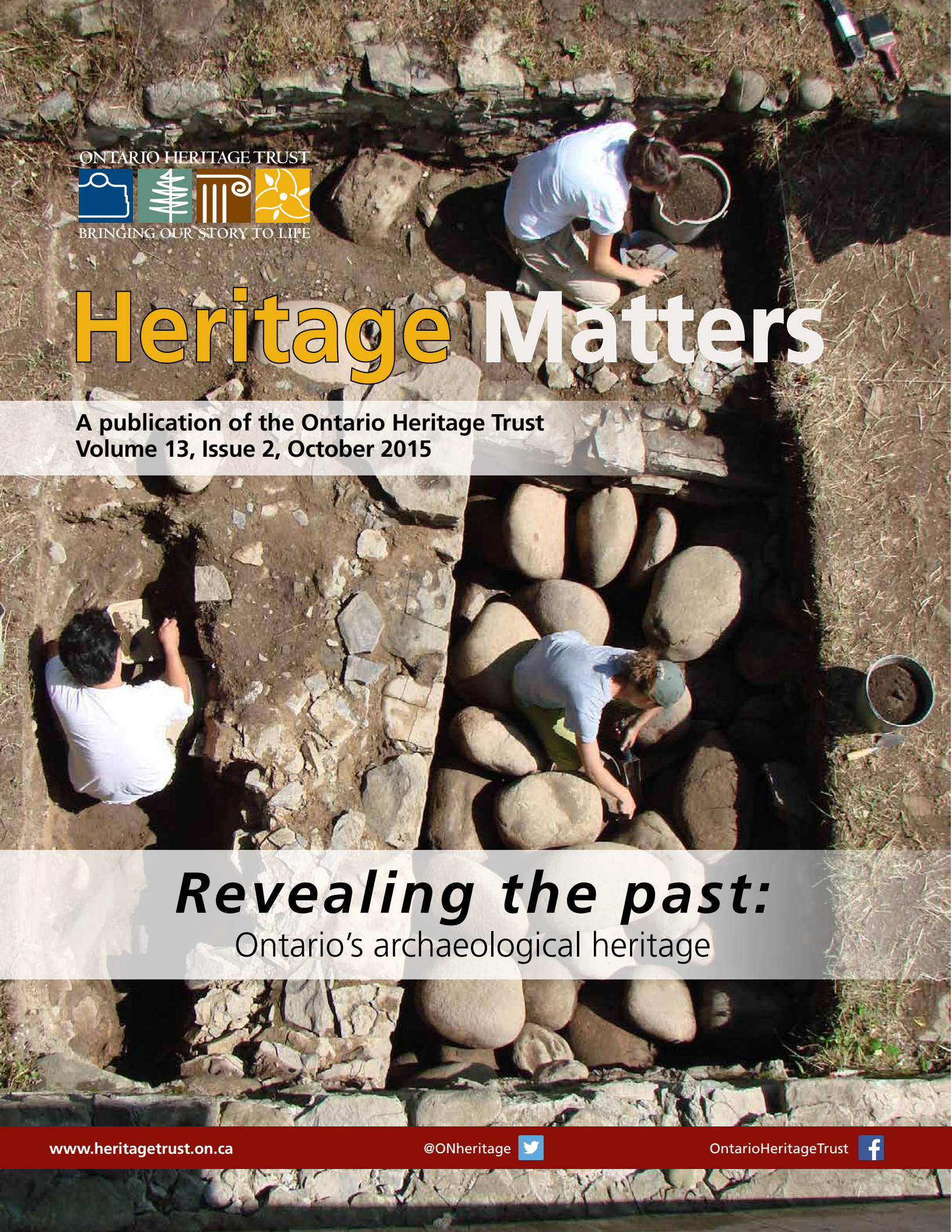

ONTARIO HERITAGE TRUST

BRINGING OUR STORY TO LIFE

Heritage Matters

A publication of the Ontario Heritage Trust
Volume 13, Issue 2, October 2015

Revealing the past:

Ontario's archaeological heritage

Revealing the past:
Ontario's archaeological heritage

As you will read in this issue, the scale of archaeological activity in Ontario is massive, growing rapidly and is primarily undertaken by consulting archaeologists. Each newly discovered archaeological site is part of Ontario's non-renewable cultural heritage. Many of these fragile sites are associated with indigenous peoples and demonstrate great diversity of size, age and form. The Ontario Heritage Trust preserves archaeological sites, some of which are up to 10,000 years old. These sites contribute to our understanding of important periods in Ontario's history, including advances in ancient technology, conflicts and major upheavals, the development of responsible government and the industrialization of our cities. Without archaeology, we would be bereft of many of these insights.

When it comes to archaeology, preservation is often pitted against development. Unlike heritage buildings and landscapes, which are increasingly preserved or incorporated into development, most archaeological sites are recorded and removed in their entirety through complete excavation. While archaeologists mitigate the impact of this approach through careful excavation, documentation and reporting procedures, it nevertheless devalues the importance of history, culture and diversity. If we are going to preserve archaeology in Ontario, we need to change our approach to these rich cultural archives by proactively creating and integrating archaeological reserves – and the stories they hold – into our communities.

Though important, archaeological fieldwork is just the beginning of a process that can lead to an enriched understanding of the past. The results – the surveys and data, the collections – require recording, testing and analysis, comparative study and, for some of the rare, beautiful and most interesting artifacts, public presentation.

The Trust's mandate for conservation includes property of historical, architectural, archaeological, recreational, esthetic, natural and scenic interests, and we see all of these interests and values as interrelated, connected in the landscape over time and place. We seek out and embrace multiple perspectives in all of our programs and activities.

In this issue, we hear from noted archaeologists and also explore the values, approaches and meanings voiced by other experts. This multidisciplinary and multicultural exchange also helps extend the discussion and increase public interest in, and accessibility to, the field of archaeology and to the artifacts themselves. I hope that you will enjoy the range of perspectives we have assembled in this issue and that it prompts you to learn more about archaeology and how it continues to transform our understanding of the history of our province.

Beth Hanna
CEO, Ontario Heritage Trust

Contents

This issue of Heritage Matters, published in English and French, has a combined circulation of 10,400. Archived copies of Heritage Matters are available on our website at www.heritagetrust.on.ca/hm.

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Produced by the Ontario Heritage Trust
(an agency of the Ontario Ministry of Tourism, Culture and Sport).

Editor Gordon Pim **Graphic Designer** Paul Arcari
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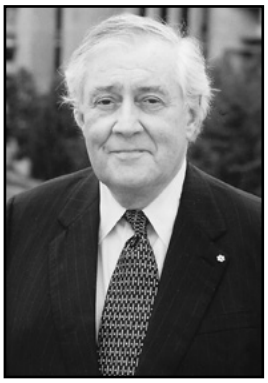
This publication is printed on recycled paper using vegetable oil-based inks. Help us protect our environment by passing along or recycling this publication when you have no further need for it.

Publication Agreement Number 1738690
E&OE ISSN 1198-2454 (Print)
ISSN 1911-446X (PDF/Online)
10/15
Aussi disponible en français.

