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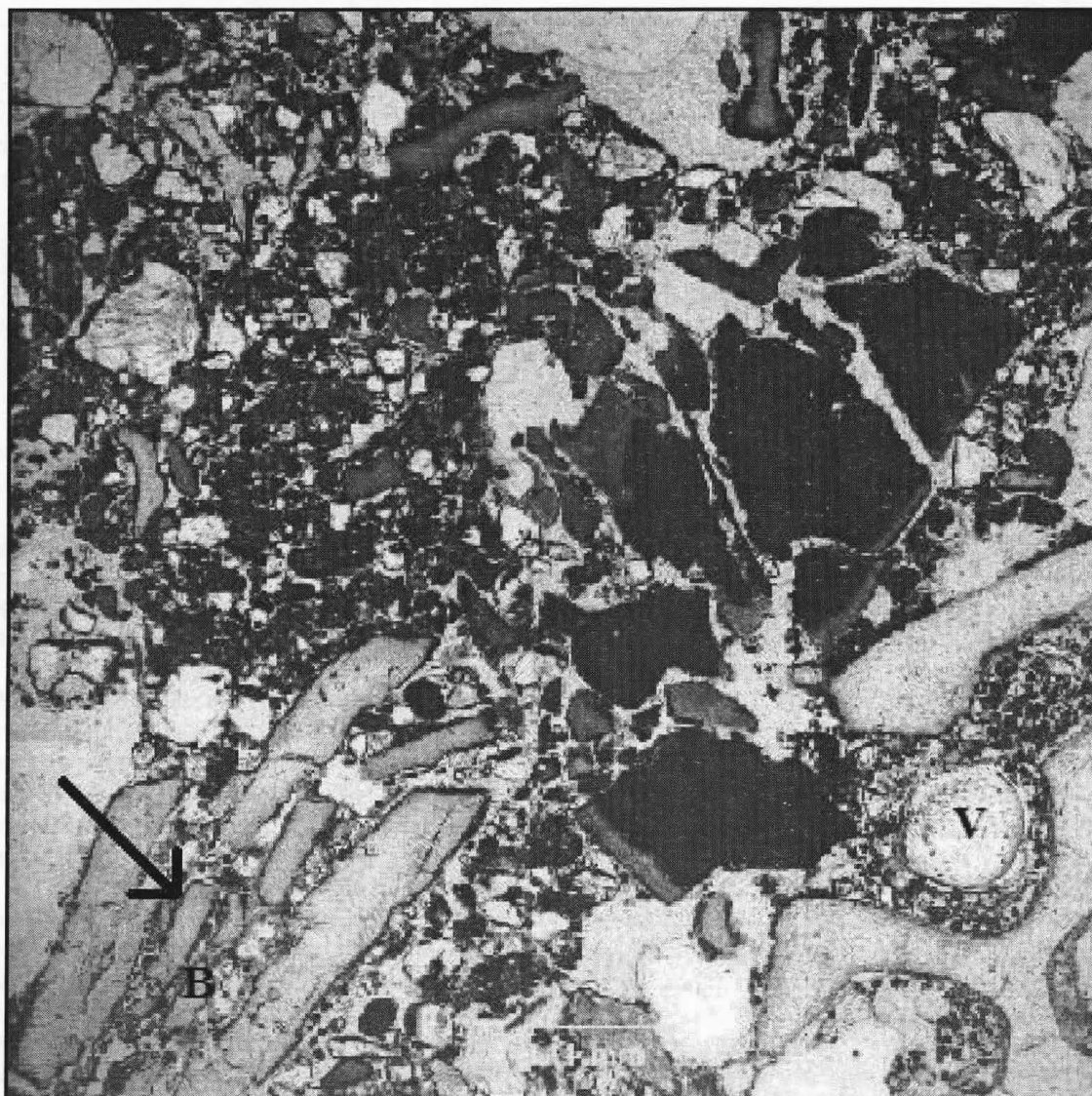


# MIDDEN

Publication of the Archaeological Society of British Columbia

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**MICROMORPHOLOGY MADE EASY**

**THE SCOWLITZ SITE ONLINE**

**KLAHOWYA VILLAGE**

**THE RUBY CREEK FIGURE ENIGMA**

**ASBC AND SQUAMISH NATION ON THE SUNSHINE COAST**

# THE MIDDEN

Volume 43, No. 2 2011

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## THE MIDDEN Subscriptions

Subscriptions to **THE MIDDEN** are included with ASBC memberships. For non-members in Canada subscriptions are available at \$18 per year — \$25 for addresses in North America and \$40 overseas.

Single copies of most previous issues are available for \$5.00 each, plus postage.

Subscription forms and membership application forms are available on our website ([www.asbc.bc.ca](http://www.asbc.bc.ca)).

## **Cover:**

Slide of microscopic shell matrix; details on page 18.



# The ASBC Pages

Recent media coverage of archaeology in the province raises important questions about the professional practice of cultural resource management, provincial heritage protection, and public perceptions of archaeology more broadly. The central issue was who should foot the bill for archaeological investigations, and on-line discussion was replete with comments from the general public that ranged from outrage at the reported cost of archaeology to an outright dismissal of its value at all. In his blog (<http://qmackie.wordpress.com>), Quentin Mackie published several posts reflecting on the situation and called archaeologists in the province to speak out against potential misrepresentations of what archaeology is

and how it works.

Towards this, the Archaeological Society of British Columbia has issued a formal statement on the matter, as has the British Columbia Association of Professional Archaeologists (BCAPA). We include these statements here, along with a Letter to the Editor, together framed as a Forum on 'Media Representations of Archaeology in B.C.'

We invite our readers to send their comments on these and other related issues to us at: [asbc.midden@gmail.com](mailto:asbc.midden@gmail.com).

Editorial Committee

## FORUM: *Media Representations of Archaeology in B.C.*

### ASBC Statement on Recent Heritage Issues within the Province

Founded in 1966, the Archaeological Society of British Columbia (ASBC) represents a diverse community including researchers, consulting archaeologists, students, members from First Nations and the general public. What brings us together is a great interest and enthusiasm for our rich and intriguing heritage, be it ancient or more recent in age. Over the past 45 years, we have advocated for the careful management and preservation of our province's heritage and worked to educate the public about archaeology. Our constitutional aims as a society are to:

1. Encourage the identification and protection of archaeological sites and material in B.C., and
2. Provide lectures and publications for the spread of knowledge about archaeology.

Archaeologists have incredible stories to tell about the heritage sites we investigate, and the history of our practice—how and why archaeology is done—has changed over the years. Provincial legislation protects archaeological sites (the *Heritage Conservation Act* protects sites dating to before 1846 AD). In the past, the assessment and recording of archaeological sites throughout the province was done by the government; however, budget and personnel cut-backs put this to an end in the late 1970s to early 1980s.

Today, those seeking to develop an area that either contains a recorded archaeological site or has not been assessed for archaeological remains are responsible for the logistical and financial planning of this process. Depending on the scale of the proposed development, archaeological sites are subject to varying levels of assessments known as Archaeological Overview, Impact and Alteration. In this system, landowners hire qualified archaeologists

to determine the levels of investigation required and undertake this work under provincially-issued permits.

Recently, concerns about the cost and utility of assessing and protecting archaeological sites have been expressed in the media, specifically in relation to a housing development in Oak Bay, Victoria that impacted a well-known archaeological site (site DcRt-10) that is protected by the *HCA*. This is of great concern to us.

This site and others like it are much more than heaps of shell and food debris. They are a record of people's lives, of past environmental conditions, and in many cases contain ancestral human remains—so are places of great importance to First Nations. As such, heritage sites are significant both scientifically, as unique and irreplaceable sources of knowledge about people in the past, and socially, as places with names and stories that connect people today with their history and cultural identity.

The ASBC supports the provincial government for upholding the *HCA* and hopes they will continue to do so. We encourage people to join us in the ASBC and support our mandate to advocate for the protection and management of cultural heritage.

We also encourage those who wish to learn more about archaeology in the province to join us in our monthly public lecture series, to read our publication *The Midden*, and to become a member in our organization. For more information on the ASBC, please visit our web pages.

<http://www.asbc.bc.ca/>  
<http://www.asbc.bc.ca/vicsite/>  
<http://www.asbcnanaimo.nisa.com/>

The ASBC Executive



## FORUM: *Media Representations of Archaeology in B.C.*

### Statement from the British Columbia Association of Professional Archaeologists

Recently, various media outlets have brought attention to cultural heritage resource work conducted by consulting archaeologists in British Columbia. Generally, these articles have focused on issues between cultural resource management archaeologists, the B.C. Archaeology Branch, and private developers, focusing on requirements for developers to conduct archaeological studies because of the presence of known archaeological sites on their properties. In the opinion of the British Columbia Association of Professional Archaeologists (BCAPA), the vast majority of these news articles contain inaccurate and erroneous information that is detrimental to the heritage conservation ethic that our membership promotes. In addition to the misrepresentation of facts, little attempt has been made to present any perspectives other than those of the developers. The particulars surrounding these reported issues are complex, and the BCAPA maintains that these issues should not be represented in such a biased manner. In order to fully understand the issues at hand, and to perhaps answer questions that are raised, the perspectives of all parties should be addressed by the media prior to publication.

Under the current legislation, the province administers the *Heritage Conservation Act (HCA)* through a user-pay system for archaeological work. Currently, the *HCA* affords automatic protection to all cultural material (known or unknown) that pre-dates 1846 AD, which means that the owner of a property that wishes to conduct ground disturbing activities, including their contractors, is responsible to determine if their project will impact protected archaeological remains or take the risk that archaeological deposits are not present. Where archaeological sites are identified, the developer/property owner is responsible for costs associated with mitigating (e.g., archaeological excavation) any adverse effects of the proposed development to the archaeological sites. The costs of archaeological study required to determine

potential effects and conduct mitigation are borne by those responsible for proposing development. It is especially important to note that registered Professional members (RPCA) of the BCAPA are required by our code of conduct to recommend avoidance through project re-design as the first option to mitigate against potential adverse effects to an archaeological site.

A court case involving a landowner from Oak Bay was recently brought before the court in an attempt to recover costs associated with archaeological studies conducted for a residential development within a known archaeological site. In this case, the B.C. Supreme Court ruled in opposition of the landowner, and in favour of the Archaeology Branch. The BCAPA encourages the judiciary to uphold the principals of the *HCA* and the Archaeology Branch's administration of the *HCA* and fully supports any ruling which may strengthen it. The *HCA* is in place to protect B.C.'s heritage, including archaeological sites, regardless of their location on Crown or private lands.

Another news article from a residential re-development in Qualicum Beach brought the ethics of BCAPA members, the role of consulting archaeologists, and the *HCA* into question. This article was posted online by a major national news outlet and it provided an opportunity for readers to add their comments. Reactions to this article fueled unnecessary controversy, encouraged individuals to break the law, and, most unfortunately, it incited racist comments. The BCAPA executive lodged formal complaints with the media outlet resulting in the removal of the posts from the public domain as the third party posts were in contravention to the media outlet's own posting policies. However, this type of public reaction is the expected result from the publication of one-sided journalism rather than well-rounded articles that allow readers to gain an informed opinion. Another approach for this developer would have been to lodge a formal complaint with the BCAPA. The BCAPA has a grievance

procedure that peers and members of the public can access should an RPCA be perceived to have deviated from the BCAPA's code of conduct or code of ethics. Our codes of conduct and ethics, along with instructions for accessing the grievance procedure, can be found on our website: <http://www.bcapa.ca>.

It is evident from the recent news articles, and the comments posted online, that members of the public are generally uninformed about heritage conservation and archaeological practices in B.C. However, gaining support for the protection and conservation of archaeological sites through public education is one of the keys to opening a healthy dialogue about such issues in the future. The BCAPA supports public education through our Speakers Bureau. This is a community service provided by volunteer BCAPA Professional member speakers. Through the Bureau, professional archaeologists are made available to speak to community groups, schools, and other organizations throughout B.C. Moving forward, it is the hope of the BCAPA that greater education on the subject of archaeology and the *HCA* can lead to a more open dialogue between all stakeholders, ensuring that issues such as those recently experienced can be avoided.

We encourage all those involved in heritage conservation throughout B.C. to get involved with the BCAPA. Visit our website to learn more about membership and the initiatives we are pursuing to promote heritage conservation, provide public education, and contribute to the archaeological record of B.C. The BCAPA would also like to encourage open dialogue in all matters involving archaeology in B.C. We have recently launched a B.C. Archaeology Forum site. This forum can be accessed online: <http://forums.bcapa.ca>.

**Eva Brooke**  
President of the BCAPA



## FORUM: *Media Representations of Archaeology in B.C.*

### A Letter to the Editor...

The recent controversy at the Willow's Beach site in Oak Bay reveals some serious misconceptions regarding archaeology and heritage held by the public. The article published in the *The Vancouver Sun*—claiming a \$600,000 archaeology bill for the archaeological impact assessment (AIA) at the Willow's Beach site upon which homeowner Wendi Mackay wanted to develop—inspired much anger in the general populace, revealing saddening ignorance and blatant racism towards First Nations people. It seems that many people do not understand what archaeology actually is—hence why high school students volunteered to excavate to avoid the expense of professional archaeologists (see comments for McCulloch "Oak Bay Homeowner Stuck with \$600,000 Archaeology Bill," *The Vancouver Sun* 8 March 2011).

Being a recently graduated Archaeology student with a certificate in Cultural Resource Management from Simon Fraser University, my experiences give me some insight regarding this contentious situation. I have always been a history buff with a fascination for the stories behind material culture. At SFU my studies and personal influences resulted in an increasing appreciation for local heritage and a passion for engaging in publicly relevant archaeology.