Ontario

ONTARIO HERITAGE TRUST
BRINGING OUR STORY TO LIFE

Cover: Excavation of the 1819 icehouse, Macdonell-Willimson House, Pointe Fortune



Archaeology fundamental to our province's heritage

The field of archaeology has long provided a tangible means of interpreting Ontario's past by illustrating the many and varied stories of those who came before us through the physical evidence they left behind. In so doing, it has the potential to bring to light information and insight about the lives and cultures of many people in this province, often including those whose voices may be largely absent from the official historical record. For instance, the results of archaeological investigations continue to provide an important complement to indigenous oral history in the province, as well as revealing the stories of many other diverse elements of the population.

One must also bear in mind that archaeology is a scientific discipline that takes an empirical approach that can be applied to a multitude of places across time. The physical act of excavation, though an important source of information, forever alters a location. With each passing year, the application of new technological innovations has enabled archaeologists to obtain more exacting and comprehensive information from smaller, more strategic samples, thus preserving archaeological sites for the possibility of further enhanced study through the application of more advanced methods in future.

It is important for those engaged in the field of archaeology to share their data and insights in both academic and popular settings, and to continue to find new ways to reach and connect with diverse audiences more meaningfully.

The articles in this issue of Heritage Matters provide an opportunity for readers to learn more about archaeology in Ontario from a number of different but complementary perspectives. I hope that readers may be inspired to delve more deeply into this important and fascinating field, which is so fundamental to the knowledge of our province's heritage.

Thomas H.B. Symons
C.C., O.Ont, FRSC, LLD, D.Litt., D.U., D.Cn.L., FRGS, KSS
Chairman

Archaeology 101

By Ron Williamson

What is archaeology? This may seem like a straightforward question, but you would be surprised with the answers that Canadians give to this question. In the early 2000s, the University of British Columbia and Department of Canadian Heritage carried out a public survey in collaboration with Ipsos Reid on Canadians' perception, knowledge and attitudes toward archaeological heritage. They surveyed a random group of more than 1,500 people across Canada, including 540 respondents from Ontario. The results of this research were surprising, to say the least.

First, the good news. Interestingly, 82 per cent of the group had a generally accurate notion of archaeology as the study of the ancient and historical past, which often involves excavation and scientific analytical methods. What was less welcome news was that 40 per cent of these folks combined archaeology with paleontology and the hunt for dinosaur remains – a not-uncommon perception. Even worse, though, was that 14 per cent of the people surveyed thought that the archaeological record in Canada was only 500 years old. One in three thought that Canada's occupation extended across less than a millennium! Also surprising was that almost 70 per cent of respondents thought that there were fewer than 1,000 archaeological sites in Canada – one-third of people thought fewer than 500 sites.

Ontario alone has over 32,000 registered archaeological sites, the vast majority dating to between 12,000 and 300 years ago! Most people, then, are unaware of the antiquity of our nation and province – and the rich archaeological record of that history. Even today, students graduate from secondary school with only a cursory understanding of archaeology.

In Ontario universities, most archaeology is taught as social science in anthropology departments. Anthropology

An exterior cesspit at the Toronto General Hospital, part of a complex waste management system constructed in the early 1800s

Excavations of a hillside midden (refuse area) at a mid-15th-century ancestral Wendat village situated near Brooklin, Ontario, and excavated in advance of the construction of Highway 407. Note the grid, stakes and string for recording the strata in the midden so that the context of every artifact is recorded.

is the interdisciplinary study of the human experience, past and present, employing a variety of perspectives. As a sub-discipline of anthropology, archaeology studies human groups that lived in the past by looking at the complexities of their social, political, economic and spiritual lives. Archaeologists also focus frequently on the patterning and nature of material culture. The undeveloped lands of Ontario are littered with the remains of people's lives. Stone projectile points, fragments of ceramic vessels and broken bottles and plates are all traces of those lives – and the challenge faced by archaeologists is to bring this past to life by examining the artifacts and the context in which they are found.

When we can bring the documentary and archaeological records together, we have an even better look at the complexity and foreign world that is the past. Even in major urban centres, we can find the remains of significant colonial structures that survive under everyday sites such as parking lots.

We also need to remember that archaeological sites are fragile and non-renewable. Today, the province and its municipal governments work together to conserve these sites. But that was not always the case. There were staggering losses to the archaeological record of Ontario in the 20th century as hundreds of sites were destroyed by urban growth before legislation was introduced to abate the pace of this devastation.

Ontario now boasts some of the most comprehensive legislation in North America related to archaeological resource conservation within the land development process. The legislative basis for this mandate was first enacted in the 1970s, and has since increased steadily in effectiveness. In particular, the Planning Act and the Environmental Assessment Act both now require that archaeological resource assessments – as well as built heritage and cultural landscape analyses – be carried out in advance of most forms of land-disturbing activities, whether these are public initiatives (such as infrastructure projects) or private developments related to housing or industrial subdivisions.

It is for this reason that the very practice of archaeology has changed substantially in Ontario and other jurisdictions in North America. People generally believe that most archaeology is undertaken by university- and museum-based archaeologists. The reality in Ontario and elsewhere in North America is that the majority of archaeology (over 90 per cent in Ontario) is undertaken by archaeologists working in the private sector, carrying out assessments and excavation in advance of land development.

Another important consideration is that the majority of sites in Ontario were left by people living here before the arrival of Europeans – and that these sites have cultural as well as spiritual significance for their descendants. The ancient aboriginal occupants of these sites left no written

record of their lives, but their legacy consists of the oral histories and traditions passed on to their descendants and within the traces of their settlements that still survive today.

The Ontario Ministry of Tourism, Culture and Sport has addressed the interests of descendant communities in the identification, evaluation and conservation of archaeological sites and material culture. It encourages archaeologists to engage communities early in the life of a project – preferably during the planning phase – but also requires community involvement when formulating and implementing strategies for mitigating the impact on aboriginal archaeological sites through protection and/or salvage excavation.

Ontario's archaeological heritage also offers considerable economic opportunities. One of the best ways to learn about archaeology is to visit a site and participate in an excavation. Finding a War of 1812 button or projectile point and recognizing that you are the first person to touch it in hundreds or even thousands of years is an astounding feeling. Indeed, there is no experience quite like it. Thankfully, however, we have organizations such as the Ontario Heritage Trust, the Toronto and Region Conservation Authority, the Museum of Ontario Archaeology and the Ontario Archaeological Society who are dedicated to bringing our archaeological world to life through opportunities in education and tourism. I hope that, one day, every citizen in Ontario will appreciate the profound archaeological record in our province.

Ron Williamson is the Chair of the Board of Directors for the Museum of Ontario Archaeology in London, and the Chief Archaeologist and Managing Partner of Archaeological Services Inc. Photos courtesy of Archaeological Services Inc.

This projectile point, made of translucent chert and found recently near Brantford, Ontario, is several thousand years old. Photo: Christian Wilson

The human side of a double-headed effigy talisman recycled from a 14th-century ancestral Wendat pipe bowl found in Barrie, Ontario. The other side is a representation of a wolf or dog-like head with erect ears and a pointed snout.

Looking at archaeology from all angles

By Martha Latta, Richard Zane Smith and Michel Savard

Every archaeological artifact tells its own unique story. But what it says can be – and is – interpreted differently, depending on who is examining it. Starting with a single artifact from the Trust's own collections, we explore different perspectives that tell a more complete story about the artifact, its origins and those who made and historically used it.

Excavated in July 1995 during the University of Toronto at Scarborough's archaeological field school led by Dr. Martha Latta, this clay pipe was discovered on an archaeological site named Thomson-Walker at a Trust property near Moonstone, Ontario.

Together, the following perspectives create a complex and holistic view of the artifact. They offer unique and relevant understandings of why this object remains significant today.

Archaeological

By Dr. Martha A. Latta

We were excavating the defensive palisade area of the Thomson-Walker site when we found this pipe. Like most of the larger Huron villages in the 1640s, the Thomson-Walker site was surrounded by a solid line of tree trunks. Palisades kept out enemies, of course, but they also kept out bears, wolves and other large, wild animals – as well as keeping small children from straying too far from their homes. Another use for the palisade was to define the area of the site where trash and food remains could be dumped, as Huron villages were usually very neat.

The pipe we discovered was made of local clay, fashioned by hand and fired to a brick-like hardness. The style of the pipe is one of the most common in 17th-century Huron villages: a round bowl decorated with rings traced in the clay. Like all of the Huron's clay pipes and pots, it was not painted. The stem was made by wrapping the wet clay around a reed or twig, which burned away during firing to leave a neat smoke hole. Its owner could have made a replacement in a day or two.

This particular pipe – unlike most pipes found in archaeological sites – is relatively intact. There has been some breakage at the mouthpiece, but this would not have made the pipe unusable. For the owner's own reasons, he or she chose to discard the pipe rather than to mend the stem. It still contains the plug of charred vegetable material. We know that the Huron grew and smoked tobacco, a variety that is harsher than the Virginia tobacco favoured by today's smokers, but which would mature in Ontario's comparatively short growing season. They may have smoked other plants as well, for medicinal or religious reasons. Unfortunately, it is difficult to identify plants from their leaves. Seeds and pollen are most useful for this, and smoking tobacco consists only of leaf parts.

French writers reported that the Huron smoked when they conferred in council on political issues. They also smoked when travelling long distances, in order to keep alert and to stave off hunger pangs. It is widely assumed that only men smoked the pipes, but this reflects the fact that 17th-century French writers had little to say about the activities of the Huron women. I suspect that senior women of the clans might have enjoyed a pipe of tobacco as well, while resolving social issues within the village. In this case, we can picture the smoker tossing the pipe – still smoking – in frustration or in satisfaction with a day's accomplishments.

Martha Latta is a Professor Emerita in the University of Toronto at Scarborough anthropology department.

Artistic

By Richard Zane Smith

yanǫⁿdamę? ⁿduʔtára?
pipe of clay

With careful hands, this pipe was likely made by rolling a coil of clay on the smooth side of a slab of elm bark, using soft clay, thick at the bowl end, tapering to the stem. The bowl was carefully hollowed and shaped. Before being bent into an elbow, a smooth skewer pierced the stem and bowl. At times a smooth, fine stick was actually rolled into the clay and after forming the pipe, it was carefully drawn out. The pipe is set aside to firm up a little. Some pipes have been found where a cord had been rolled into the coil of clay. It would burn out in the firing.

The six lines likely have been indented perhaps with the side of a bone awl, just before the clay was too hard to

press into. It doesn't appear to be stone-polished, simply smoothed with fingers. The break in the stem possibly occurred while inserting a reed stem into the fired pipe stem. I've had this happen in the past with a clay pipe, creating a similar break.

Pipes like these are fairly easy to fire. One simply places a dry clay pipe near a campfire for an hour or so. Then it's simply pushed onto the coals. Wood is placed on top to get a good blaze. When burnished with a smooth stone or bone, it can be fired black by placing it beneath a concave potsherd along with some organic material, like a handful of dry pine needles. Such ancestral pipes were common in our Wendat villages, and often were smoked during meetings to clear the mind. We continue to use a small clay pipe with a reed or sumac stem in our ceremonies today. The pipe is passed to each of the faithkeepers, the helpers who work, and all those who have been asked to sing or to speak.

We still grow the same tobacco: naⁿdakęhaǫ? (nicotiana-rustica).

Richard Zane Smith is a Wyandot potter, Sǫhahiyǫ of the Bear Clan and an enrolled member of the Wyandot Nation of Kansas.

Curatorial

By Michel Savard

Looking at this pipe, one simple question comes to mind. What was the state of mind of the Wendat person behind this last puff of tobacco smoke? Was it a moment of communing with his ancestors, a moment of communing with a spiritual guide or simply a moment of well-earned relaxation after a long, hard day portaging a birch bark canoe?

To ask the question is to answer it.

Too often, archaeologists and anthropologists – and any average person – interpret any smoking of tobacco by our ancestors as necessarily being a spiritual act. I would opt for the serenity of the moment. Portaging a canoe through the woods requires that you be one with nature and listen to what nature tells you. Smoking tobacco, like dipping a paddle into the river, can bring us to this spiritual awakening that we all seek.

As a Wendat, the temptation to drop a burning ember into the bowl of this pipe would have been overwhelming. It is true that if this pipe had come to me, regardless of the context, I would certainly have dropped this ember in. It is lucky for the archeologists that this will never happen. Too much data would go up in smoke.

It would be extraordinary to discover a pipe that still contained the tobacco that one of my ancestors had placed in it more than 400 years ago! One thing is certain. This would have been, for me as a Wendat, a great moment of spirituality unlike any I could have imagined – a direct connection with my roots, my spirit and (who knows) perhaps with the spirit of this Wendat ancestor from whom I might have learned to get more connected to the genuine things in life, like portaging my canoe!

But, let's get back to the subject of this fantasy. From an archaeological point of view, this discovery could bring answers to our questions about our Wendat ancestors' way of life. Otherwise, what would be the use of unearthing, or rather removing, these artifacts from the belly of Mother Earth! Sometimes the act of voluntarily burying an object is in itself a spiritual reflection that must not be desecrated, even if this results in a loss of knowledge for science, no matter what the discipline. We all agree that archaeology has its reason for being, but we have to be careful about how this archaeology is performed. But don't worry; I am convinced that modern archaeology is more respectful of my ancestors than it was in the past.

This pipe, made with craftsmanship by one of my ancestors, was certainly a part of one of the finest moments in the lives of these real men.

Teharihulen Michel Savard is the curator of the Museum of the Huron-Wendat Nation in Wendake, Quebec.