As a budding archaeologist, my personal experience is that many people seem to think archaeology only exists in Egypt, Greece, or Rome, even South America, but not North America. Hence the surprise when people find archaeology under their house. I understand the conflict of interest between heritage protection and the need for modern development and resource harvesting, yet people who live here need to be reminded of the history of this province. Let us not forget that 'British' Columbia was once a British Crown Colony, having an even deeper history preceding colonialism.

Although the colonial times are over to many of us, they had and still have

serious and tragic effects on local First Nations people whose heritage is beneath the ground's surface. Conflict between archaeology and domestic development gives the impression that traditional territories are once again up for grab. This land is not *terra nullius*—a "land belonging to no one," as Columbus once declared. Sadly, in this case all people seem to see is the \$600,000.00 price tag, without considering what contributes to the cost. The problem is obvious: why should people care about protecting heritage that is not their own, that they have not learned about, and that allegedly costs so much money?

Archaeological resources are part of someone's heritage, which is not easy to put a price on. Laws exist for a reason—in this case to protect heritage resources. It is homeowners' and citizens' responsibility to know provincial legislation. It is also the responsibility of the government to inform us of these laws, and that of real estate companies to inform us of archaeological resources on properties.

It seems to me this controversy is a continuation of a power struggle that has been going on since Europeans first set foot in B.C. Moreover, it is characteristic of our province; the commotion raised only signifies its importance and need for acknowledgement. Most people are not familiar with the time frame involved in AIAs, as expressed by Mackay's discontent with the slow excavation pace. Expedience is highly variable depending on the type of the site. Site types bring up another point of interest. The site on the Mackay property has been identified as a "midden." In lay terms, "midden" means a garbage dump. So why all this controversy over ancient garbage, wonders the public? As archaeologists, we know why middens are important. The public clearly does not, presenting a great opportunity to teach them.

An even greater link needs to be made between the collaborative work done by archaeologists to benefit descendant communities (as in Pemberton, "Ancient

History of Vancouver's First People," *The Vancouver Sun* 5 April 2011; and "A time for Healing" *The Vancouver Sun* 26 June 2006) so people can see how archaeology can be a positive that helps people reconnect with their lost past. Contemplate for a moment what would it mean to you to learn about your ancestors and your culture that yourself or members of your family were once legally forbidden to celebrate. Archaeology, including data from AIAs, can establish these missing links for people. We must emphasize this if we want people to care and, moreover, to understand why AIAs are legal requirements.

The Mackay case is going to be appealed to the Supreme Court. The racist backlash and homeowner grievance with the *Heritage Conservation Act (HCA)* exemplified by this case demonstrate that there is a problem with our education system, and perhaps with the enforcement of the *HCA*. There must be a better solution that does not result in high individual expenses, and disrespectful, racist attitudes. Preserving the heritage of our province and our country is something we are all accountable for as Canadian citizens. As archaeologists, it is our responsibility to collaboratively educate people so that ignorance can no longer be used as an excuse for such discrimination.

Nicole Slade  
Vancouver, B.C.

#### Correction: Issue 43.1

In Grant Keddie's article in our last issue (43.1) entitled 'Bird Leg Rings on the Northwest Coast?', the description for artifact EbRj-Y:1172 on page 13 should have read: "On side 2 there are two incised circles around this hole (outer 15mm diam.)..." and "Side 1 has 13 radiating lines with three groups of three and one of four lines."

# Report on Squamish Nation Artifact Collections at the Sunshine Coast Museum and Archives

Rudy Reimer and Robyn G. Ewing

In the summer of 2010, the Sunshine Coast Museum and Archives (SCMA) in Gibsons, B.C., contacted the Squamish Nation in regards to artifact collections housed in their facility. The SCMA staff asked members of Squamish Nation Chief and Council, Elderly Advisory Group, and Cultural and Heritage specialists to view these materials. Initial assessment by these groups found that these materials are of great cultural importance to the Squamish Nation.

Subsequent meetings between Julie Baker and Deborah Baker of Squamish Nation Chief and Council, Kimiko Hawkes of the SCMA, Rudy Reimer of Simon Fraser University (SFU), and the Archaeological Society of British Columbia (ASBC) we decided that these materials needed proper cataloguing, photography, analysis, and curation. These steps would ensure the artifacts' proper use and their development into an educational exhibit at the SCMA. Rudy Reimer suggested that the ASBC could fulfill this role and he quickly canvassed ASBC membership for volunteers to help with this task.

On October 29th and 30th, 2010, ASBC members Rudy Reimer (project leader), Robyn Ewing, Jennifer Lewis, Sarah Kavanagh, Jim Pound, Darryl Kirsch, Louise Williams, and Sean Alward catalogued, photographed, analyzed, and brought these cultural materials up to current-day museum standard of curation (Figure 1). Over two hundred artifacts were examined and a summary of our findings is presented here.

## Educating the Public About The Importance of the Past

Since the inception of the ASBC 45 years ago, one of the society's main mandates is to educate the public about the im-



Figure 2. ASBC members at work at the SCMA.

### Artifact Analysis

Presented by the Squamish Nation, the Archaeological Society of B.C. and the Sunshine Coast Museum & Archives.

#### Come and Watch Archaeologists at Work!

**At the Museum**  
**716 Winn Road**  
**Gibsons, B.C.**  
**Friday & Saturday,**  
**October 29<sup>th</sup> & 30<sup>th</sup>**  
**from 11 to 4.**

**Call 604-886-8232**  
[www.sunshinecoastmuseum.ca](http://www.sunshinecoastmuseum.ca)

Three separate communities have come together to create a public event that will showcase local First Nations history, archaeology and your local community.

Many ancient artifacts have been curated at the Sunshine Coast Museum but very little information exists around the meaning and function of these items.

Please come and join us as archaeologists photograph, catalogue and analyze these implements so that they can be developed into an educational exhibit.

Squamish Nation

Archaeological Society of British Columbia

SUNSHINE COAST MUSEUM & ARCHIVES  
 Sunshine Coast Museum & Archives

Figure 1. Poster prepared to invite people of the Sunshine Coast to the archaeology-cataloguing event.

portance of the past. Over the years and decades, the ASBC has at times led in this regard but at other times it has lagged. Throughout our history, we have been involved in numerous cultural heritage excavations and surveys and have put forth a strong voice for heritage stewardship. During this time, the structure of the ASBC membership has changed, but the backgrounds of the individuals remain consistent. We are a combination of academics, consultants, First Nations, and members of the broader public.

A unifying theme for all of us is an expression of interest, sometimes vocal and other times hushed, in fulfilling our mandate. Yet, the opportunity for doing so in recent times has been rare. The current ASBC Executive has discussed the issue of involving our membership in a more meaningful role as it pertains to issues of culture and heritage management. The following is a summary of a project that we hope begins to revitalize the ASBC membership's role in fulfilling our mandate of educating the public and involving ourselves in the amazing cultural heritage of our region.



## Database Development

An accurate database is fundamental for enabling access to museum collections for curators, Indigenous descendent communities, and the public. Databases are repositories for information about individual objects (Figure 2) including the history of an artifact, its condition, and its location within a museum. After ASBC volunteers catalogued and photographed the SCMA artifacts, the data entry process began using a customized FileMaker Pro database.

In constructing the database, specific categories were created to record detailed descriptions of each object, including physical dimensions (e.g., weight and length), visual characteristics (e.g., colour, shape, condition), and function, as well as notes on its acquisition by the museum. Cultural affiliation was also a key component to clarify each object's connection to a descendent community in situations where the geographical origin of the artifact was known.

The majority of the database entries were straightforward and required synthesizing the original museum artifact information and the volunteers' new interpretations. To evaluate the accuracy of the object information, artifact photographs

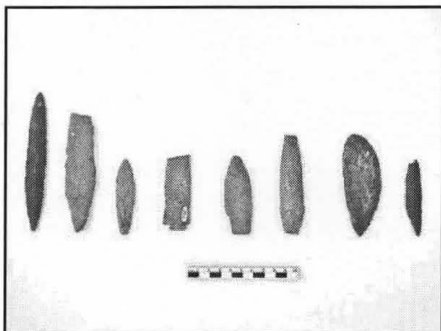


Figure 3. Projectile Points stylistically dating to the early period of the Northwest Coast archaeological sequence.

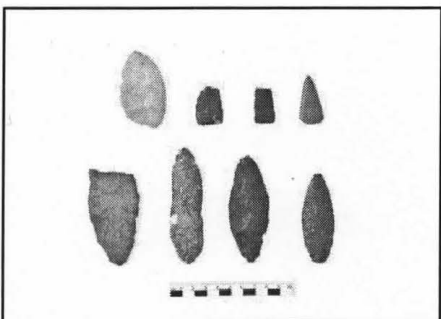


Figure 4. Projectiles Points stylistically dating to the middle period of the Northwest Coast archaeological sequence.

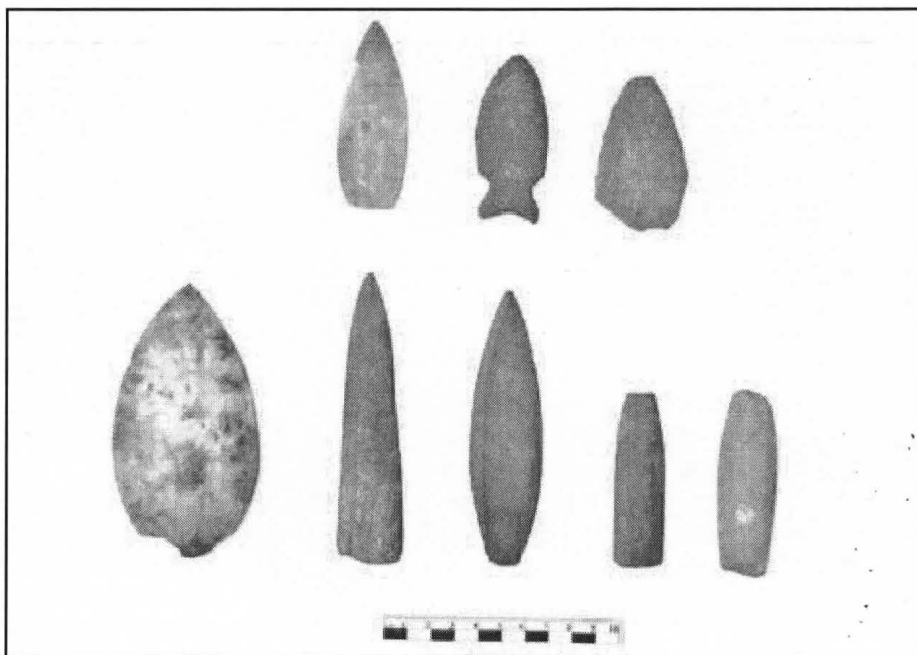


Figure 5. Projectiles Points stylistically dating to the late period of the Northwest Coast archaeological sequence.

were entered into the database and used to help correct misinterpretations. This was a time-consuming process because there were multiple instances where original artifact descriptions did not match the correspondingly numbered object. Moreover, instances of duplicate numbers existed, which required finding the object that most closely matched the recorded description and assigning a new number to the duplicate entry. In these cases, an 'A' or 'B' added at the end of the catalogue number with the assumption that the SCMA would later reassign numbers in accordance with the museum's established system. Finding duplicate numbers is common when updating older museum record keeping systems. After all pertinent information was entered and previous discrepancies mitigated, several reviews of the database were undertaken to ensure the clarity and accuracy of each entry.

## Projectile Points

The SCMA collection includes over 45 projectile points, with a wide range of temporally diagnostic styles spanning the past 10,000 years (Ames 1999; Carlson and Magne 2008; Figures 3-5). Seven projectile points represent the Early Period (10,000-5,500 BP) of the Northwest Coast archaeological sequence, 30 for the Middle Period (5,500-1,500 BP) and 8 for the Late Period (1,500-150 BP). Ten of the projectile points in the SCMA collection

are ground stone with the remaining 35 being flaked/chipped stone.

## Wood Working

The collection at the SCMA includes over 30 hand mauls of varying types (Figure 7). Three of these implements offer unique insight into production, as they are in the initial stages of manufacture. The remaining examples represent the range of known types and styles of hand mauls on the southern Northwest Coast (Ames 1999). Associated with the collection of hand mauls is an interesting array of celt blades (Figure 6). These implements also range in production stage, size and function, and include stone D-adzes, elbow adzes, and celts.

## Fishing

Nine net weights and two anchor stones represent ocean and river fishing

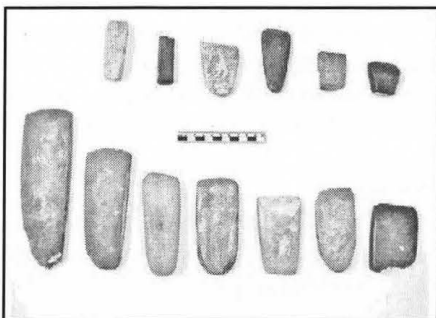


Figure 6. Collection of celts at the SCMA.