Sustaining Ontario's archaeology digitally

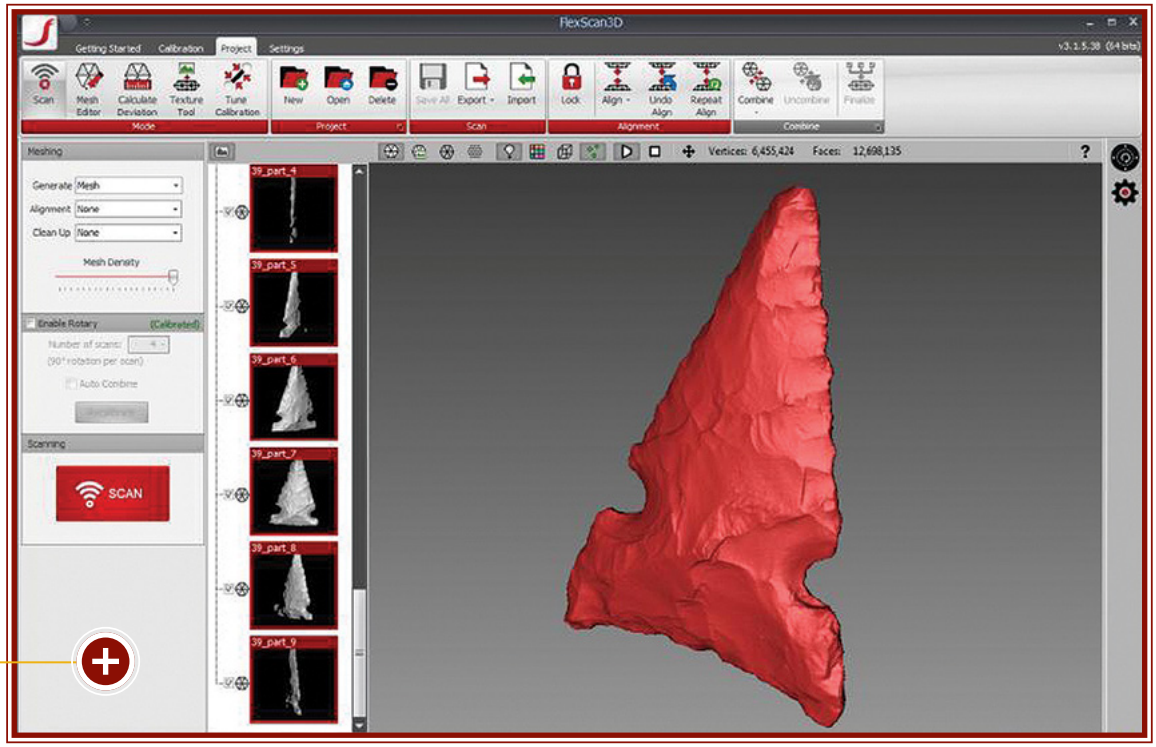
By Dr. Neal Ferris, Dr. Rhonda Bathurst, Michael Carter and Namir Ahmed

Archaeology has a long history of turning to new technologies to advance the pursuit of understanding our ancient past. From measuring the decay of carbon molecules in organic remains to date sites thousands of years old, to identifying the isotopic signature of the appearance of agriculture in ancient time, to examining DNA to identify historical personalities or the interconnection of people across the globe, many of the most important discoveries in archaeology have emerged as much from the lab as from the excavation site itself.

Another long tradition in archaeology worldwide is the effort to conserve and document archaeological sites prior to land development activities. The efforts of government, the development sector and archaeologists over the last 50 years have led to the documentation of tens of thousands of archaeological sites, as well as massive holdings of archaeological remains – all potentially available for scientific analyses and further advancement of the archaeological past (a potential nonetheless hampered by the dispersal of these collections to many storage facilities, and the lack of accessibility of these findings to enable advancement of research or even appreciation of that rich recovered heritage).

Ontario is a world leader in archaeological research from emerging technologies and in conserving the archaeological heritage of this place. The future of archaeology will see the integration of new digital technologies to manage the accumulated record of conservation activities, thereby enabling the promise of conservation through access, research and engagement with Ontario's archaeological heritage by archaeologists, and by those in society who draw meaning and value from that heritage.

This trend is best reflected in the efforts of Sustainable Archaeology (SA), a research centre that strives to consolidate those dispersed archaeological collections into one place, provide for the long-term care of that material heritage, and to convert those physical collections into digital information to ensure that this compiled record is accessible online for research, education and appreciation.



Modelling a series of artifact scans into a 3D model.

Interacting with visual reality creations of ancient environments.

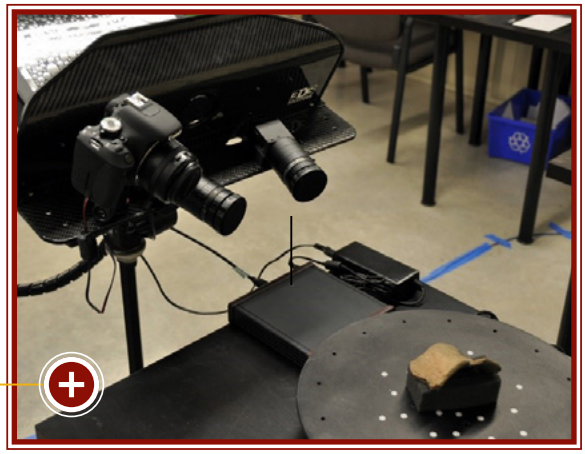
Funded by the Canada Foundation for Innovation and the Ontario Research Fund, SA is a joint project of the University of Western Ontario and McMaster University, in partnership with the Museum of Ontario Archaeology. SA's critical goal in compiling the material record of Ontario's archaeological heritage is to shift the current archaeological *status quo* toward a more sustainable form of practice that uses and re-uses the record recovered in the province and to enable a broader engagement with that heritage in society.

Interacting with visual reality creations of ancient environments

The primary means of achieving this goal is the digitization of those thousands of archaeological collections. To do this, SA relies heavily on digitizing the amassed record to create detailed inventories of objects across sites, augmented with images and 3D models of those artifact forms that are important to archaeological research, which – as digital models – can then be subject to virtual metric and comparative analyses, undertaken remotely by archaeologists and others seeking to explore research questions of human-material patterning (either intensively across the region for one time period or across deep time trends), wherever they happen to be in the world.

At SA, an assembly line approach to 3D scanning artifacts allows for the relatively rapid generation of diagnostic artifacts, using a series of structured light scanners, each designed for scanning objects within specific size ranges. Once created, these 3D models of artifacts are accessed through SA's online informational platform. But these models can also be repurposed within virtual reality recreations of ancient settlements – so that people, using virtual reality goggles, motion controllers and haptic (or tactile) feedback can interact with this material record in virtual or real time and space in order to advance new insights into space, time and the settings from which those artifacts once existed as the material day-to-day of the ancient peoples who left them behind.

As well, a full-colour 3D printer allows researchers to explore the potential of printing copies of artifacts – at actual size or to scale – for teaching purposes, to allow handling of otherwise fragile items, to print a reconstruction of objects from the archaeological fragments of an artifact, or to explore the ethical implications of printing Ontario's archaeological heritage.

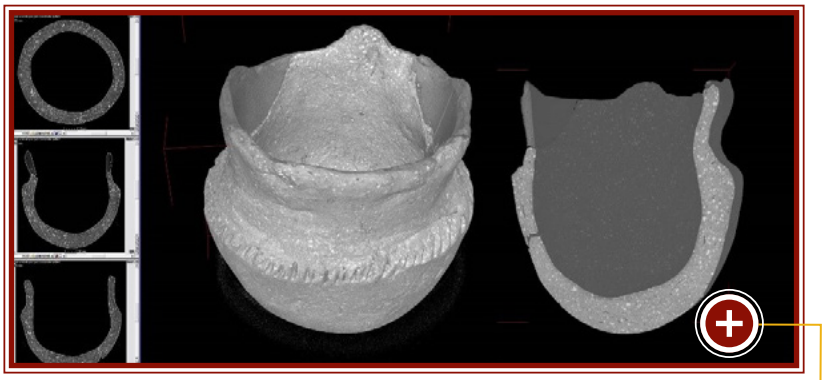


Scanning artifacts to make a 3D model.

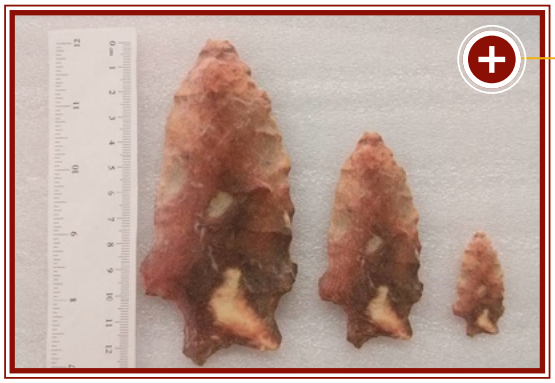
Other technologies being used at SA include digital X-rays and a micro-CT scanner at Western to explore the internal structure of plant, animal bone and artifacts – in a non-invasive manner – to identify species or to examine at a micron-level the composition and manufacture of things. The McMaster facility relies on thin-sectioning and the use of an array of high-magnification microscopes to enable material sciences studies on artifacts and micro-artifacts.

More basically, digital technologies assist SA to manage and integrate the massive assembly of archaeological collections at McMaster and Western.

For example, the SA informational platform includes an inventory module that tracks individual objects and containers through the use of radio frequency identification tags to ensure that we always know where objects are within the large repositories across the two facilities, and to ensure that the location is automatically updated as objects are moved from one room to another, or between the facilities. Indeed, the online integration of the status of all holdings can change the way a collection is managed, as portions of one collection (for example, the ceramic vessels and the plant remains from a single site) can physically reside in separate facilities across a wide range of shelf locations, but virtually remains a cohesive whole fully accessible online for digital and virtual study. This digital tracking of collections is not in and of itself a radical concept, but does provide a degree of confidence and security to basic levels of documentation, management and accessibility that has largely eluded archaeology in Ontario before now.



A micro-CT scan of an ancient ceramic vessel.



Printing the past: 3D prints of a projectile point in different sizes. Can you tell which one is real!?

Scanners reading tagged boxes and artifacts for ease of tracking.

All of these technologies are digitally making the record broadly accessible online. But they also enable archaeologists to work together with First Nations and descendant communities to think about the archaeology of this region beyond differing priorities. At SA, it opens up the possibility of co-managing the physical and digital archaeological heritage of Ontario through an advisory committee that comprises archaeologists and First Nations that shape the philosophy and operation of SA. Moreover, a direct and unfettered access to the digital archaeological record allows First Nations and descendant communities to learn about and shape their own understanding of their heritage – in effect, crowdsourcing their own interpretations of that material record beyond archaeology.

The goal of SA – to consolidate the record digitally and make it accessible online – will shape the future of archaeology into a sustainable practice, one that integrates emerging technologies to manage and know that massive, accumulated record preserved from development impact, while ensuring that conservation efforts to make Ontario's material past are made available to researchers, First Nations and the public. In the end, it enables us to engage with and shape our understanding of the past.

Neal Ferris is the Lawson Chair of Canadian Archaeology at the Department of Anthropology/Museum of Ontario Archaeology at the University of Western Ontario. Dr. Rhonda Bathurst is the Manager of Sustainable Archaeology: Western. And both Michael Carter and Namir Ahmed are anthropology graduate students from the University of Western Ontario.

The history of archaeological investigations at the Thomson-Walker Site

By Dr. Alicia Hawkins

Huronia – the point of land jutting out into the southern end of Georgian Bay – has caught the imagination of historians and archaeologists for almost two centuries. The Thomson-Walker site is the location of one of many 17th-century Wendat villages in the region. Collectively, these sites have been subject to scrutiny by a diverse cast of characters – from interested amateur archaeologists to academics.

Archaeologists often try to answer a broad range of basic questions about any site: How old is it? Who lived there? Was it a village? How large was it? Why was it abandoned? Over the years, at least seven different archaeologists or teams of archaeologists have studied the Thomson-Walker site.

In the early 20th century, Andrew Hunter undertook what we would now call a regional survey of Huronia. He visited farmers and asked whether they had found artifacts while clearing or farming the land. Based on these interviews, he located numerous Wendat sites. His description of the Thomson-Walker site is short, but it places it squarely within the French period.

The site is bisected by a concession road and, in the 1940s, the property on the east side was purchased by the Thomson family. The Thomsons had no small acquaintance with archaeology: daughter Margaret excavated at Fort Ste. Marie during the early 1940s and eventually married Royal Ontario Museum archaeologist Douglas Tushingham. The Thomsons pursued their interest through excavations of middens (refuse heaps) at the edge of the site. They recovered a rich array of artifacts and generously donated the majority of this collection to the Royal Ontario Museum. (Douglas and Margaret Tushingham donated the property to the Trust in 1987).

An iron offset awl with a bone handle shows a combination of aboriginal and European technologies.

Andrew Hunter's survey work was followed by that of Frank Ridley in the 1960s and 1970s.

Ridley did not actually excavate at Thomson-Walker, probably because an excellent sample of artifacts had already been recovered by the Thomsons, but he did suggest that the site was the location of the Wendat Cord Nation village *Teanaustayé* and the Jesuit mission of St. Joseph II.

The Royal Ontario Museum undertook the first formal research-oriented archaeological work. Under the direction of archaeologist Burke Penny, a team tested the site to determine its boundaries. Researchers estimated that the site is over 5 hectares (12 acres). Subsequently, other researchers have revised this downward, but the work of Penny demonstrated that this is a village of significant size. Penny's crew also dug several test trenches and were successful in locating a palisade (a defensive structure).

By 1987, the importance of the site was well established. Thus, when the concession road was to be widened, a group organized by Jamie Hunter (Huronia Museum) was able to undertake salvage excavations. This group made important contributions to our understanding of the site. They were the first to document post-hole features (they discovered four houses all facing the same direction). Secondly, all artifact-rich soils were water-screened through fine mesh, allowing for the recovery of many small glass beads and animal bones.

Since 1987, excavations at Thomson-Walker have been intermittent. Three university field schools (1993, 1995 and 2006) have been located at the site. Those directed by Martha Latta (University of Toronto) resulted in the discovery of more sections of the palisade and another house, aligned in the same direction as those discovered in 1987. The Laurentian field school in 2006 confirmed the findings of Latta.

Two field school students record the location of soil stains.