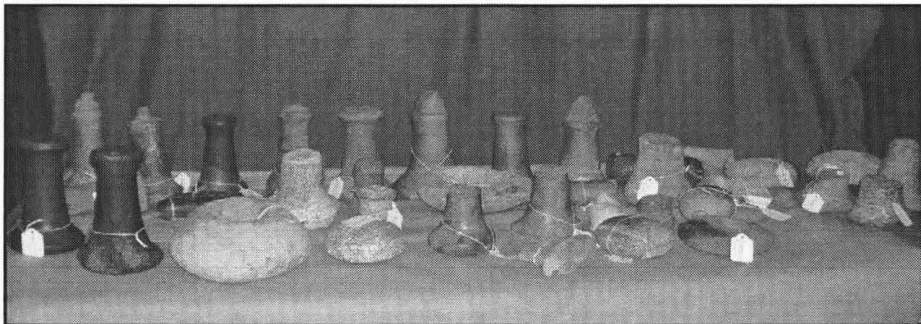


Figure 7. Collection of hand mauls at the SCMA.

technology for archaeological sites along the shorelines of Gibsons, Langdale, and the Sunshine Coast (Ames 1999; ARCAS 1999). Together with projectile points, flake tools, and the marine context, net weights indicate that a wide range of marine species were harvested in antiquity along the Sunshine Coast (Bouchard and Kennedy 1986).

### Warfare/Defense

A single chipped and ground stone club is in the SCMA collection (Figure 8). Similar materials found along the Northwest Coast date to the past 3,000 years (Ames 1999; ARCAS 1999). In conjunction with the variety of projectile points in the collection, it is safe to say that the ancient Squamish Nation residences of the Sunshine Coast had warriors who both conducted raids on other groups and protected their own home villages (Bouchard and Kennedy 1986).

### Ceremonial Items

Two pecked and ground stone bowls are in the collection of the SCMA and attributed to medicinal use. Both bowls lack distinctive features carved, pecked, or ground into them, leaving little room for further analysis. Two strings of dentalium shells are in the SCMA collection. Ethnographic and archaeological analysis of the distribution and contexts of dentalia illustrate that these shells represent economic value. Unique to the collection at the SCMA is an anthropogenic stone mask. Stylistically, the features of this mask resemble Northwest Coast art tradition, but additional research is needed to clarify its potential role and representation (Figure 9).

### Other Artifacts

Eight other artifacts examined in the SCMA collection represent additional technologies including hammer stones, flakes and debitage, and scraping flake tools. While informative on what is found in local archaeological sites, all that can be determined from these implements is that a range of resource processing was conducted along the shoreline and in ancestral Squamish Nation villages of the Sunshine Coast (Ames 1999; ARCAS 1999).

### Discussion

The temporally diagnostic artifacts in the SCMA collection represent the currently-known time range of archaeological sites of the Northwest Coast (Ames 1999; Carlson and Magne 2008). Yet, the early period is only represented by small projectile points and the remaining collection includes implements common to both the Middle and Late periods. The range of implements,

materials, and functions of artifacts found in the SCMA collection represent different site types, from villages to seasonal camps (wood-working, fishing, hunting, resource processing tools) and temporary camps (warrior implements, flakes, and debitage).

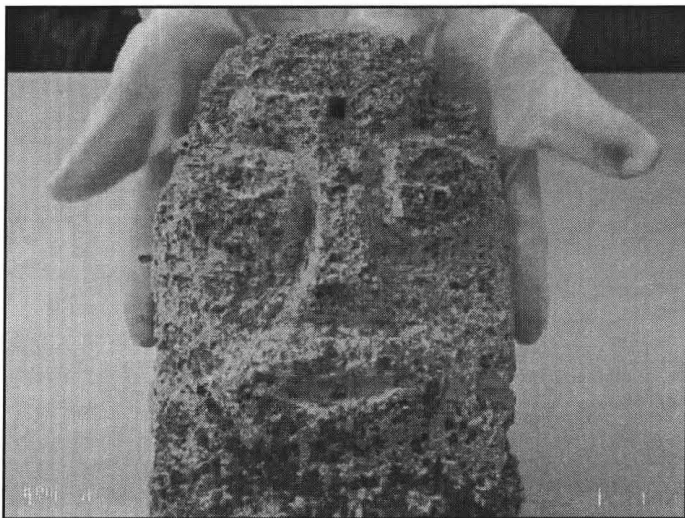
A wide range of lithic raw materials exists in the SCMA collection. The most common material, often visually defined as basalt, is actually Watts Point dacite, a material locally available in Howe Sound close

to the modern town of Squamish (Bye *et al.* 2000). Also found in the collection is another locally available lithic material, Anvil Island andesite. Ubiquitous lithic materials of slate, sandstone, and quartzite of the southern Northwest Coast are also present in the SCMA collection (Ames 1999). Lithic materials not available locally include a variety of different coloured cherts that resemble materials found in the northern Cascade mountain range, often termed Hozomeen Chert and Albany chert. Nephrite is also present in the SCMA collection and known to originate from sources along the Fraser River canyon and the interior Plateau. Rudy Reimer at SFU will do future non-destructive X-ray fluorescence (XRF) analysis of these materials.

Examination of the SCMA catalogue allowed our analysis



Figure 8 (above). Stone club (top center) at the SCMA.  
Figure 9 (below). Stone mask carving at the SCMA.



to tie the majority of artifacts in the collection back to known recorded archaeological sites along the Sunshine Coast and the southern Northwest Coast (ARCAS 1999). Local archaeological sites well represented in the collection include DiRu-15, DiRu-16 and DiRu-19 (Figure 10). All three of these archaeological sites are highly important villages of the Squamish Nation. Of these, two are named *Ch'kw'elhp* and *Schen'k*, also known as Squamish Nation Indian Reserves numbers 26 and 26A. These places are culturally important origin sites where the Squamish people have lived for a very long time. The collection of artifacts at the SCMA correlates well with the long-term history (over 10,000 years!) of the Squamish Nation in this region of their territory. Other artifacts in the SCMA collection were determined to originate from other archaeological sites in Sechelt territory to the north and Stó:lō territory along the Fraser River.

## Conclusion

In conjunction with the Squamish Nation and the SCMA, the ASBC has once again begun to fulfill our mandate in playing a role in the cultural and heritage landscape (Figure 11). Over the two days of our work at the SCMA, over 50 visitors witnessed our work. Visitors came from the local community, other areas of the Sunshine Coast, Vancouver, and the Lower Mainland, and as far as Europe. During their visits, ASBC members involved in the work at the SCMA interacted with the public, answering questions about archaeology, sites, and artifacts. This opportunity allowed us to inform people about the importance of reporting

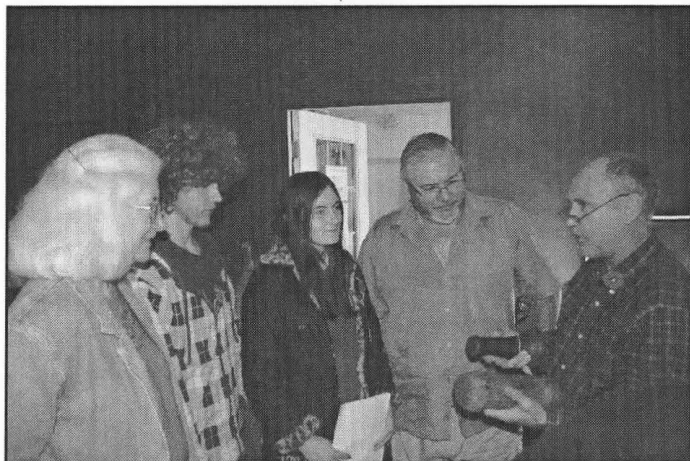


Figure 11. Jim Pound talks with travellers from Europe at the SCMA.

archaeological finds and their role in cultural and heritage stewardship, as well as the roles that First Nations, the Archaeology Branch, and the ASBC play in this process. Several individuals found their experience enlightening and enjoyable and expressed interest in informing others about the ASBC and the importance of archaeology (Figure 12). In the future, the ASBC Executive hopes to replicate this process at other community museums so that this recognition can take place in other contexts.

Furthermore, we hope that this will change the perspective of the role of collections in community museums. Initial examination of collections such as those at the SCMA would probably make many archaeologists wary of their interpretive value, having little spatial or temporal context. The ASBC assessment of this collection challenged the common conception that small, dusty



Figure 10. Location of archaeological sites and lithic sources mentioned in text.

community collections have little archaeological value. The time, expertise, and knowledge that the ASBC members contributed to examining this seemingly unimportant collection directs us to continue playing a role for museums, communities, the public, First Nations, and archaeologists, in order to provide a decent-sized window to peer into the past.

## ACKNOWLEDGMENTS

We would like to thank the Squamish Nation Chief and Council (Julie Baker and Deborah Baker) for providing funds for the ASBC to do the necessary work to complete this task. We would also like to thank the Squamish Nation elders and community for sharing their interest in this project. Thanks also go to the ASBC members who took part in this work; your time and efforts are well worth it! We cannot forget the board of directors and staff at the Sunshine Coast Museum and Archives for playing their important role in this process. All photographs were taken by the author and Sarah Smith, used with permission.

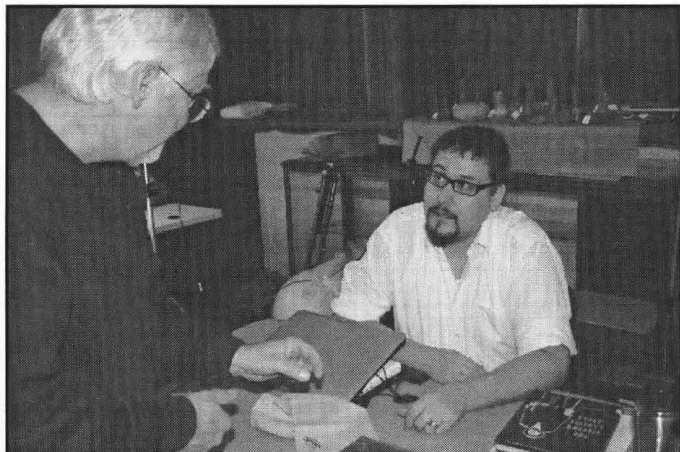
**Rudy Reimer/Yumks is faculty in First Nations Studies and Archaeology at Simon Fraser University, and is President of the ASBC. His almost 20 years of experience looks at the Indigenous perspective of the landscape and archaeological correlates.**

**Robyn Ewing is a recent MA graduate in Archaeology from Simon Fraser University. Her research interests include negotiated repatriation and intercultural collections management practices.**

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Figure 12 (right). Rudy Reimer talks with members of the public at SCMA.

## Klahowya Village: Heritage and Aboriginal Tourism in Stanley Park

Marina J. La Salle

*Come enjoy Vancouver's premier family-friendly Aboriginal tourism experience! See and experience the rich, vibrant Aboriginal culture through song, dance, art and cuisine! Ride the Spirit Catcher Train - Enjoy live cultural performances daily - Listen to Aboriginal stories & legends at the Story Telling Circle (teepee tent) - Browse artisan kiosks to purchase authentic Aboriginal arts & crafts - Taste amazing Aboriginal cuisine from authentic food vendors - Try your hand at making some Aboriginal crafts...and much more! (Metro Vancouver 2010)*

In August 2010, after coming across the above advertisement on the Vancouver Board of Parks and Recreation website, I made the trek across town to visit 'Klahowya Village'—an Aboriginal village featured as a summer exhibit in Stanley Park. Klahowya is Chinook jargon for 'welcome,' and this is certainly the message that is conveyed throughout the project. Co-sponsored by Vancouver Parks and the non-profit, membership-based organization, Aboriginal Tourism Association of B.C. (AtBC), Klahowya was marketed as "an authentic Aboriginal tourism experience" involving live cultural performances and dancing, on-site work by artisans such as weavers and wood carvers, a storytelling circle, and the chance to speak with Elders (Figure 1). AtBC's mission statement is "to contribute to the preservation of Aboriginal culture and advancement of economic development through support, facilitation and promotion of the growth and sustainability of a quality and culturally rich Aboriginal tourism industry in British Columbia" (AtBC 2010). In other words, it's all about cultural tourism, a project designed to ride the wave of successful marketing seen at the 2010 Olympics, says Keith Henry, AtBC's CEO (pers.comm. 8 November 2010).

My interest, however, was to see how this contemporary 'Indigenous village' exhibit connected with the rich history, heritage, and archaeology in Stanley Park—history that First Nations and archaeologists have long been aware of, but that

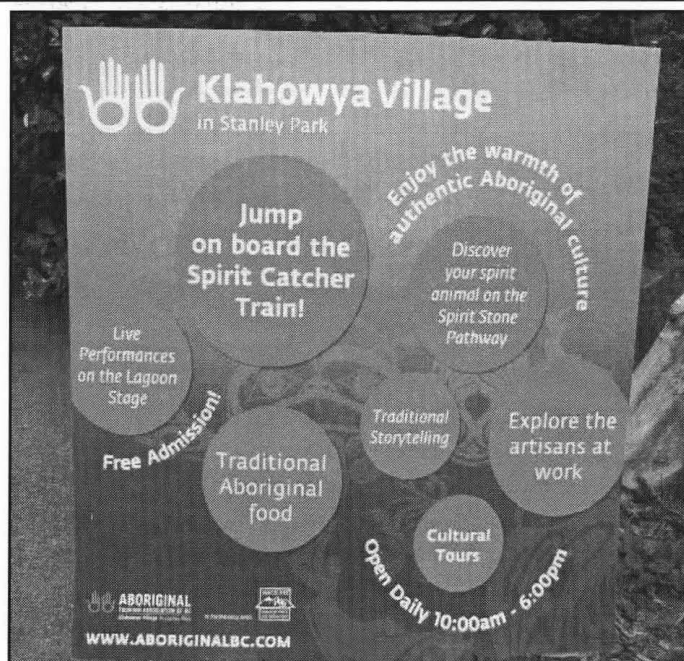


Figure 1. Advertising billboard at Klahowya Village in August 2010.

was more recently publicized in *The Vancouver Sun* following the storm-induced damage to sites in the park (Shore 2007a, 2007b, 2007c). The ASBC, particularly Past-President Eric McLay, played a key role in promoting public awareness of the archaeological heritage of Stanley Park

Klahowya is definitely a theme-park village. While the three local First Nations—Tsleil-Waututh, Musqueam, and Squamish—were most closely involved in the design of the project and the art work (produced by local Aboriginal artists affiliated with AtBC), the Aboriginal village presents an amalgamation of British Columbia First Nations' cultures into 'pan-Indigenous' traditions, flattened of all cultural diversity. Cultural features common to most Nations are synthesized to present simplified representations that emphasize a cultural connection to 'nature,' such as the



importance of raven, coyote, and bear in traditional stories (as well as on televisions broadcast throughout the village), and the role of cedar and salmon in traditional lifeways and practices. Other iconic regional representations were also included in the form of a teepee, a painted North Coast style house-front which served as the dance stage (Figure 5), and, most creatively, the SpiritCatcher Train, “a 13 minute journey into the forest of Stanley Park and the Aboriginal history and culture of British Columbia” (AtBC 2010; Figures 2 and 3).