Researcher Holly Martelle identified individual potters at Thomson-Walker based on tiny variations in decoration.

Unfortunately, the story of the excavations at the site does not end here, but rather with the discovery that the site had been disturbed by metal detector enthusiasts in 2009. Through the collaborative work of the Ontario Provincial Police and the Ontario Heritage Trust, the objects that were looted from the site have been turned over to the Trust.

There is certainly much more that we can learn from analysis of the rich collections that this important site provides. The exact identification of the Thomson-Walker site remains open for discussion, but it is clear that it is a large, Wendat Cord Nation village dating to the Jesuit period.

Alicia Hawkins is an Associate Professor at Laurentian University's School of the Environment.

Archaeology at the Trust

The Trust has conducted archaeological research on its properties since 1970. Our practice is to consider archaeological potential on every heritage site that we acquire and to ensure that archaeological resources are identified and protected. Archaeological excavation occurs when impact necessitates excavation. The Trust's preferred approach is to avoid archaeological deposits and protect *in situ.* The resulting archaeological collections form an interpretive resource that strengthens our understanding of our sites.

Facts and figures

- 148 registered archaeological sites owned and conserved by the Trust or protected by conservation easements
- over one million artifacts have been excavated from Trust properties within 163 collections
- largest site: Chedoke Falls site, 1.6 hectares, contains an early to middle Iroquoian site 1280-1350 BCE (before current era)
- oldest site: Farmer site, 9500-3000 BCE
- most sites on one property: 35 (Glassco Park in Vaughan)

Breaking ground

By Lena Rye

On a July morning in 2010, an 11-year-old girl arrived at Toronto's Spadina House. Excited and only slightly scared, she wondered what the next two weeks would bring. Little did she know that attending archaeology summer camp would transform her. That little girl is me. And since then, I've attended the Spadina Archaeology camp for four years in a row and volunteered for two more.

During the 2015 Spadina Camp, I developed and led an artifact workshop for the campers.

Spadina House is a precious historical building in the heart of Toronto. While the house – with its period rooms filled with beautiful furnishings – is spectacular, the gorgeous grounds beg to be explored. Each day, archaeology camp participants would spend four hours digging, interspersed with lessons, fieldtrips, cleaning and bagging artifacts. This year, campers found numerous artifacts, including a Union Jack pin, a pet identification tag and a piece of blue edgeware ceramic. Learning in such a tactile way has always been engaging.

While volunteering this year, I organized a game where campers would create stories based on groupings of everyday objects. This happened naturally during the dig when campers imagined what the excavation site used to be. I wanted to encourage this type of thinking, as this is what archaeologists work toward: reconstructing the past. We had some good laughs and it helped me think of archaeology in terms of imaginative problem solving.

This past August, I also participated in the Boyd Archaeological Field School at Pickering's Claremont Conservation Centre. It is an intense two-and-a-half-week-long high school credit course (offered through the Toronto and Region Conservation Authority), where we excavated a First Nations settlement. The days were spent at the dig, with lectures and activities in the evenings.

I always anticipated the "archaic skills" workshop, where we would create traditional tools – fish nets, woven baskets and spear-throwers. Excavating an aboriginal site is important because its represents a significant part of Canada's heritage.

When I first attended the Spadina archaeology camp five years ago, I didn't necessarily have the intention of returning, let alone considering archaeology as a career path. I thought I had always wanted to be an author and illustrator. But I've come to realize that creating a story plot is like figuring out how our ancestors once lived. Whether or not I pursue archaeology as a career, I know that this experience will forever remain a part of me. And in the end, what's more fun than digging holes in the ground and getting caked in dirt while looking for buried treasure?

At the Sebastien Site, Boyd Field School.

Lena Rye is a Grade 11 student in Toronto. She plans to combine her love of history, creative writing and visual art in her future endeavours.

Challenges of archaeological collections management

By Dr. Robert I. MacDonald

While buildings are among the most visible elements of heritage landscapes, they are frequently like the tip of the proverbial iceberg, associated with vast underground archaeological deposits capable of fleshing out cultural history narratives – of both pre-contact aboriginal and post-contact Euro-Canadian occupations – in substantial detail through their careful investigation.

Archaeological excavation of the New Fort site (AjGu-32). The foundations seen here are associated with the New Fort, a 3.2-hectare complex of standing structures and underground deposits constructed in 1841 to provide additional facilities for Toronto's military garrison. It was renamed the Stanley Barracks in 1893. Photo: John Howarth

The task of curating these finds is fulfilled by over 450 consulting archaeologists licensed under the Ontario Heritage Act by the Ministry of Tourism, Culture and Sport. The ministry assists both public- and private-sector land developers in meeting their various statutory obligations to steward the province's archaeological heritage. Annually, this work results in the registration of hundreds of new archaeological sites that span the 12,000 years of human occupation in Ontario and the recovery of thousands of artifacts in the course of archaeological surveys, site assessments and salvage excavations of threatened sites.

Since the enactment of the Ontario Heritage Act in 1975 and the development of the archaeological heritage management industry since the 1980s, it is estimated that Ontario's archaeologists are the custodians of artifact collections that would fill approximately 25,000 cardboard banker's boxes, enough to cover – when laid side by side – about half of a professional soccer pitch. This repository does not include the vast archaeological collections previously acquired in the 19th and 20th centuries and already curated by museums, universities and other public institutions across the province, which may well comprise enough to cover the other half of that soccer pitch.

While this wealth of artifacts may seem like a boon to museums, the reality is that only a fraction of the artifacts recovered through archaeology will ever find their way into public exhibits – likely less than one in 100,000 – as the majority of artifacts are not considered to be exhibit-worthy because they are deemed too pedestrian (e.g., window glass, iron nails, flint chips, etc.), lack integrity (e.g., small potsherds), are fragile or require specialized conservation treatment (e.g., carbonized floral remains) or are redundant when compared to exemplary pieces already on display (e.g., spear points and arrowheads). With space increasingly at a premium, museums and universities have necessarily become selective with respect to the archaeological collections they are willing or able to accommodate.

This problem is not unique to Ontario or even Canada, as the growing problem of collections management has become an issue of concern worldwide wherever archaeological heritage management has been developed as an important feature of maturing societies.

In Ontario, a longer-term solution has been developed by a collaborative initiative between Western University and McMaster University with funding from both the federal and provincial governments.

Artifacts (clockwise from top left): Hand-wrought and machine cut nails, screws and a spike, window glass from a Euro-Canadian homestead, carbonized corn cobs from a pre-contact village site, pre-contact ceramic potsherds, and pre-contact flint debitage produced during the production of chipped stone tools.

With a collective storage capacity large enough to house the equivalent of approximately 80,000 banker's boxes of artifacts, the Sustainable Archaeology project aims to work with the archaeological community, descendant communities and the public to ensure access to collections and dissemination of knowledge arising from their ongoing study. In so doing, Sustainable Archaeology seems to offer an excellent alternative to traditional museums, although certainly not the only alternative. For example, some First Nations are considering the establishment of similar facilities that might better serve the interests of their own communities with respect to the stewardship of culturally relevant archaeological collections.

Licensed archaeologists across the province manage the collections arising from their archaeological investigation, including artifact cleaning, cataloguing, analysis, conservation, curation and interpretation. This will continue to be important work along with addressing the ongoing collections management challenges that face all archaeologists throughout Ontario.

Robert MacDonald is the president of the Ontario Archaeological Society.

Images courtesy of Archaeological Services Inc.

By the numbers

Compiled by the Archaeology Program Unit at the Ministry of Tourism, Culture and Sport

Archaeology is an important part of the planning and development process in Ontario. Each year, thousands of archaeological assessments are completed by licensed archaeologists to ensure that our shared cultural heritage is preserved. These assessments are carried out in advance of construction projects, such as solar or wind farms, subdivisions and new roads. As a result, archaeologists have documented hundreds of archaeological sites. That information helps us fill in the gaps in our knowledge of the history of our province.

Reports on these assessments are filed with the ministry and are accessible to all Ontarians through the Ontario Public Register of Archaeological Reports.

Archaeological sites in the province range in size from a single artifact (such as a spear point or arrowhead) to early 19th-century industrial towns and large aboriginal villages that cover a few hectares. Archaeologists record and track sites through a national system; Ontario maintains the Archaeological Sites Database.

By the years

1953
first heritage legislation passed in Ontario: An Act for the Protection of Archaeological and Historic Sites

1975
Ontario Heritage Act comes into force, introducing many more heritage-related protections and procedures

1993
guidelines introduced for doing archaeological assessments for development

2005
Ontario Heritage Act revised to establish a public register of archaeological reports, making information about the archaeology of our province accessible to all Ontarians

2011
new standards and guidelines introduced for doing archaeology for the development industry

By the numbers

4
types of licences that can be issued to archaeologists in the province – avocational, applied research, professional and marine

1,000
average yearly number of archaeological sites found as a result of archaeological fieldwork

17
average yearly number of marine licences issued to explore the waters of Ontario's lakes, rivers and streams for marine heritage

2,500
average yearly number of archaeological projects carried out, including consulting archaeology for development and research

15,000+
number of reports filed in the Ontario Public Register of Archaeological Reports since it was introduced in April 2005

467
individuals who are licensed to carry out archaeological fieldwork in the province

12,000
approximate number of years ago that the oldest archaeological sites in Ontario were formed

32,000+
number of archaeological sites listed in the ministry's Archaeological Sites Database

For more information on Ontario's Archaeology Program, visit www.ontario.ca/archaeology.

Seeing the unseen: Archaeology and geophysics

By Dena Doroszenko

As population growth results in substantial impact to Ontario's landscapes, efficient and cost-effective methods to locate, map and acquire information from archaeological sites are needed – before the sites are lost.

Collecting GPR data at the Henson Family Cemetery in Dresden, Ontario.

Archaeological excavation is essentially a destructive science. As each archaeological site is excavated, it is systematically destroyed. Consequently, each step of the excavation can be painstakingly slow, due to the need to carefully document each find and each level. As with every scientific endeavor, technology is beginning to change the way archaeologists work. Archaeogeophysics refers to ground-based subsurface mapping using a number of different sensing technologies (see sidebar). Geophysical methods provide additional ways to examine the remains of earlier cultures and give us clues to our province's past.

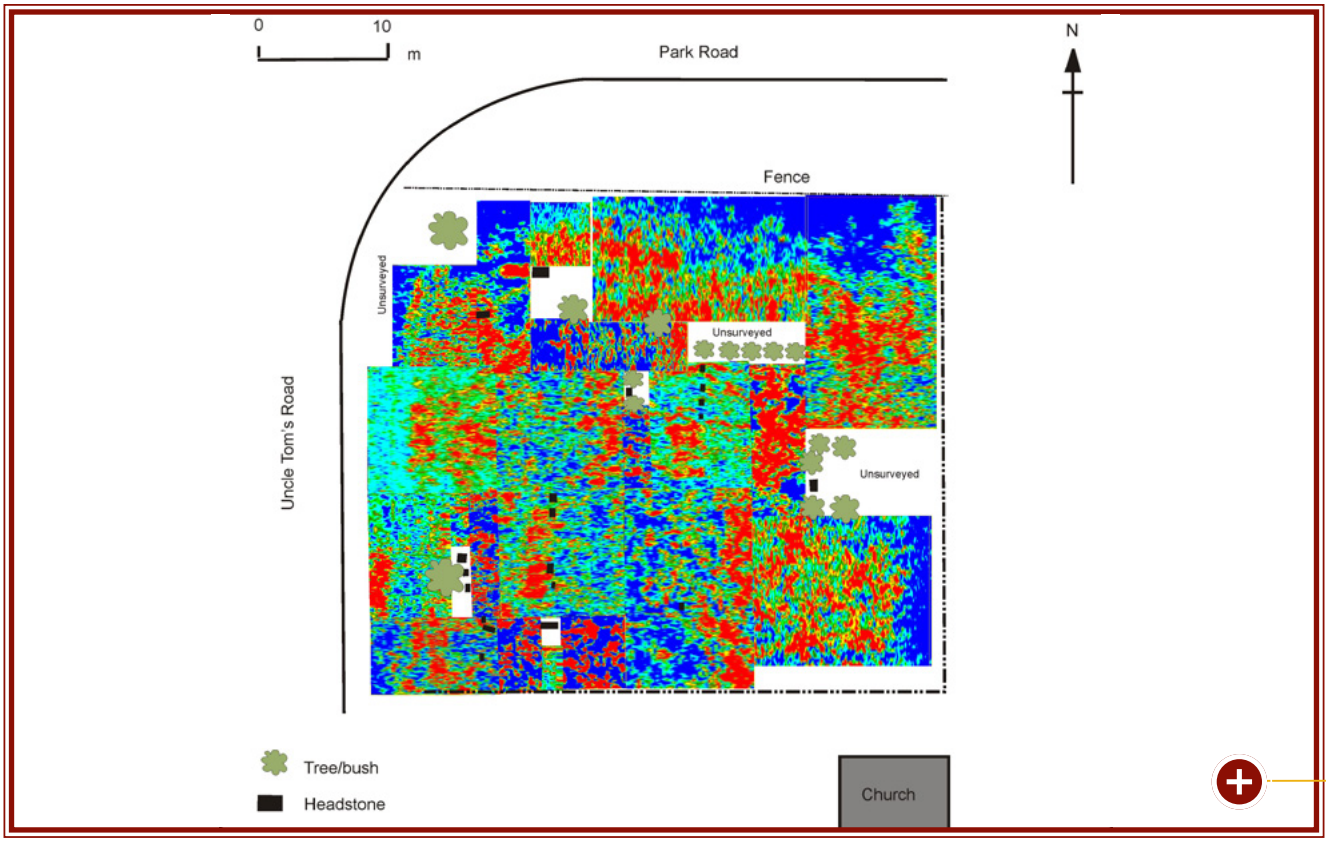
Geophysics involves methods of data collection that allow archaeologists to discover and map buried archaeological features in ways not possible using traditional field excavation methods. Using a variety of instruments, physical and chemical changes in the ground, related to the presence or absence of buried materials, can be measured and mapped. When these changes can be connected to certain aspects of archaeological sites such as architecture (buried walls), use areas (hearths), or other associated cultural features (artifacts), high definition maps and images of buried remains can be produced.