Indeed, given that Stanley Park is one of the most contentious territories in First Nations’ British Columbia—Musqueam, Squamish, and Tsleil-Waututh all assert it as an ancestral site—it is no wonder that specific cultural references at Klahowya are absent. This was partly intentional, said Keith Henry in a telephone interview last Fall, and a diplomatic move to avoid any potential conflict as over twenty-five First Nations are represented in Klahowya. This is why the name ‘Klahowya’ was chosen for the village in the first place, symbolic as a trading language for intercultural connections and communication—a realm owned by no one people.

Perhaps for the same reasons, there are no references in Klahowya to the more ancient Indigenous heritage of Stanley Park. With only six weeks to get Klahowya up and running following its approval by Stanley Park authorities in mid-May 2010, Keith said that this ‘oversight’ in acknowledging the park’s long Aboriginal presence is in part simply due to not having enough time to engage with this history. AtBC has since been in discussion with the local First Nations to consider how to present this history in a mutually respectful and sensitive way. At present, the only landmark in Stanley Park to acknowledge its Aboriginal connections is a placard by Lumberman’s Arch, noting its Coast Salish name as *Xwáy̓xway* (pronounced whoi-who) meaning “Place of the Mask.” The 2010 suggestion of a formal name change to reflect the park’s Indigenous history failed to persuade (Crawford 2010); meanwhile, every car on its way to the park drives over the shell midden remains of displaced village and cemetery sites, bulldozed to create the platform connecting the city to the park.

The pan-Indigenous representation of Klahowya, however, was perhaps *too* successful in down-playing *specific* cultural traditions in favour of simplified and iconic representations of shared

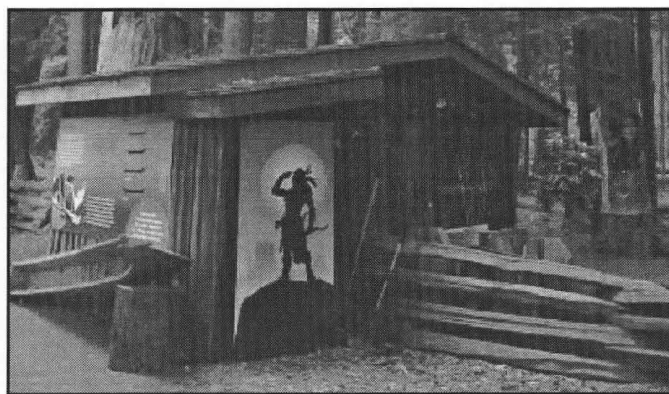


Figure 3 (above). Iconic imagery at the canoe carving shed, with the SpiritCatcher Train route in the background.

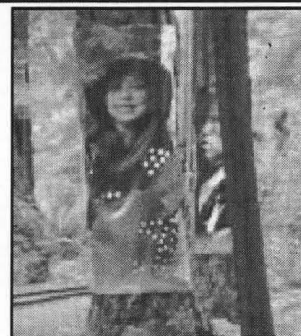


Figure 4 (right). Posters of unknown First Nation individuals displayed on trees throughout the SpiritCatcher Train route.

values. For example, in the woods while on the SpiritCatcher Train, visitors encounter large panels with photographs depicting ‘Elders’ in traditional cultural garb (Figure 4); yet there is no reference to who these people are, where they are from, or what the meaning is behind this. This left me feeling that there *was* no meaning, and instead, by presenting generic ‘Indians’ in this decontextualized manner, the panels became a form of appropriation, just another way to brand and market the village as an “*authentic* Aboriginal experience.”

Few may know that this is not the first time that Stanley Park has been the site of a recreated ‘Indian Village.’ As Jean Barman describes in *Stanley Park’s Secret: The Forgotten Families of Whoi Whoi, Kanaka Ranch, and Brockton Point* (2005), Vancouver Parks set about recreating “a different kind of Aboriginal presence in the park at the very time it was struggling with the resident families” of Brockton Point, Kanaka Ranch, and the existing Indigenous residents of the park (172). After evicting these communities, “[t]he board gave its vigorous support to what was termed an ‘old-time Indian village’” (172), featuring ‘traditional’ themes and artifacts as if time had stood still. In this sense, there was an “imagined Aboriginality still being pursued in Stanley Park” where Indians “would be on display, much like the animals in the park’s zoo” (235).

In an email communication last Fall (12 October 2010), Jean recounted that this village was built for the summer of Vancouver’s 50th anniversary in 1936, and in fact a photograph in *Stanley Park’s Secrets* depicts August Jack Khatsahlano dancing with a ‘5 cents’ admission sign in the background. Reflecting on Klahowya, Jean recognized in this new manifestation a very old idea: “I was struck when I went to Klahowya Village in late summer by the similarities,” she said.

Yet, significant differences do exist between the village as envisioned then and Klahowya. To begin with, the 50th anniversary village depicted a long-time past of Indigenous groups, and emphasized the North Coast and totem poles rather than

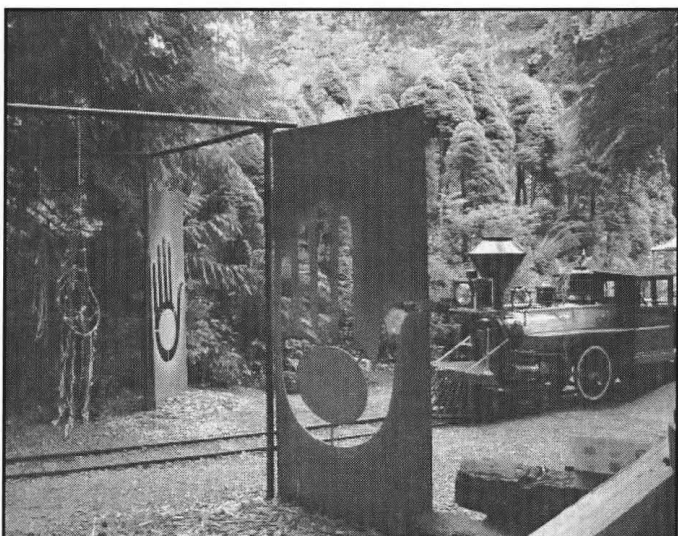


Figure 2. The ‘SpiritCatcher’ Train as it begins its journey.



Figure 5. The Kulus Dancers put on a show for a full crowd in front of the North Coast style housefront used as a dancing platform for daily events. (All photos by author)

local First Nations (173). It was also a Vancouver Parks Board initiative. Conversely, Klahowya as an AtBC project is an Aboriginal initiative—conceived of, organized, and performed by First Nations who are its primary beneficiaries—and local bands are especially involved throughout the process. “In recognition of the three Nations whose traditional territory includes Stanley Park,” AtBC held ‘Nation Days’ for Musqueam, Squamish, and Tsleil-Waututh, where for a three-day period each Nation hosted the village with their own performers, artists, and storytellers, “to share their culture and to tell the stories of their Nation’s historic and cultural connection to Stanley Park” (AtBC 2011). What visitors to Klahowya experience is therefore something at least a *bit* less artificial than 100 years ago, instead showcasing how traditional technologies and materials have been interwoven with contemporary cultural practices. In this way, Klahowya is complicated: while it may challenge some stereotypes, reducing First Nations’ cultures to simplified and generic themes and icons simultaneously propagates them—and the familiar ‘stoic Brave viewing the landscape’ image remains a prominent feature (Figure 3).

Thus while some may critique Klahowya for its blatant commodification and commercialization of culture (Mortenson and Nicholas 2010; see also Comaroff and Comaroff’s 2009 *Ethnicity, Inc.* for a discussion of this growing trend worldwide), it clearly differs from the ‘Indian Village’ in Stanley Park of 100 years ago in being a project organized ‘with, by,

and for’ First Nations. In this sense, Klahowya could be interpreted as following an ethic of Indigenous self-representation, self-determination, and ultimately sovereignty over the tangible and intangible expressions of culture—recognized as inherent rights in the 2007 United Nations Declaration on the Rights of Indigenous Peoples. While Canada did not ratify the UN Declaration until late in 2010, several heritage organizations in B.C. had already been operating in line with these principles for years before; perhaps unexpectedly, Klahowya may be one of them.

After its first season, Keith Henry feels that Klahowya was a success. AtBC’s target of 120,000 visitors over 67 days was exceeded by 42,000 people, and the 1000+ visitor surveys have been compiled to improve the 2011 Aboriginal village (AtBC Management Team 2010). Interestingly, although the village was marketed to ‘tourists,’ 67% of all visitors were ‘domestic’ and only 25% international; most people were local to the Lower Mainland. It will be interesting to see how this year’s Klahowya Village has changed from its initial unveiling, beyond the introduction of an admission fee. As an archaeologist, I personally am curious to see how Stanley Park’s ancient history and Aboriginal heritage is featured, or whether it is even mentioned, in this celebration of contemporary culture (and commerce). The Village is already open and will remain so until September 11, 2011—for more information, visit AtBC’s Klahowya Village website: <http://www.aboriginalbc.com/klahowya-village/>.

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# The Scowlitz Site Online: Launch of the Scowlitz Artifact Assemblage Project

Natasha Lyons, Andy Phillips, Dave Schaepe, Betty Charlie, Clifford Hall,  
Kate Hennessy, and John Welch\*



*\*This article was written in consultation with Michael Blake, Doug Brown, and Dana Lepofsky as part of a collaborative team effort. Their comments strengthened and clarified the presentation made here.*

Figure 1. The Scowlitz site is located on the flat, treed terrace seen across the Harrison River. Clifford Hall sits in the foreground (Photo by Doug Brown).

The Scowlitz archaeological site (DhRl-15 and 16, also known as *Qithyil*), which lies near the junction of the Harrison and Fraser Rivers, holds an important part of the Scowlitz First Nation's community history. Scowlitz community members, who have always known about this place, have begun to share their knowledge with archaeologists over the past couple of decades. The site and surrounding area was the focus of intensive archaeological excavations and survey between 1992 and 1999. These activities were hosted by Scowlitz First Nation, in partnership with Simon Fraser University, the University of British Columbia, and Stó:lō Nation archaeologists. This article describes the importance of the Scowlitz site and the archaeology of the region to the Scowlitz First Nation and broader Stó:lō community. It also describes a project that seeks to bring the artifacts from the

Scowlitz site back together for use by the community. The main goal of the 'Scowlitz Artifact Assemblage Project' is to re-unite the Scowlitz artifact collections on the Reciprocal Research Network (the 'RRN,' described below) which serves to link the artifacts—currently held at SFU, UBC, and the Stó:lō Research and Resource Management Centre (SRRMC)—to the community through a single website. Our project team includes Chief Andy Phillips, Betty Charlie, and Clifford Hall (Scowlitz First Nation), Dana Lepofsky and John Welch (Department of Archaeology, SFU), Natasha Lyons (Ursus Heritage Consulting), Kate Hennessy (School of Interactive Arts and Technology, SFU), Michael Blake (UBC Anthropology Department), Doug Brown (Brown & Oakes Archaeology), and Dave Schaepe (SRRMC).

Excavations at the Scowlitz site were initiated in 1992



by Stó:lō Grand Chief Clarence Pennier, who viewed the village remains and burial mounds as a record of the longstanding relationship between Scowlitz First Nation and the wider landscape. Chief Pennier had Gordon Mohs and Sonny McHalsie contact Michael Blake at UBC and, together with the Scowlitz First Nation, they planned the first collaborative archaeological field school at the site. More UBC field schools followed in 1993 and 1995; then, in 1997, Dana Lepofsky joined the project, bringing SFU field schools to the site and greatly expanding the scope of the project. The goals of these excavations were to learn more about the lives of the Scowlitz ancestors. Six seasons of fieldwork unearthed the remains of cedar plank houses that showed that people started living on this river terrace about 3000 years ago, and that their houses and households grew larger through time. Ancient plant remains showed that people stored large amounts of salal and elderberries for the winter and ate a broad range of other plant foods. A wide array of projectile points and abundant slate knives indicate a focus on hunting and fish processing. The site is also important because of the large collection of perishable materials, including basketry, that have been recovered along the shorelines. About 1500 years ago, people stopped living full-time at the site and started to use it as a cemetery, and later, a seasonal fish camp. The ancient village, earthen burial mounds and other cemetery markers, as well as the stories passed down over the generations, marked the ownership of this site and surrounding territory by the ancestors of the Scowlitz people and, more broadly, the Stó:lō community.

### Sharing the Story of Scowlitz History and Heritage

Our project team has been actively discussing the ways that the information learned from the Scowlitz excavations can be used by the community today. Scowlitz Chief Andy Phillips cites a number of broad goals for his community related to this project: conserving and protecting Scowlitz heritage, including the land and resource base; creating a shared place where the artifacts, sites, photographs, and other heritage resources can be listed, described, pictured, and shared; and connecting youth with their history in a real

cultural context.