Survey results can be used to guide excavation and to give archaeologists insight into the patterning of non-excavated parts of the sites. The appropriate geophysical techniques that should be employed in an archaeological investigation will vary from location to location. Each technique has strengths and constraints that make it more or less effective in detecting sub-surface features, depending on the environmental conditions. Interestingly, geophysics can detect and map features both underground and underwater.

Archaeologists can be greatly assisted in setting excavation priorities if geophysical methods are used first. These methods have the ability to allow large areas of the subsurface to be investigated, precisely mapped and interpreted based on their form, distribution, context and measurement characteristics. Irregularities in the landscape indicated by geophysics are factual. In other words, a real physical cause must exist in the ground.

Ground-truthing by archaeologists includes verifying the presence of archaeological features detected through the use of geophysics by placing excavation units in those areas.

Due to provincial legislation in Ontario, archaeological assessments are often required prior to the clearing of an area and construction of new buildings. Frequently, the time available for the archaeological effort may be limited. Geophysical methods may be of great value as the site will often be totally destroyed by the new construction. Determining the impact of the existing environment on the ability to use geophysics must be considered and evaluated by geoscientists and archaeologists in order to develop innovative investigation methods.



Composite slice map showing high amplitude reflections (in red) from assumed unmarked and marked historical graves at the Henson Family Cemetery.

As new equipment and software are introduced, new demands are placed on archaeologists to understand this technology and to learn how data can be assembled into a coherent whole. This permits one to combine data from classes of measurement such as artifact densities, topography, magnetometry, ground penetrating radar, conductivity, global positioning systems and aerial/satellite imagery.

The human past has been the subject of scientific inquiry for centuries, and has long been approached through studying material remains recovered from traditional archaeological excavations. In recent decades, the advancing fields of geophysics and geographic information systems have enhanced the toolkit for archaeologists. Geophysics has the potential to assist decision makers with better access to the archaeological record, in a way that is non-invasive or destructive and that may stimulate more opportunities for *in-situ* conservation.

Dena Doroszenko is the Archaeologist at the Ontario Heritage Trust. Text reprinted from Heritage Matters, Volume 9, Issue 2, May/June 2011.

Geophysical survey methods

Electrical resistivity tomography (ERT) is the measurement of the soil's electrical resistance, and is useful for finding buried wall foundations, ditches, burial area s and a range of other features.

Electromagnetic (EM) Conductivity is the inverse of resistivity. It measures the ability of the soil to conduct electricity. Items that conduct electricity easily show up as high in conductivity, indicating potential buried materials such as walls, foundations, roads, wells, canals, pits, hearths and graves.

Magnetometry is suitable for finding buried hearths, walls, ditches or any magnetized (heated) materials, such as burned soils. A gradiometer is an instrument that measures slight changes in the earth's magnetic field.

Ground-penetrating radar (GPR) is used to send a radar signal through the ground and measure the transit time for sending and return. The results are compiled into a three-dimensional map of what lies beneath the surface, such as hearths, post-holes, ditches, voids or cavities, wall foundations and burials.

Resources

Compiled by Patryk Weglorz

Online

Archaeological Institute of America
- www.archaeological.org

Canadian Archaeological Association
- https://canadianarchaeology.com

Canadian Conservation Institute
- www.cci-icc.gc.ca/services/arch/index-eng.aspx

Canadian Museum of History
- www.historymuseum.ca/exhibitions/online-exhibitions/archaeology

Council for North Eastern Historical Archaeology (CNEHA)
- http://cneha.org

Historic England
- https://historicengland.org.uk/research/approaches/research-methods/Archaeology

Huronia Museum
- http://huroniamuseum.com

International Committee on Archaeological Heritage Management (ICAHM)
- http://ip51.icomos.org/icahm

International Council on Monuments and Sites (ICOMOS), Charter for the Protection and Management of the Archaeological Heritage (1990)
- www.international.icomos.org/charters/arch_e.pdf

Ministry of Tourism, Culture and Sport
- www.mtc.gov.on.ca/en/archaeology

Museum of Ontario Archaeology
- http://archaeologymuseum.ca

Ontario Archaeological Society
- http://ontarioarchaeology.wildapricot.org

Ontario Association of Professional Archaeologists
- www.apaontario.ca

Parks Canada
- www.pc.gc.ca/eng/progs/arch/index.aspx

Royal Ontario Museum
- www.rom.on.ca/en/collections-research/blog/category/Archaeology

Save Ontario Shipwrecks
- http://saveontarioshipwrecks.ca

Society for American Archaeology
- www.saa.org

Society for Historical Archaeology
- http://sha.org

Sustainable Archaeology Centres – Western
- http://sustainablearchaeology.org

The Archaeology Centre at University of Toronto
- www.archaeology.utoronto.ca

Toronto and Region Conservation Authority – Archaeology
- www.trca.on.ca/the-living-city/land/archaeology

Trent University Archaeology Research Centre
- www.trentu.ca/tuarc

World Archaeological Congress
- http://worldarch.org

On the shelf

Peterborough Archaeology, edited by Dirk Verhulst. The Peterborough Chapter of the Ontario Archaeological Society, Peterborough, 2015.

Rethinking Colonial Pasts through Archaeology, edited by Neal Ferris, Rodney Harrison, and Michael V. Wilcox. Oxford University Press, 2015.

Petun to Wyandot: The Ontario Petun from the Sixteenth Century, by Charles Garrad. Edited by Jean-Luc Pilon and William Fox. University of Ottawa Press, 2014.

The Mantle Site: An Archaeological History of an Ancestral Wendat Community, by Jennifer Birch and Ronald F. Williamson. AltaMira Press, New York, 2012.

Before Ontario: The Archaeology of a Province. Edited by Marit K. Munson and Susan M. Jamieson. McGill-Queen's University Press, Montreal, 2013.

Patryk Weglorz is an archaeology student at the University of Toronto Mississauga and has worked summers at the Trust in 2014 and 2015.

Reassembled glass vessel, excavated at Inge-Va (a property in Perth, Ontario, owned by the Ontario Heritage Trust), shown prior to conservation treament.

Toiletry basin, Canova pattern in red, dating to the mid-nineteenth century. Excavated at Inge-va. Photo: John Howarth

Child's mug, which belonged to Charles Radenhurst, excavated at Inge-Va from an abandoned privy. Photo: John Howarth


Elgin and Winter Garden Theatre Centre


Enoch Turner Schoolhouse


Fulford Place


Homewood Museum


Inge-Va

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Macdonell-Williamson House


Mather-Walls House


Niagara Apothecary


Sir Harry Oakes Chateau


Uncle Tom's Cabin Historic Site

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- Inge-Va (Perth)
- Macdonell-Williamson House (East Hawkesbury)
- Mather-Walls House (Kenora)
- Niagara Apothecary (Niagara-on-the-Lake)
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