Clifford Hall, a long-time participant in the archaeology at *Qithyil*, says that the history of Scowlitz lands—and the artifacts that help tell the story—need to be retold and shared so that the non-native history of the area does not become the naturalized version of events. Community members tell stories of outsiders disrespecting their cultural past through the desecration of burial mounds and other built features on the landscape. The archaeology, Clifford says, should be used to bring people together, not drive them apart. The knowledge derived from the excavations should be used to work against historical wrongs and towards common understandings. Having the collections accessible is key to this goal. Clifford notes: “This stuff doesn’t just belong to Scowlitz,

Valley. I would give my collection to them. The artifacts belong to all Stó:lō and to all people who look at them, for them to learn from. They ought to be shown not kept away.”

### Bringing the Artifacts and Knowledge Back Together

The Reciprocal Research Network (RRN) was developed by the Museum of Anthropology at the University of British Columbia, the Stó:lō Nation, and Stó:lō Tribal Council, in association with the Stó:lō Research & Resource Management Centre, the Musqueam Indian Band, and the U’Mista Cultural Society in Alert Bay. It is a web-based tool that now links seventeen museums in Canada, the United States, and the United Kingdom. It provides access to over 247,000 objects—



Figure 2. Betty Charlie and Clifford Hall share their artifact collection, 2011 (Photo by Doug Brown).

it belongs to Stó:lō... We should be unified [in our approach to Stó:lō history]. We used to share everything and trade with one another... We should work together.” Betty Charlie, who has also spent many years working on the excavation projects, adds: “I’ve been thinking a lot about the artifacts we collect, that they belong to the person who made them. They belong to the original maker, not the finder. You can feel them when you pick that artifact up. I’m hoping one of these years Stó:lō will put together a museum in the Fraser

many from Coast Salish and other Northwest Coast peoples. Local knowledge and histories can be added to the RRN. This tool provides a way of connecting communities and creates an outlet for the sharing of knowledge. The website is also designed to support collaborative research, with project members participating from a distance.

We are using the RRN to bring together and provide access to the Scowlitz collection, as a whole, for the Scowlitz community, other Stó:lō, and a wide-

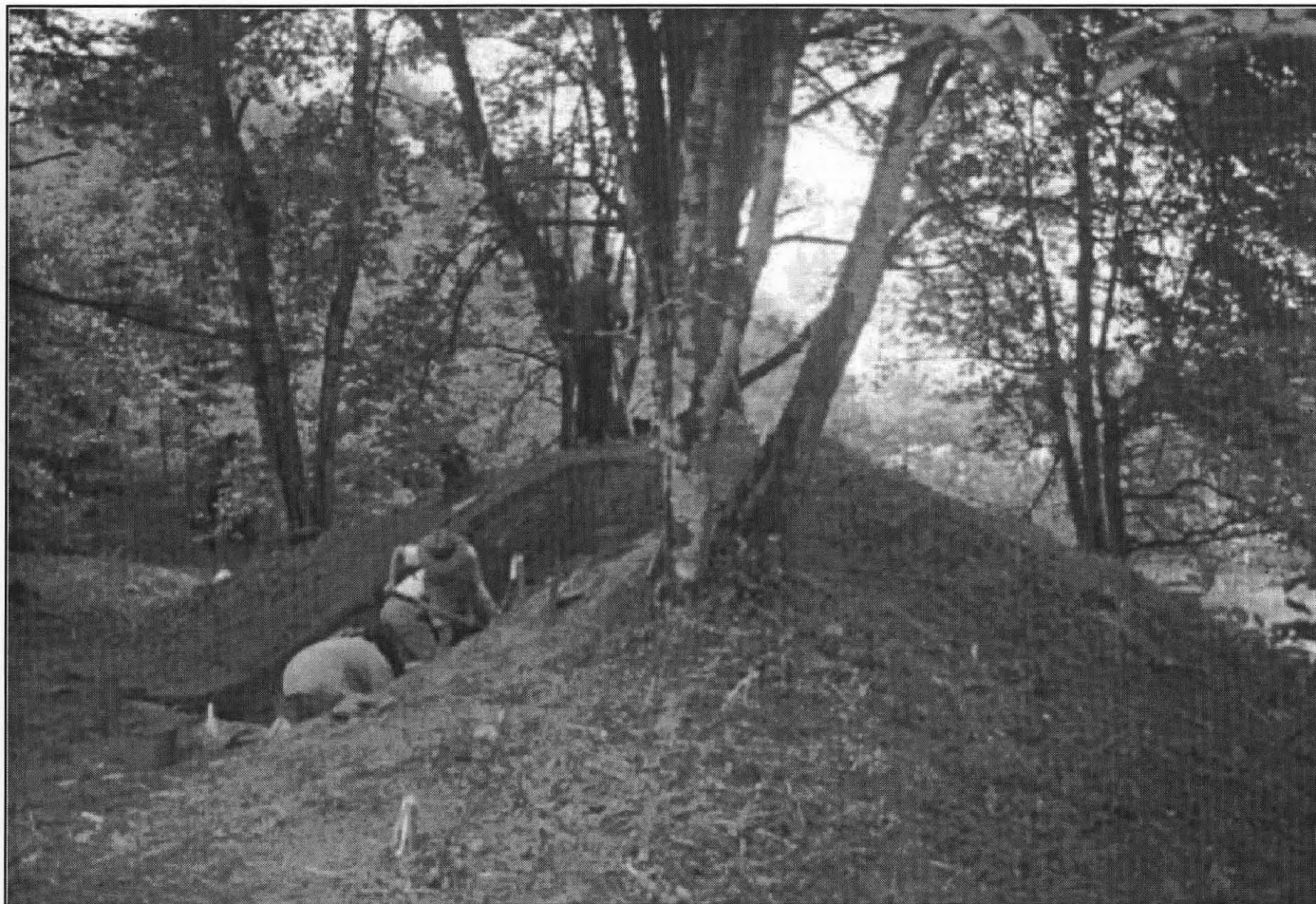


Figure 3. Excavations at Mound 1, the largest burial mound at the Scowlitz site, 1992 (Photo by Michael Blake).

spread group of community-based and academic researchers. Histories of the Scowlitz artifact collection can be added in the form of photographs, maps, and audio or video interviews. We are developing and carrying out this project in a 'project space' created within the RRN, one of over 900 projects established by over 1000 RRN members. Visit the RRN website: <http://www.rrncommunity.org>.

This project is aimed at addressing community needs. Community members emphasize the importance of making Scowlitz history accessible, particularly to their youth. Chief Andy Phillips, for instance, is interested in re-introducing "our traditional teachings, customs, and practices within the home, rather than from outside, including having Elders teach the customary protocols." Betty Charlie also recognizes the importance of Scowlitz youth knowing their history. She says: "I think this project is good for the younger generations at Scowlitz, and can help them understand where they came from. I think it might help them lead better lives

if they know where they came from; it will help them know where they're going. My grandkids always ask about [the archaeology]. One of my grandsons is a teenager and he was looking at the pictures from across the river [where the site is located], and he said he'd like to be an archaeologist and work there, study artifacts and find out what they were used for. He was so interested in knowing how they date artifacts and bone. He's really got it in his mind, and I think he could do it. We need to provide opportunities like that to our young people. I told him that many of the archaeology students started out here and now they have their own companies."

#### **Project Activities & Community Involvement**

Our project team has initiated a series of activities that will make Scowlitz artifact collections more accessible to the Scowlitz and archaeological communities. Our team is working on a master artifact catalogue for the site and on digitizing records of the excavations (artifact

information, site photos, site records, fieldnotes, etc.). This summer, we will begin interviewing Scowlitz Elders and interested community members about their knowledge and memories of the site, the archaeological excavations that were conducted there, and the broader history and heritage of Scowlitz First Nation. We will be photographing the personal artifacts of Scowlitz community members who would like to share their collections. All of these records and photographs will eventually be available on the Reciprocal Research Network. We are also interested in learning more about the history of research at Scowlitz based on the experiences of field school students and volunteers who were such an integral part of the excavations and recent history of this important site. For more information on the project, or for anyone interested in contributing their memories, experiences, or knowledge of working at the Scowlitz site, please contact Natasha Lyons at [natasha@ursus-heritage.ca](mailto:natasha@ursus-heritage.ca). We would love to hear from you!



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Natasha Lyons began her archaeology career by spending some of the best summers of her life at Scowlitz. She has a PhD from the University of Calgary in community-based practice, and owns a small heritage consulting firm with her partner, Ian Cameron, whom she also met at Scowlitz: <http://www.ursusheritage.ca>.

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Andy Phillips is Chief of the Scowlitz First Nation and Executive Director for the Stó:lō Tribal Council.

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Dave Schaepe is Director / Senior Archaeologist of the Stó:lō Research & Resource Management Centre. He has worked with the Stó:lō for 14 years and been involved in numerous community-university collaborations, including acting as a Steering Committee-member in the development of the Reciprocal Research Network. For more information: <http://www.srmcentre.com>.

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Betty Charlie and Clifford Hall are Scowlitz community members with a longstanding interest in the history and heritage of the Stó:lō. They have been a part of all the excavations at Scowlitz since 1992, helping to guide and instruct the many students and researchers who have worked at the site.

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Kate Hennessy is an Assistant Professor specializing in Media at Simon Fraser University's School of Interactive Arts and Technology. She researches how digital technologies can be used by communities to access their heritage in museum collections. Her website is: <http://hennessy.iat.sfu.ca>.

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John Welch is an Associate Professor, cross-appointed to the Departments of Archaeology and Resource and Environmental Management at Simon Fraser University. He has worked with the White Mountain Apache Tribe of Arizona for the past two decades, and is involved in many community-based heritage projects in B.C.

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# THE ENIGMA OF THE RUBY CREEK STONE FIGURE

Grant Keddie

The Ruby Creek Bowl is a carved stone, seated human figurine bowl with unique facial features. It has been assumed to be part of the early stone bowl complex of Southwestern B.C., as defined by Duff (1956). My observations and experiments indicate that this figure was carved with metal files and a chisel-like tool. However, the latter information does not necessarily establish that the bowl dates to the postcontact period.

This artifact, DiRj-Y:3 (old cat. No. 2996), was in the Royal B.C. Museum (acc. No. 1917-25) as part of the collection of "Rev. Charles C. Croucher. From the Yale District." The original typed catalogue has its location as "Yale," but under remarks it says: "Al Smith says Ruby Creek." It is not known who Al Smith was or under what authority he claimed the bowl was from Ruby Creek. Other artifacts in this collection are from Hope; North



Figure 1. Ruby Creek Bowl, front view.





Figure 2. Ruby Creek Bowl. Back View.

Bend; Yale; American Bar and "Fraser River." Ruby Creek flows into the Fraser River to the East of Harrison Lake near Hope.

The Provincial Museum Report for 1917 states that the collection was donated by "Mrs. Gertrude A. Croucher, Yale" in memory of her husband, "the late Rev. Charles Croucher." The collection of "158 specimens, was collected by Rev. Mr. Croucher many years ago." Charles Croucher died June 6, 1917 in Mission City, at the age of 74. One might guess that the bowl was collected before about 1880.

The Ruby Creek bowl has been presented in several publications. Harlan I. Smith shows a drawing of it (1923:56 & Pl.18, Figure 2), which was created from one of his photographs taken on July 31, 1915 when visiting the Crouchers. Smith was later given the Museum information, which is likely why he referred to the bowl as "From Ruby Creek on Fraser River."

Alice Ravenhill (1938:29 & Pl.4) has a photograph of the figure which gives the wrong location—"Carved sandstone dish from Lytton, B.C." In commenting on seated figure bowls in general, Ravenhill says: "These are stated according to tradition to have been used in the preparation of charms to attract salmon to nets and fish-hooks during the early part of a 'run'." It

is not known where Ravenhill was getting the latter information. Smith (1923:36) refers to some of the anthropomorphic bowls from the Lillooet area as being used "for ceremonial fumigation of the first spring salmon of the season," but Ravenhill does not reference Harlan Smith in any of her publications.

An image of the artifact was also published by Inverarity (1950:Pl.42) with the name of the collector miss-spelled as "Groucher."

Wilson Duff (1956:27; Figure 1) uses Ravenhill's image, which he refers to as being from Ruby Creek. He notes:

This figure gives the impression of being the work of a poor carver, which may account for some of the atypical features. Tool marks show plainly on many parts: marks of battering, hacking with a rough blade, and abrasion with a file-like tool (probably sandstone, as the parallel abrasions are uneven).

#### The Evidence of Iron File Use

The Ruby Creek bowl, made of a steatite or clorite-like material, has many sharp cuts that appear to have been done with an iron chisel-like object. But of most interest to me are the many parallel grooves, often numbering over 20 in a row, that could only have been made by an iron or steel file(s).

After consulting historical sources on files, such as Nicholson (1878), and observing in detail the size, location, and orientation of the cuts, I experimented on samples of steatite using various types of

iron files to see if I could match the patterns on the bowl.

The positioning of the file marks indicate that the carving was done by the movement of file(s) horizontally across their width and not in line with the vertical axis of the file. The parallel marks inside the area of the arms, for example, would necessitate horizontal scrapping as there is no room to use a file in a forward motion in the confines of the area. In some cases, the dipping of the parallel marks in and out of small depressed surface areas and the slight curving of parallel lines at the end of strokes would necessitate the use of a round file—also used horizontally. The patterning of the grooves ruled out the use of a rasp files and larger flat files.

There are two types of cut patterns that both show a series of parallel raised lines between cuts: (1) the raised lines are of varying widths but the width of each individual raised line does not vary along its length. This kind of a cut can be made with a flat single cut file when the rows are hand cut and not spaced as evenly as a machine cut file; (2) the raised lines as individual lines have irregular edges or varying width. These cuts can be made with either a flat double cut file with worn teeth corners or a round file with second cuts that are irregular or lines that are not parallel.

On this bowl, the width of the raised lines between cuts ranges from about .16mm to .27mm, with an average around .21mm. The width of the cuts themselves is generally less than the areas in between. A typical 10mm section contains about 19 raised lines.

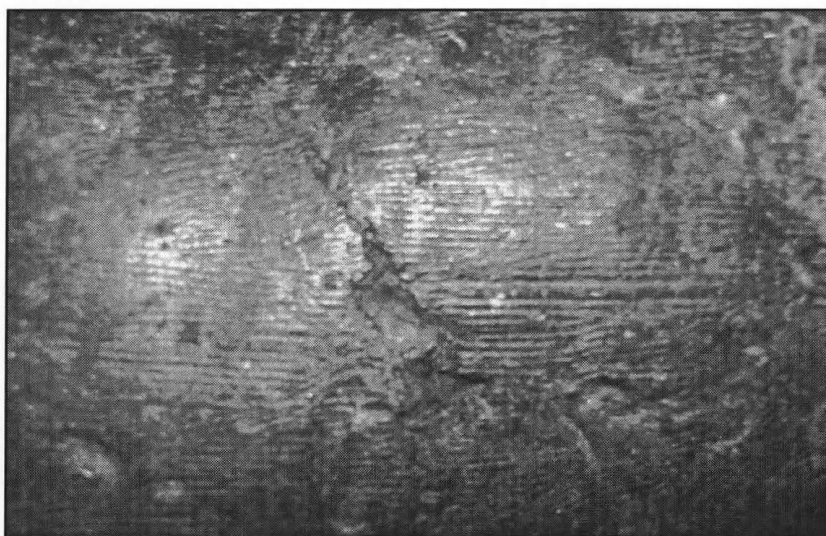


Figure 3. Numerous file marks on back.



Figure 4. File cut lines of varying widths.

In my experiments, the closest size and number of raised lines that was similar to the Ruby Creek Bowl were created on steatite with an eight-inch Black Diamond "AXE" model made in Canada (Figure 6). A typical 10mm section of cuts contained 18 raised lines averaging around .20mm thick. An eight-inch round file by Sanvik of Sweden (13/64-inch dia.) produced raised line widths around .23mm wide and had 21 raised areas per 10mm section of lines (Figure 7).

### Discussion

In recent permit reports, it is not uncommon to see general statements that mistakenly imply that these seated human figure bowls are all attributed to the Marpole period.

Duff illustrates the Ruby Creek Bowl in his *Stone Images B.C.* publication (1975:72&175), where he notes that at least three seated human figure bowls have been found at the Marpole site which dates "between 2500 and 1500 years ago," but he does not attribute all of these types of bowls—including this one—to that time period. Borden (1983:147-155), was also very careful to only include stone bowls with some underground context from the Marpole site as being from the Marpole period—which he then defined as being from 350 BC to 200 AD.

In a close examination of this figure, it is clear to me that this bowl was made with a chisel-like object and at least two different types of older hand cut iron

files. The uniformity of the patination on the artifact clearly also indicates that the file marks were made during the original making of the bowl and not afterward. The file rows are closest to the number of cuts found on eight-inch flat files with a medium degree of coarseness. Evidence suggests that a flat double cut file was used or a heavily worn single cut file, as well as a round file.

In some early European files where the teeth were cut with a chisel before the hardening was carried out, the cuts were perpendicular to the longitudinal axis of the file (Coghlan 1956:13-132)—as opposed to the later oblique angled ones. This type would also produce some of the irregular line patterns seen on this bowl. Asian files were not used in my experiments, but would be a valuable addition to this research.

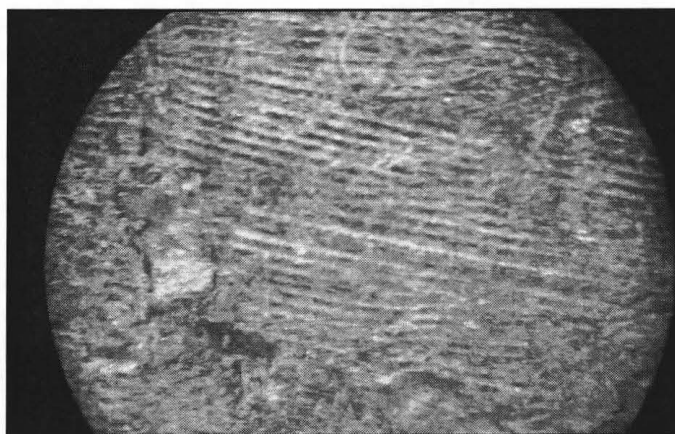


Figure 5. Small lines magnified 20X.

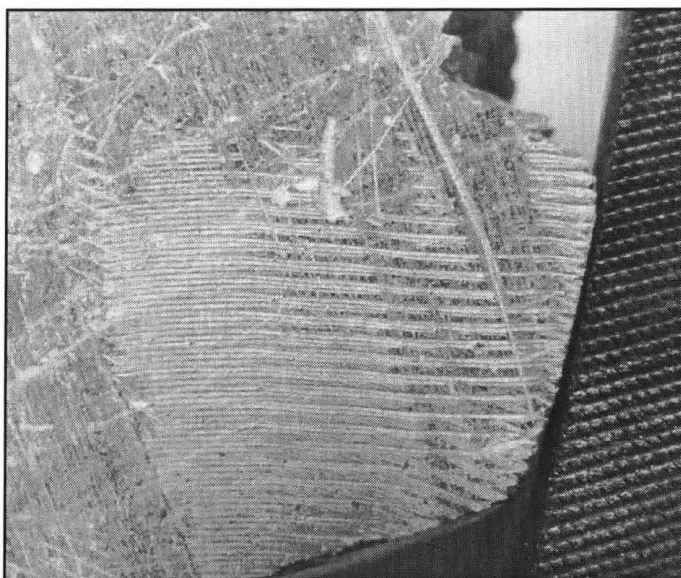


Figure 6. Variation of cut lines resulting from different pressure in using a double cut file on steatite.





Figure 7. Cuts from round file on Steatite.

### Conclusions

This bowl looks like an ancient one. Because it is carved with metal tools, we can not necessarily assume that it dates to the historic period. I think we are left with three competing hypotheses regarding its origins: (1) The bowl was made after the 1790s when iron tools were well distributed on the Coast (Keddie 2004) and before the mid 19th century when machine cut files were generally more available (Nicholson 1878); (2) The bowl dates to a pre-contact period and the First Nation who made it had access to iron files from shipwrecks or from long distance trade around the Pacific Rim; (3) The artifact was traded from far away or came from a shipwreck. The latter hypothesis could be answered by establishing the origin of the raw material from which it is made. Similar raw material does occur in the general area of the find but appropriate testing needs to be done. For the time being, this bowl will remain a bit of an enigma.

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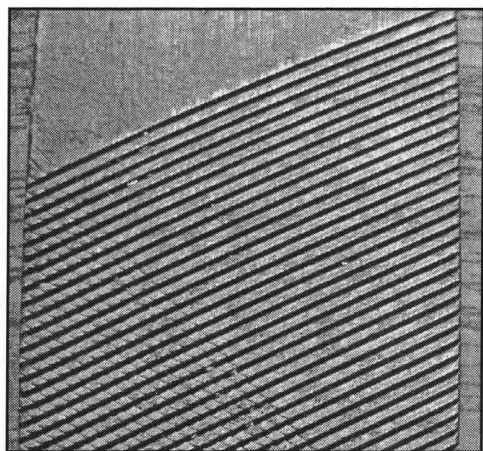


Figure 8. Example of single cut and double cut on a file.

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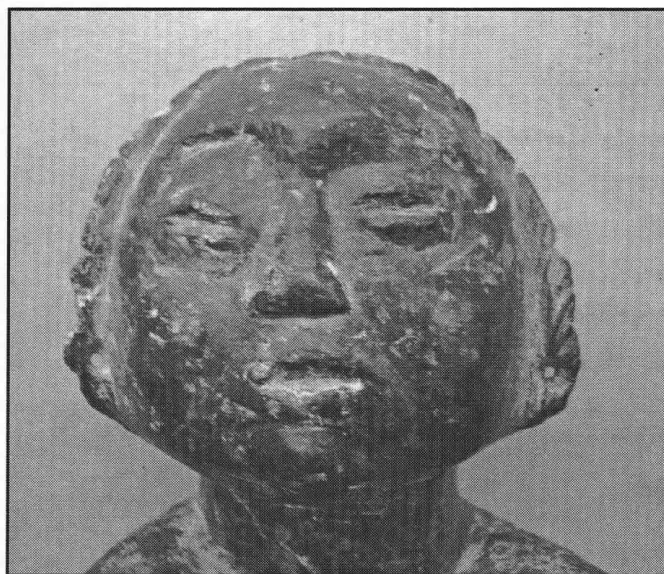


Figure 9. Head of Ruby Creek Figure (all photos by author).

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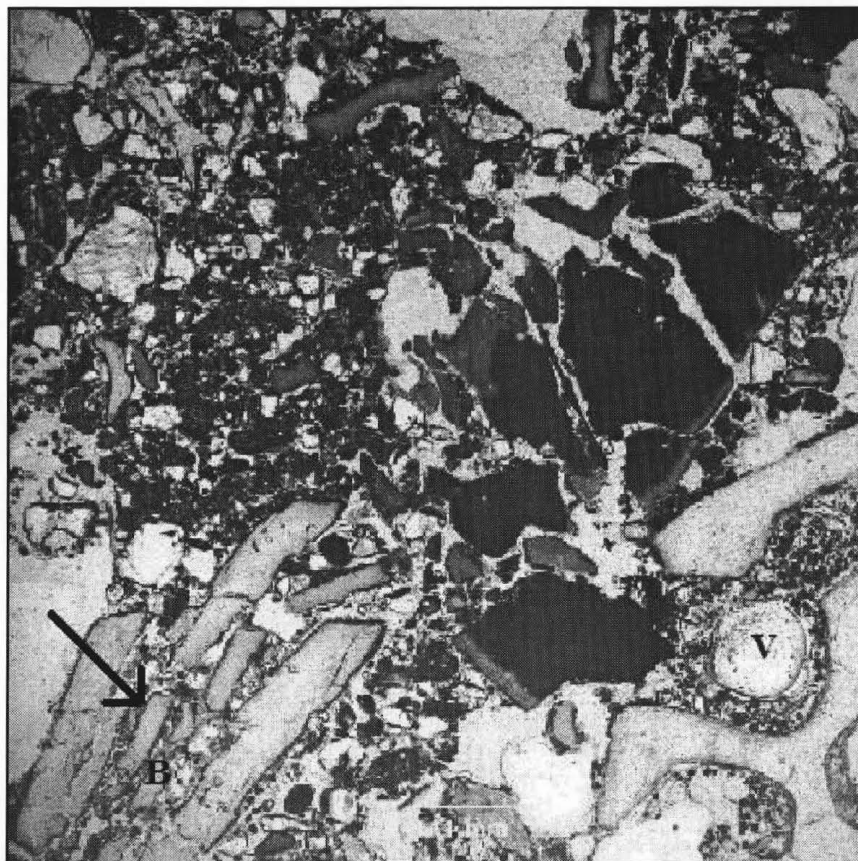
# Micromorphology: A 'How-To' Guide for Amateurs and Cheapskates

Aaron Racicot

*When I decided last summer to undertake a new project exploring an aspect of geo-archaeology that had always fascinated me, I didn't expect to produce anything other than an elaborate doorstep and several squarish holes....*

Those few who had actually heard of the method were similarly skeptical of my chances, but, in spite of this, by the following afternoon, I stood proudly before a twisted heap of 'tools.' Most had been quietly slipped from kitchen drawers: a bread knife; a long-armed spatula; a baking tin, long not wide; while others had to be liberated from the faded blue Smithrite at the end of the road. If anyone had asked me at that moment what kind of archaeology I was planning to do with everything splayed before me, I was ready to exclaim "Micromorphology!"

Despite the fact that micromorphology has a history in archaeology as old as many other analytical techniques that are now mainstays in the discipline, such as x-ray fluorescence and radiocarbon dating, here in North America it remains largely ignored due to its reputation for being "prohibitively expensive" (Sherwood and Ousley 1995) and difficult. This is not actually the case, and in an effort to illustrate that fact, I decided to extract, process, and analyse several samples with a meagre budget and no previous experience. It is my hope that by showing how accessible micromorphology can be, others will be



**Figure 1. "Scissor Fractures" (indicated by arrow) in bone (B) are likely the result of trampling. This slide also clearly shows artificial voids (V), which are commonly created when resin forms bubbles during embedding (Photo by Paul Goldberg).**

encouraged to get their hands on a petrographic microscope and try it themselves. Therefore the following is intended to be a 'how-to' guide for any budget-conscious individual, outlining the procedure from start to finish for deposits one would likely encounter in British Columbia, particularly those containing shell midden.

## **Step 1: Removing the Sample Block**

Where soils are richly humic, intact blocks are much easier to remove as they'll stick together. Unfortunately, shell midden deposits are the opposite—whole, broken, and even crushed shell form unique shapes which rarely fit together flush, and between each shell element is a void, which will weaken a sample's integrity. To overcome this and avoid displacement, increase the margins on either side of the 10cm sample to act as cushioning. However, a larger sample will require more resin, raising the cost, so an alternative is to use plaster bandages to wrap the

sample's exposed face, which should hold any loose material in place until embedding is possible.

Sampling begins by carving a gap around the margins of the block using a serrated knife (a Hori-Hori, or Japanese soil knife, works very well here; Figure 2). You will eventually use this space to surround the suspended block with packing material, so it should at least be wide enough for your fingers to easily fit inside. How deep you make the gap will determine the depth of your sample, and thus it should be decided relative to the sample's length in order to maintain strength.

Before proceeding, be sure to record the sample's provenience into the unit profile, as once you have begun wrapping the block, it becomes increasingly difficult to precisely measure depth below surface; and because you will be applying microscopy while identifying palimpsests, observations are measured to the millimetre. Next, start applying the many layers





**Figure 2 (above).** Carving a space around the block using a soil knife courtesy of Chris Springer (Photo by author).

**Figure 3 (above right).** Example of a sampled block just prior to removal. I decided to feature this section not only because it included several transitional contacts between layers, but also to determine if the mixed midden above the ash deposit was made up of more than one depositional event (Photo by author).

that will both hold the sample together, and prevent any material from moving during transport. Wrapping the block instead of placing it in a container saves money on supplies and affords more control over the sample's size and shape. Using the gap, begin wrapping toilet paper around the block's sides, keeping it as tight as possible without tearing the end. If the sample is very dry, lightly dampen the block with a spray bottle, or drape a separate piece of toilet paper over top since the paper's fibres are designed to stick to one another. The amount of paper needed is entirely dependent on the stability of the sample material; however try to use as little as possible since the entire sample block, packing and all, will be immersed in resin, and too much paper may result in an uneven embedding.

Wrap the block again, this time using clear packing tape. Avoid duct tape or others with coarse fabrics and heavy glues as they will only make cutting through the wrappings more difficult later. While wrapping the block's sides, use the tape to also fasten toilet paper to the remaining exposed front face (Figure 3). Next, use a marker and draw a small arrow directly on the sample, indicating which direction is up. I cannot stress enough how important it is to clearly orient your sample, since

as more of the block is shaved away to prepare for thin sectioning, it becomes increasingly difficult to identify each layer, eventually becoming impossible once the slides are mounted. The final step is to gently jiggle the suspended block loose from the wall and finish covering the remaining face. As an extra precaution, plastic wrap can be stretched around the sample, helping it maintain its shape while also allowing any directional labels and other notes to remain visible.

### **Step 2: Embedding the Sample**

Once back in the lab, samples must be prepped before any embedding is possible. Using an oven, dry the blocks with low heat for several days. Any moisture remaining in the sediment after the resin has been added will turn in to isolated, circular voids, which could be incorrectly interpreted as natural features. It can be difficult to determine if sample material is completely dry, so err on the side of caution and cook the blocks a few extra days. If time is an issue, gently prod the matrix: a fully dried sample should have its non-shell portions feeling firm, not spongy. The next step is to open some holes in the wrappings to allow the resin to enter. You will be primarily pouring over the top, so peel off anything covering the

main face, exposing it completely. In addition, cut several slits along the sample's sides to allow any excess resin that flows off the top panel to still be used. Pores in the sediment will draw the resin upwards into the matrix via diffusion, ensuring the block is fully impregnated.

Now that you are ready to start embedding, you have a choice. Any petrographics lab will offer to embed your samples for you. The fee they charge with materials usually ends up only costing 25% more than it would if you decide to do the work yourself, if you don't make any mistakes and waste material. If even one batch of mixed resin is botched, you will end up spending just as much as you would at a lab, and the sample to which it was applied would likely be ruined. Furthermore, some labs are very particular about what resin they will work with and may even refuse to do thin sections, or at least force you to pay for them to re-embed the samples. So, in sum, unless you feel extremely confident with the embedding procedure and your resin formula, and you know the lab you are working with is willing to process that formula, it is generally more cost-effective and safer to leave embedding to the professionals, who may also be able to provide some insights into improving your sampling strategy to

better coordinate with the lab's particular embedding technique. Unfortunately, few petrographics labs have worked with anything featuring shell middens, and there are a number of unique challenges involved in processing them. One such issue of particular concern is the midden's porous, unstable matrix.

As mentioned, shell in midden is rarely as compact as other geologic deposits. In order to compensate, the resin's viscosity must be just low enough to be capable of penetrating the sample's mass, but not so low as to inhibit drying, and thereby increase the risk of some particles being displaced in suspension. The mixture I found to be the most successful used a marble bonding resin as a base, then was thinned down using liquid styrene. To encourage air-drying, a chemical additive is available and should be used as any thinning will prolong drying time. The necessary amount of each ingredient can vary depending on the particular deposit, so much so that even the most accomplished researchers in the field liken the process to art, rather than science (Cady et al. 1986). While this provides increased control, it makes experimentation very unpredictable and eventually expensive. The formula included in Table 1 is suitable for many soil types and should ideally save you some time and money.

It should take three to five days for the resin to set, at which point the block should be completely solid. If any part still feels soft, it may be possible to re-embed the whole sample by slicing a few centimetres off the top and repeating the procedure. In order to select which areas specifically to thin section, you will need to cut the blocks in to longitudinal slabs,

and unless you have ready access to a wet rock/tile saw, it is also more economical to leave this to the petrographics lab. Once this is done, try to scan the slabs in to a computer, ideally using at least 1200 dpi. These scans will be the only high-res reference of the intact sample, since the blocks will be cut up during thin-sectioning. You can use the scans, or simply a hand lens to select which areas you would like to be mounted as slides. Of course what you choose to feature will depend on your particular research; however it is usually a good idea to include the contacts between deposits as it can sometimes reveal whether the layer was exposed and subjected to any degree of trampling. Finished thin sections should be polished, which you can do using fine grained sand paper, or the lab can include it for a small fee. With the polished thin sections in hand, you are now ready to begin analysis.

#### Step 4: Micromorphological Analysis

Much of the alleged exorbitant costs involved in micromorphological studies come from consultants hired out to perform analysis on the prepared thin sections. On average, you'll pay \$100 to \$200 per slide, as well as an additional several hundred for the researcher to become familiarized with the site area. What the consultant brings to the table is his/her background in geosciences, describing mineralogy and soil structure, leading to inferences on paleoclimate, and the effects of past vegetation as well as past and present land use. While these observations are a major asset micromorphology provides, there are countless additional things you can glean from your slides even with a rudimentary understanding,

thereby avoiding the extra costs. Many of the observations you can do rely on the deposit's physical characteristics, or microfabric (Brewer 1976). For example, if some layers appear more compacted than others, or contain wood or bone fragments with scissor fractures (Figure 1) then they may have been exposed for a length of time, and potentially trampled by the site's occupants. By increasing the resolution of your observations, you can detect subtle differences between the microfabrics of adjacent deposits which may have been impossible to distinguish in the field. This is particularly effective with shell middens, which often appear as continuous homogeneous units. When basketloads of shell are deposited, particularly with whole shells, it often results in a series of interconnected lamina. Any abrupt changes in the orientation or interconnectivity of shells making up the thin layers likely occurred after deposition, and if they exhibit visible patterns, these can be interpreted as the occupants using the midden for something other than a refuse dump, such as terrace construction. Researchers in South America have taken this strategy so far as to differentiate between components of a structure composed of shell midden, and record how the components were assembled and repaired (Balbo et al. 2010).

If this still seems too difficult, the high magnification can also aid in botanical and faunal identification. When wood charcoal is intersected along the correct planes, soft and hardwood varieties can easily be distinguished from each other, and genus level identification may even be possible. Highly fragmented and/or microscopic remains of fish and molluscs can be differentiated from other mineral inclusions based on their orangey-yellow colour when viewed under plane polarized light, and occasionally these too may be distinguished based on their unique structures. Whatever the approach, it should be clear that there are many ways in which micromorphology can aid archaeologists, and that its interpretive potential is not limited by a researcher's lack of training.

#### Conclusion

The procedure described above is only part of an arsenal of possible strategies available (Goldberg & Macphail 2003), each designed to accommodate

Embedding Formula	Price*
3.7L Polyester Resin FT-152 (1 gallon can)	\$61.30
1L Styrene	\$9.75
100 ml air dry additive **	\$7.90 (250ml)
25 ml catalyst BPO Paste (Benzoyl Peroxide)***	\$4.15 (4oz=118ml)
5 ml DMA (Dimethylaniline)	\$4.45 (55ml)
* Prices gathered from Fibre-Tek, Burnaby B.C.	
** Quantities can differ depending on desired drying times	
*** Always allow 1/2 hour for resin to sit before adding catalyst	

Table 1: Embedding formula used, showing prices and some caveats



soil conditions and logistical constraints faced in the field. Experimenting with several sampling methods is a key way to ensure you walk away with an intact block. While this may seem prohibitively expensive, most approaches use tools which can be found in dollar stores or salvaged from the local dump (think of it as urban archaeology). The reality is that micromorphology is not expensive, nor is it difficult to produce meaningful results regardless of your skillset. Unfortunately, most instruction is only accessible via other specialists with experience removing, processing and analysing the samples, which has rendered archaeological micromorphology a sort of trade-secret, and one obviously vulnerable to unfair speculation. It is my hope that along with other guides like this one, we may begin debunking the myths that surround this valuable heuristic tool.

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Aaron is a recent graduate from Simon Fraser University's Department of Archaeology, who claims "the only thing he enjoys more than looking at shell middens is looking at them under a petrographic microscope."

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## BOOK REVIEW:

### *Mining Archaeology in the American West: A View from the Silver State*

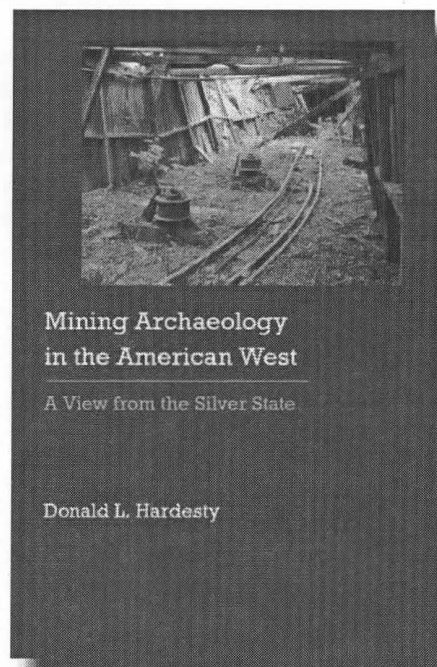
Donald L. Hardesty. University of Nebraska Press and the Society for Historical Archaeology, Lincoln, Nebraska. xvii+220 pp., 108 illus., 19 tables, 10 figures, bibliog., index. ISBN: 978-0-8032-2440-7 (hardcover). \$45.00. 2010.

*Donald Hardesty*, a professor of anthropology at University of Nevada, Reno and author of *Ecological Anthropology* and *The Archaeology of the Donner Party*, has been conducting historical archaeology in the Great Basin since the 1970s and exploring the archaeology of Nevada's mining frontier at sites such as the Comstock Lode, the Cortez Mining District, and Virginia City since 1980. In *Mining Archaeology in the American West*, an updated edition of his 1988 SHA Special Publication *The Archaeology of Mining and Miners: A View from the Silver State*, he draws from archaeological and documentary sources to make sense of the technological and social processes of mining and creates a co-evolutionary model of adaptive change for the region.

*Mining Archaeology in the American West* is divided into four chapters. In the first, Hardesty outlines the historical and archaeological lines of evidence used to study mining sites, then applies in the second and third chapters these sources to the examination of their technology

and social structure. In the final chapter, he applies ecological anthropology and evolutionary theory to the information previously presented to create his co-evolutionary model.

Hardesty begins by reviewing the various resources that can be utilized to learn about Nevada's mining past in order to illustrate the utility of historical archaeology's multifaceted approach. Historical documentation for the region exists through photographs, maps, company and government records, newspaper and professional journal articles, and personal journals. Information is also contained in mining landscapes, which are described as "the material expressions of the history of human-environmental interactions" (8). Mining architecture, including the buildings, structures, and objects used for resource extraction, transportation, power, and communication systems necessary for mining operations, provides an additional line of evidence. Finally, archaeology supplies another means for studying the past. Hardesty devotes several pages to



describing how mining sites look in the archaeological record, how archaeological features fit into larger feature systems, and how mining sites are located. For anyone beginning mining site-related research, this chapter provides an excellent list of potential sources of information.

In the next section, Hardesty divides his discussion of the technology associated with mining to examine the steps in the processes of extraction, beneficiation, and refining separately. Each of these steps is considered a technological subsystem within the sociotechnical system

of mining. For each, he describes what techniques and equipment are used, how it changes over time, and what typically remains in the archaeological record. Mining sites often contain the remains of several types of the same technology, representing the discarding of older methods in favour of newer ones. In order to make sense of the archaeology of a mining site, he recommends first identifying the technological subsystems present. I found the extensive use of photographs in this book especially helpful in this chapter, where they are used to clarify his detailed explanations of equipment and machinery.

In the third chapter, Hardesty details the social structure, layout, and demography of mining towns and camps. He uses the Cortez and Bullfrog Mining Districts to illustrate how mining settlements are linked together through district-wide sociotechnical systems. The archaeology of two towns within these districts, Shoshone Wells in the Cortez and Gold Bar in the Bullfrog, are discussed in detail. Settlement patterns, construction types, and household make-up are all examined. The relationship between occupation length, assemblage size, and the various types of living arrangements among miners is considered.

The section on social structure is concluded with a discussion of the place of Nevada's mining communities within world systems, and it is interesting to see how mining sites fit in at different levels with the world around them. Mining islands, the locations where a mine grew up around an ore deposit, were part of a larger structure of economic, social, and transportation systems that tied them into one another and into global networks. Supply networks linked mining islands to both the East and West coasts of the United States. Population records indicate the multiethnic nature of mining communities, demonstrating that Nevada's miners were part of a larger population network. Finally, the telegraph linked mining islands into larger information networks that conveyed everything from knowledge of new mining techniques to Victorian cultural values.

Each chapter in this book includes an introduction to the topic of discussion that lays out the author's key points, but no summary is provided at its end. While I hardly noticed this when reading the previous two chapters, I would have found

it useful at the end of this section. After completing it, I found myself referring back to the introduction so that I could relate the information back to the opening discussion of settlement-systems.

In the final chapter, Hardesty incorporates ecological and evolutionary theory into an explanation of the processes of variability and change seen in mining frontiers. He presents Nevada's mining frontier as an ecological theatre characterized by its network of mining islands and its boom-bust cycles. Mining is viewed as an adaptive process, and, drawing from Patrick Kirch's model of cultural adaptation on islands, Hardesty identifies two types of coping strategies employed by miners and uses them to explain variability in mining sites. Opportunistic strategies are those that are employed to exploit resources and move into new ecological niches. These strategies tend to result in reduced behavioural variability because the participants will choose to adopt the most efficient strategy. Resiliency strategies are those that ensure survival in an unpredictable environment. These strategies tend to result in increased behavioural variability as they may be dealt with by a number of creative solutions. Hardesty describes examples from the Comstock Lode to illustrate each type of strategy.

Hardesty closes his final chapter with a discussion of ecological and evolutionary theory that is used to create a co-evolutionary model of adaptive change for Nevada mining communities. While a short discussion of the applicability of ecological theory to mining sites is provided, I found the explanation behind some of the reasoning dissatisfying in its brevity. A high degree of familiarity with the concepts would be beneficial when reading this section.

Hardesty's co-evolutionary model is built to incorporate the individual into our understanding of sociocultural change. According to his model, the individuals who most successfully adapted to their particular ecological theatre were able to reproduce the adaptive behaviour that ensured their success and continued to do so as long as their circumstances remained the same, creating a feedback loop in which individual behaviour both created and was a product of those adaptations. Evolutionary change in Nevada mining society in the nineteenth century was

catalyzed by events including the invention of new technology, the discovery of new ore deposits, price changes in the precious metals market, and the spread of ideologies such as Victorianism. Such events resulted in new ideologies, which in turn created new ecological theatres, resulting in the need for new adaptations.

Hardesty demonstrates his model by applying it to the Comstock Lode. In the 1850s, the Comstock was dominated by individuals or small groups working placer mines. The way of life created an ecological structure described by Hardesty as a "prospector structure," characterized by low capitalization, non-industrial technology, low mine yield, and relatively isolation of communities. In this structure, there was little difference between the fitness of individuals due to the relatively level playing field. The discovery of the Comstock Lode in 1859 created a new ecological structure, the "corporate structure," characterized by high capitalization, mining-specific industrial technology, high mine yields, a centralized structure, and the interrelation of communities to larger world networks of trade, transportation, and communication. This structure created an increasingly widening gap in fitness between those in charge and those under them. Thus the rules of society were dictated by those in control, perpetuating the social structure. By the 1880s, the main body of the deposit had been removed through mining, creating another new structure, this one focused on placer mining.

In *Mining Archaeology in the American West*, Hardesty presents a wide-ranging, detailed overview of the history and archaeology of mining in Nevada in a clear, straightforward way, and this volume would be of use to anyone wishing to better understand western American mining sites. He effectively demonstrates how archaeological and historical sources can dovetail to create a fuller picture of the past than either can provide alone. He provides a variety of examples to illustrate his points. In the book's conclusion, Hardesty is able to tie together the variety of sociocultural issues presented by the study of life within the mining frontier of Nevada with a model that elucidates the processes of change within mining social systems.



Michelle Lynch is a Master's candidate in Archaeology at Simon Fraser University. Her interests include historical archaeology, mining archaeology, the fur trade, and the early contact period on the Northwest Coast. Her thesis research examines the role of Western material culture in early contact situations between Indigenous peoples and European societies, and how that role changed in missionization situations, using collections from the Old Bella Bella-Fort McLoughlin site.

## BOOK REVIEW:

### *Macroevolution in Human Prehistory: Evolutionary Theory and Processual Archaeology*

Edited by Anna Marie Prentiss, Ian Kuijt, and James C. Chatters. Springer, New York. 324 pp. ISBN 978-1-4419-0681-6 (hard-cover). US \$159. 2009.

*Evolutionary theory* in archaeology has been a primary theoretical perspective used to understand cultural change in human societies through time by applying biological terminology and processes to archaeological questions. This comprehensive volume on macroevolutionary theory is a recent attempt to revitalize evolutionism in archaeology. The chapters highlight the interactions between macro- and micro scales of cultural evolution by addressing key topics mirrored in the structure of the book: contemporary problems and concerns in macroevolutionary theory, approaches in cultural change, and macroevolutionary processes. Macroevolutionary theory capitalizes on the ability of archaeology to follow culture change over large expanses of time by using artifacts as markers (phenotypes) of cultural change that represent underlying ideas and behaviors of a culture (memes). The study of these memes facilitates the observation of cultural evolution.

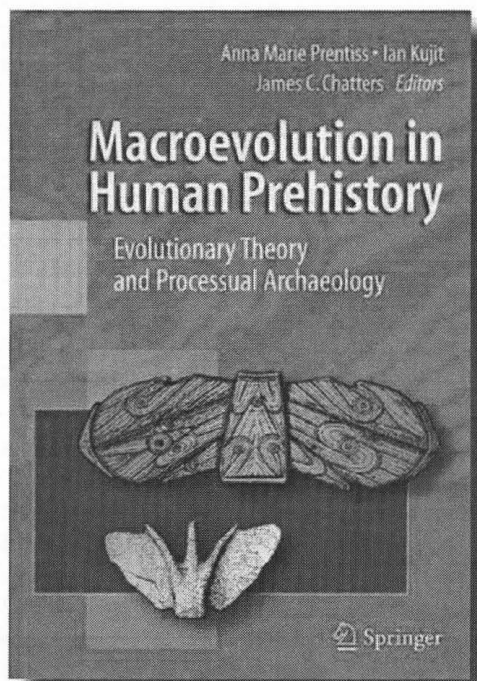
In the first section, "Issues in Macroevolutionary Theory," volume contributors introduce and discuss the substantial strides evolutionary theory has made towards explaining the evolution of social complexity in hierarchical communities. Traditional perspectives on social complexity explain it as an adaptation produced by selection for the most prominent functions performed within complex forms of organization. Michael Rosenberg argues in Chapter 1 that this view largely ignores the process of group selection. Group selection as perceived by macroevolutionists operates on the properties of the group as a whole. Macroevolutionary theory focuses on the group as integrated individuals who are at a higher level within the societal structure and therefore influence selection and affect the whole. Group selection, according to Rosenberg, directly affects social structure and organization. Through analysis of group selection and the factors that influence it (such as environmental conditions), evolutionary archaeologists may attempt to explain cultural complexity.

In Chapter 2, Marcy Rockman attempts to address the connection between cultural evolution and the biosphere using the landscape-learning model to link environmental knowledge to foraging strategies. However, this discussion falls short on mak-

ing a tangible connection between individual choice, resource limitations, and the archaeological record. Landscape-learning relies on behavioral flexibility, and accounts for unpredictable environmental factors, but it does not consider unpredictable responses to normal environmental conditions.

The final chapter in part 1 is a case study on societal complexity in western Arctic prehistory designed to confront the concepts discussed in the first two articles. Mason uses evolutionary theory to deconstruct style and function with the purpose of discerning identity, ethnicity, and cultural relationships. This first section defined macroevolution and cultural evolution in prehistory, and introduced some of the key issues such as handling group variability, human behavior, and environment, and inferring these concepts from artifacts. However, these concepts are difficult to consider without accounting for the unpredictable nature of human behavior.

The second section, entitled "Macroevolutionary Approaches to Cultural Change," is a series of case studies that apply evolutionary theory to archaeological examples. The first article by Anna Prentiss explains socioeconomic strategies among complex hunter-gatherer communities in the Pacific Northwest. Specifically, Prentiss describes two periods in the Mid-Fraser (Northwest Interior Plateau) region where dramatic changes sparked the emergence of new socioeconomic strategies—the collector and complex collector strategies (see Binford 1980), which emerged first in the coastal and riverine areas and moved into the interior plateau of BC. Prentiss attributes these socioeconomic changes to alteration of foraging strategies, human fitness levels, and underlying cultural norms. Interestingly, Prentiss moves past these scales of measurement to include variables not included in traditional macroevolutionary perspectives, such as labor integration, social arrangements, land-use pattern and range, and changes in the relationship between humans and their environment.



The next case study takes the reader to the Zapotec region in the Mexican state of Oaxaca to study the transition from chiefdom to state. Charles Spencer applies the morphogenesisist model of primary state formation to explain the rise of Monte Alban from Early Monte Alban I phase to Late Monte Alban I phase. The morphogenesisist model applies the principles of cell growth and cellular differentiation from developmental biology to explain the process of cultural evolution. Using this perspective, Spencer creates a gradual picture of state formation, in which, almost imperceptibly, chiefdoms become states. The application of the morphogenesisist model in conjunction with an adaptive landscape model provides another interesting combination of models in which to explain cultural evolution. As Spencer suggests, pursuing analogy between biological and cultural evolution in isolation is not constructive—instead researchers should use two explanatory models to address cultural transitions. In this case, Spencer combines macroevolutionary theory and the morphogenesisist model to analyze the emergence of Monte Alban as a primary state within an adaptive landscape. Using multi-perspective approaches, researchers can explore the complexities of socioeconomic transitions by looking at the risks, costs, and potential benefits involved.

In the final contribution to this section, Melinda Zeder addresses a long standing question in archaeology—the emergence of agriculture in the Near East. Zeder applies selectionist evolutionary archaeology, microevolutionary archaeology, and human behavioral ecology to cultural evolution. She then applies the tenets of each to the transition to agriculture from hunter-gatherer lifeways. Predictably, she concludes that each of the models provide certain benefits to understand cultural change but, also predictably, all of them fall short because of their tendency to over emphasize biological underpinnings and their literal application of biological evolutionary theory to human behavior.

This second section applied different aspects of macroevolutionary theory (human fitness, landscape models, and morphogenesisist theory) to explain transitions observed in the archaeological record at both the state level and among complex hunter-gatherers. While these discussions

provided interesting perspectives and analogies to explain cultural evolution they do not address why groups react with these behaviors. Instead, these models classify numerous cultural groups together, and use one perspective to explain cultural change for all of them.

The third collection of chapters in this volume is largely concerned with three variables: cultural diversification, stasis, and extinction and their roles as macroevolutionary processes. Opening this section, James Chatters explores the idea of stasis in the archaeological record of the Mississippian complex. Problems quickly become apparent with Chatters' early statement, that "change in higher level entities is a very rare event." This is highly unlikely and based on an overgeneralization of a limited data set of cultures represented by the archaeological record. Perhaps it is more realistic to recognize that change may be occurring at higher levels, but archaeologists cannot detect it. Chatters expands his discussion by introducing the "resource management strategies" (RMS) perspective. RMS is used as a tool to measure selection and human fitness levels, by analyzing the physical traces of these behaviors (artifacts, patterns of associated artifacts, soil stains, and seasonal patterned floral and faunal materials).

RMS are used in the following chapters by Prentiss and Michael Lenert to explain cultural stasis and change in Arctic prehistory among the Pre-Dorset, Dorset, and Thule groups by analyzing artifact types and foraging strategies. Specifically, the authors are concerned with the periods of material stasis, during which cultures remain unchanged in the archaeological record. Despite the obvious problems with the concept of cultural stasis observed within a representative sample of the past, the authors explain that these three groups are not different populations, but the same cultural group undergoing long periods of cultural stagnation. The apparent breaks that have been misclassified as new groups are, in fact, the results of cultural transition or evolution. Ian Kuijt and Prentiss make this same argument in the following chapter about cultures in the Near East.

The volume's conclusion draws the major contributions together while defining evolution and creating parallels between biological and material culture

systems. Robert Bettinger reiterates the importance of macroevolutionary theory by presenting his version of the paradigm, which favors the fitness landscape perspective. Macroevolution, Bettinger argues, is the only paradigm that separates cultures into meaningful units by which they can be measured. However, he fails to address how one theoretical perspective can be so malleable to apply to human behavior worldwide.

When applied to archaeological queries, macroevolutionary theories about cultural evolution are well suited to explain overarching trends in human behavior as they appear in the archaeological record. However, even with the new research and perspectives included in this volume, evolutionary theory continues to struggle with the same basic considerations as other paradigms. These conundrums of the evolutionary perspective resonate strongly when researchers attempt to explain significant transitions within groups, e.g., state formation and hunter-gatherer foraging strategies. The major problems inherent in this theoretical stance include disregarding the preferences and actions of individuals in favor of the group, lack of consideration of factors which influence or cause cultural change, limitations of the archaeological record in terms of its representational sample, the failure of this perspective to consider the equifinality of the archaeological record, and the underlying assumption that all human groups are unconsciously striving to reach an idealized socioeconomic climax. Although this book is a significant and impressive contribution to evolutionary studies of cultural change, it propagates rhetoric inherent in this rigid perspective on dynamic variables like human behavior and the environment.

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